

Electric Railway Journal

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A Car-Less Town of 200,000 Inhabitants

THE Toledo Railways & Light Company took the only course possible on Nov. 9 when it stopped service in Toledo after the city had voted to support the Council in its franchise position. The failure to reach a settlement of the franchise situation in Toledo has certainly not been the fault of Mr. Doherty. In other cities his aid in connection with creative business enterprises is eagerly sought, but in Toledo there has been an element which has been unwilling to settle the traction question on any business basis. As its franchise had expired, the company decided that it could no longer continue to carry passengers at less than cost, and so withdrew its cars.

Much has been said in the past in some quarters about the supersession of the railway by automobiles. Toledo is known for its extensive output of automobiles, so that it is in an excellent position to test the merits of automobile and jitney transportation instead of trolley cars for the entire traffic of a city. Railway managers will watch the experiment with interest during the coming winter.

"Off Again" in Denver

THEY say the principal mental gymnastics for residents of Denver these days consists in guessing what the street car fare will be the following week. In the good old days the railway company functioned very well on the 5-cent basis. Then as costs went upward the people considerably voted for a 6-cent fare to meet the new expenses. Again it was necessary to boost the price a cent higher, but this time the people rebelled and the fares went back to 6 cents and then to the old nickel basis. Then came the War Labor Board wage scale and the necessity for additional revenue to pay it. A strike, a settlement, a temporary restoration of the 6-cent fare quickly followed.

A few weeks ago the elastic 6-cent fare ordinance failed of passage at the general election, and under the terms of an agreement with the city the fare reverted to 5 cents. This meant also that the company was authorized to cancel its wage schedules and the employees were notified that this would be done. More strike talk and another appeal of the company for help! As conditions now stand the City Council must grant a 6-cent fare or the citizens will again be deprived of local transportation. If the employees win their demand for a still higher wage the rate of fare must be advanced even above the 6-cent level.

We commented on the Denver situation last July as

comparable to the adventures of our old friend "off again, off again, Finnegan." The "mile high city" must be seeking an unenviable reputation for treatment of investors. It would appear to be about time that those who have the interests of Denver at stake should come down from the clouds around Pike's Peak and take notice of the fact that laws of economics are no different there. The traction nickel is no bigger there than elsewhere. It will not stretch any more on the street car than in the corner grocery. Wake up, Denver!

Wages Depend Primarily on Rate of Production

IT WILL be interesting to see how the Federal Commission deals with the labor problem when making its report on the electric railway situation next month. The representative of organized labor stated repeatedly at the hearings that his clients were asking for a recognition of certain principles rather than the fixing of specific increases in wages. He, of course, knew that this was all the commission could possibly do. He admitted that a carrying out of these principles would very materially add to the cost of operation, but he was insistent on a recognition of the "bill of rights for democracy in industry" even if it meant that the railways would thereby be placed in the hands of receivers.

Much was said about the "increasing productive efficiency of motormen and conductors," but the labor representatives found it hard to make their claims reconcile with their denunciation of the Philadelphia plan of cooperative effort. They called this a "form of corporation feudalism" and declared the "paternalism of the company was offensive to self-reliance." The fact that commendable results had been obtained through the Philadelphia plan meant nothing to them. They had insisted that "more contented employees would take a keener interest in making economies," but where the Amalgamated Association could claim no credit for results on a certain property they could see only a menace to their organizing activities. If we remember correctly organized labor was never very keen for what it termed "the stop-watch methods of efficiency experts."

Mr. Lauck, in speaking for the labor element at the Washington hearings, admitted that the employees were anxious to have the industry rehabilitated and made prosperous. He conceded that his clients as well as the general public were dependent on street railways for their livelihood and could not permit them to cease operation. Why

then should his colleague from Cleveland complain because "men who formerly made eight trips for ten-hours pay now had to make nine trips and were paid less per trip"? Would these union representatives have street railroading put on a "piece work" basis? Why should they pick out a system where the wage scale is among the highest in the country and denounce efficiency methods which make possible a low rate of fare? Surely the employees will get nowhere with such contentions.

The members of the Federal Commission undoubtedly expected to have a helpful constructive program presented by the labor representatives. In making their report they will want to deal fairly with the railway situation as affecting the public, the employee and the investor. No one would make any serious opposition to the claims of employees for proper working conditions and a suitable wage scale. However, no burdens can be imposed which the traffic will not bear, and the commissioners are not likely to make recommendations which will impose too heavy a burden on the traveling public. The investor is asking only a reasonable return and is willing to co-operate with the highest possible efficiency of management. The employee should not ask more nor expect to do less.

Passenger Locomotives for St. Paul Cascade Electrification Ready for Service

WHILE the locomotives which were exhibited before a notable gathering of railroad men at Erie, Pa., on Nov. 7 represent a logical development in the field of direct-current equipment, they also embody several novel ideas. They may be said to be of a composite design or type, evolved from the experience of the manufacturers in connection with the New York Central and earlier St. Paul machines. We hope at an early date to be able to take up a number of the technical features of the new type of locomotive in some detail.

Among other features which attracted attention at Erie, one was the provision for permitting sidewise motion of the ends of the body with respect to the end trucks, the weight being carried upon rollers. Another was the way in which the heater cab including its contents, is installed as a unit and hung from the operating cabs. It can thus be lifted off intact and replaced. Again the motor ventilation was considered rather unique in that a fan is placed directly over each motor, the fans being motor-driven in pairs, with a fan on each end of a motor shaft. This gives an air circuit much shorter than in the earlier locomotives and the result shows in a low motor temperature under sustained load.

In the new locomotive the bipolar type of motor, used successfully for many years on the New York Central, was adopted in the interest of simplicity. This permits the use of a gearless drive in which the motor armature can be dropped out between the pole pieces without disturbing the field in any way. It also makes possible a series arrangement of the field poles with the entire locomotive serving as the return magnetic circuit, thus conducing to weight economy in the locomotive.

Of course this simplicity carries with it a number of compensatory disadvantages, the effects of which have to be minimized as far as possible. For example, a large air gap between armature and pole surfaces must be allowed, and the pole areas are smaller proportionately than in standard motors, to provide clearance for getting the armatures out. This in turn entails high field magnetomotive force—in other words, many ampere-turns. The field coils obviously must contain much copper. In regeneration also a considerable field current must be supplied to the motors, in this case eight out of twelve, which are acting as generators. Again, the mounting of the armature upon the axle lowers the center of gravity of the locomotive, and subjects the armature to a certain amount of jarring action.

By way of mitigation of these handicaps the designers of the locomotive have shown no small ingenuity. For example, four of the motors have been utilized in regeneration to furnish the exciting current, thus rendering unnecessary a large motor-generator set which would have been required if the plan used on the earlier St. Paul locomotives had been adopted. Further, the center of gravity has been raised fairly high by placing much of the auxiliary equipment as far above the wheel treads as possible. As to the durability of the armature, the New York Central's experience proves that on first-class track, at any rate, armature maintenance is a very small item in the year's expense account.

Referring to the size of the field coils, it must be remembered that these are carried on the spring-supported part of the locomotive and the only dead weight is that of the armature which is built directly on the axle. This construction reduces considerably the dead or non-spring-borne weight which in the gearless locomotive is approximately one-half that of the geared locomotive now in operation.

The center of gravity of the gearless locomotive as a whole is about 6 in. lower than that of the geared units. However, the G. E. engineers maintain that the effect of location of center of gravity upon the riding qualities of the locomotive is of secondary importance as compared with the question of proper design of leading and trailing trucks. By such proper design a movement of the front and rear ends of the locomotive can be obtained at high speeds which reproduces the effects which on the locomotive are attributed to the high center of gravity. This claim appears to be justified by the results of the tests, as the locomotive exhibited remarkably smooth riding qualities up to speeds of 65 m.p.h.

Design problems and their solutions other than those suggested above will be taken up in due course. The purpose of this comment is simply to indicate where the new locomotive stands in respect to its predecessors. If the testimony of the speakers at the dinner which followed the Erie demonstration is taken at its face value the completion of these machines is a real achievement. It is also highly creditable to the Erie works of the General Electric Company, barely eight years old, which built their mechanical as well as electrical parts.

The Coal and Other Strikes

A NOTABLE difference in the attitude of the general public towards strikes is apparent not only on the street but at elections and in Congress. It does not require a keen analyst of public opinion to discern that the country as a whole is getting very tired of the ceaseless stoppages of work to enforce higher pay and exasperated as well at the reduced production and the higher cost of living thereby entailed. Formerly, there was considerable sympathy, independent of the merits of the strike, for the "poorly paid" workman. Most people realize now, however, that during the past three years the income of the so-called workman has increased by a much larger percentage than that of the great body of other citizens, most of whom also work for their living. It is with a feeling of satisfaction, therefore, that the vast body of the American people have viewed the attitude taken by the administration in the prevalent coal strike. This with the result of the election in Massachusetts is sufficient proof that no body of American citizens is more powerful than the government.

In the case of the printers' strike in New York, the many letters which we have received and are constantly receiving prove that we have the support of our readers in resisting unreasonable demands. We shall continue to use the facilities of an out-of-town printing office until conditions in New York have returned to normal.

Another Attempt with the Zone Fare in New Jersey

THE Public Service Railway, with creditable spirit, has accepted the revised schedule of zone fares recommended by the Public Utility Commissioners, of 5 cents for the first two zone-miles and 1 cent for each additional zone-mile, with 1 cent for a transfer. While the company points out that these rates are very low it pledges its utmost to make the plan a success and to this end earnestly solicits the co-operation of the public with whom, it says, the ultimate decision will rest. Both commission and company deserve great credit for these continued efforts in the employment of distance tariffs. That is the direction in which the electric railway fares of the future, at least for large systems, lie, although considerable experimentation may be necessary before the proper basis for fares is determined.

Where any zone fare is established we urge upon the commission having jurisdiction the adoption of a liberal policy toward the company in regard to the actual rates. As the powers of a commission to reduce fares if they produce too large a return to the company is recognized, such a policy cannot cause any injustice to the public. At the same time it will encourage the companies, and after all they are the ones on whom the responsibility for carrying out any plan depends and theirs is the pecuniary loss if it proves a failure. Such a liberal policy is more than ever important now when the best method of increasing the average electric railway fare is surrounded with so much uncertainty.

Five Cents Will Pay for Only a Five-Cent Ride

A N UNFORTUNATE controversy has been spreading through the country in the past few months, precipitated by misinterpretation of statements given out to show the results which had been secured in Philadelphia on a so-called 5-cent fare. While some persons considered these statements sufficiently answered by calling attention to the fact that the 3-cent charge for certain transfers in Philadelphia makes the average fare per passenger almost 4 cents, the fact remains that this is not a complete reply and undoubtedly much harm will be done if the impression is left in the public mind that if one large system can give satisfactory service for a 5-cent fare there is no reason justifiable why other traction companies should charge more for similar service.

The statement of Mr. Mitten was discussed at length during the hearings before the Federal Commission in Washington. A very intelligent answer was presented by J. D. Mortimer, who contended that the reasonableness of the present revenues of the Philadelphia company at a 5-cent fare with a charge of 3 cents for a transfer could only be determined by making an analysis of the cost of service. This statement was printed in our Report Number of Oct. 11.

In this week's issue of this paper we quote at length from a statement given out by President Leonard A. Busby of the Chicago Surface Lines in which the fare situation in Chicago, Philadelphia and Cleveland is treated from a different and very interesting angle. Mr. Busby shows that the so-called 5-cent fare in Cleveland means an average fare per passenger 7 per cent below that of Philadelphia, and the 7-cent fare in Chicago also means an average fare per passenger lower than the much talked of 5-cent fare of Philadelphia.

President Busby does not let his comparison of conditions in these three cities rest on this showing alone. He points out that the average length of ride varies greatly, the advantage for the passenger being with Chicago. He also refers to the much heavier public burdens, such as cleaning, sprinkling and paving of streets, and city compensation, which is a special charge carried by his company, and its more liberal allowances for wages, maintenance and renewals.

Even with these favorable arguments for higher fare in Chicago, however, Mr. Busby, makes it clear that a standard established on conditions peculiar to one city cannot be made generally applicable. "The question in every city," he says, "is revenue sufficient to meet operating expenses and pay a fair return on the investment. A rate of fare which does not do this fails to meet the cost of service."

Members of the Federal Commission, whose forthcoming report will undoubtedly have an important effect on public opinion, had an unusual opportunity to consider the influence which local conditions must have on a rate of fare. It is suggested that, in reaching their final conclusions, they would find a helpful exhibit in the comparisons made by Mr. Busby.



THE FIRST OF BROOKLYN'S NEW SAFETY CARS

Safety Cars for Brooklyn

The Structural Details of the Car Body and Platforms Are Practically Those of the Previous Standard Safety Car—A New Truck and New Motors Have Been Developed and Some Improvements Incorporated in Other Equipment Parts

AS ANNOUNCED in the news columns of this paper for June 14, 1919, the Brooklyn Rapid Transit Company just previous to that date placed an order for 200 safety cars with The J. G. Brill Company, of Philadelphia. The order was for cars completely equipped excepting the registers and fare boxes. At the time of placing the order, the type and make of the equipment had not been definitely decided on other than that it should be furnished to meet the railway company's specifications. The details of the equipment are now available, and consist of the specific apparatus shown in Table I.

TABLE I—SAFETY CAR EQUIPMENT

Motors	100 equipments General Electric type 264-A, and 100 equipments Westinghouse No. 505-E 10.
Control equipment	K-63.
Air brakes and safety car control equipment	Safety Car Devices Company.
Trolley stands	Nuttall No 11 ball-bearing complete with B. R. T. standard 13-ft. trolley poles, harps and wheels.
Lamp receptacles	General Electric, special B. R. T. standard keyless locking receptacles.
Headlights	Dayton Manufacturing Company.
Notice frames	B. R. T. standard.
Trolley catchers	100 equipments, Ohio Brass Company, and 100 Earll.
Life guards	H. B.
Ventilators	Railway Utility Company.
Heaters	Gold Car Heating & Lighting Company, each equipment consisting of ten cross-seat heaters No. 405-E and two truss-plank heaters No. 448-E.
Heat-regulator equipment	Railway Utility Company.
Seats	Brill Company, "Waylo" slat.
Buzzer equipment	Consolidated Car Heating Company.
Side and end routing signs	Hunter.
Sash locks	O. M. Edwards, 13½.
Trucks	Brill No. 79-E.
Slack adjusters	Gould Coupler Company.
Fare boxes	Vogelsong.
Safety panels	Kranz Manufacturing Company.
Sanders	Wyoming.

In the car construction very few changes have been made from the standard double-end safety type of car manufactured by the Brill Company. Practically all the changes have been brought about by a desire of the Brooklyn Rapid Transit Company to use fittings, accessories and auxiliary equipment that are already standard for the B. R. T. system to provide a construction with as few pockets as possible where dirt can accumulate, and to incorporate some changes which the engineers of the manufacturer considered desirable to increase the popularity of safety cars and provide greater safety in their operation. The cars will have straight sides, round ends, arched roof, double sash, stationary top sash, lower sash arranged to raise, platform floor on the same plane as body floor, floor strips over the entire floor including the platform and space between the cross-seats, and standard folding doors and steps.

Some of the general dimensions of these cars are shown in Table II, on page 785.

The over-all length of these cars is 3 in. greater than the standard safety car previously constructed. This was increased at the suggestion of the manufacturer in order to increase the width of each end buffer 1½ in., as was considered desirable in order to afford greater protection to the door and step mechanism in case of collision or the bumping of street traffic. This increase of 1½ in. in the buffers is carried across the entire end, but the sides are beveled off to prevent interference with street traffic and the catching of wheel hubs, and to eliminate pockets.

The roofs of the cars are to be in three sections, the two ends being separate from the center. These sections are to

TABLE II—PRINCIPAL DIMENSIONS OF BROOKLYN SAFETY CARS

Length over all	28 ft. ½ in.
Length over dashers	26 ft. 9½ in.
Length of platform over dashers	4 ft. 6 in.
Length over body corner posts	17 ft. 9½ in.
Width over sheathing	7 ft. 8 in.
Width over all	8 ft.
Distance rail to top of floor	Not more than 2 ft. 4½ in.
Distance rail to top of roof	9 ft. 10½ in.
Maximum height over trolley bridge	Not to exceed 11 ft. 5 in.
Maximum height over trolley stand	Not to exceed 11 ft. 11 in.
Seat spacing	2 ft. 4½ in.
Post spacing	2 ft. 4½ in.
Distance floor to top of window rest	2 ft. ¾ in.
Distance floor to bottom of top sash	4 ft. 2½ in.
Distance floor to point of arch	6 ft. 6 in.
Width of exit and entrance door in the clear	2 ft. 6 in.
Aisle width	22 in.
Height running rail to top of step	Not to exceed 15 in.
Distance step to top of floor	13½ in.
Seating capacity	32
Diameter of wheels, new	26 in.

be built so that the joints of the boards will overlap. This staggering of the roof boards is provided to give a more secure and stronger construction.

Some of the other modifications made from previous construction are these: The water table is pressed as an integral part of the letterboard; the side posts are extended down over the side sill; crown pieces are substituted for the dasher angles and furring previously used for the floor supports; belt rails, ¼ in. x 1¾ in., are used instead of drop-
per bars, and the sash rack of the motorman's window has been changed slightly to provide a tighter fit and to prevent rattling.

The floor strips over the entire floor are arranged longitudinally in the aisle and across the car between the seats. A vestibule curtain is provided to keep the light from interfering with the motorman's vision. This is of sliding type with a total depth of 43 in.

The seating arrangement is standard, but the seat construction is one recently developed by the Brill Company.

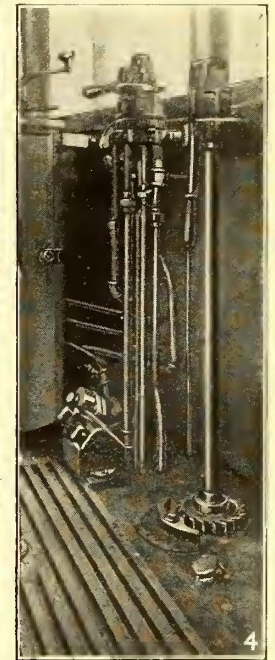
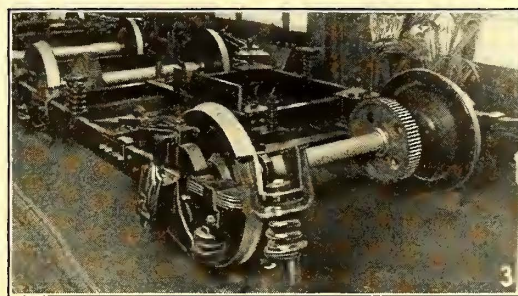
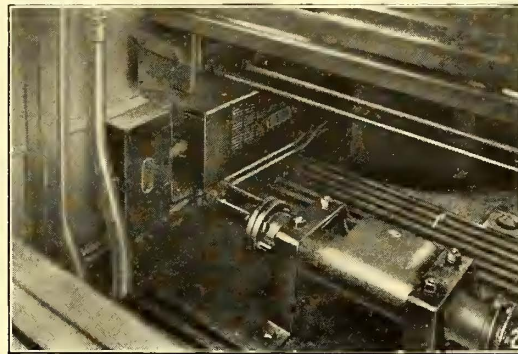
cherry slats is installed on the platform directly in front of the right vestibule window. The cushion is hinged and arranged to fold up when not in use. There is also one passenger seat with hinged cushion installed on the left-hand side of the motorman's seat on each platform. The motorman's seat is of the cross-seat type with reversible back so that it can be used by passengers when not required at the front end of the car. The construction provides for a raising of the seat cushion so as to increase its height when used by the motorman.

In the painting of the car it is not intended that any striping or decoration of any kind shall be applied. The lettering and numbering will be confined to the simplest arrangement possible.

SOME DETAILS OF CAR EQUIPMENT

The trucks are of an entirely new type developed by the manufacturer and called Brill 79-E. These are of all-steel construction with solid forged side bars, entirely free from bolts, nuts and rivets. They are designed to carry 75 per cent of the weight at the ends through one-quarter elliptical springs. The wheelbase is 8 ft., with the wheels of 26-in. diameter and 2½-in. tread, having a flange ⅝ in. deep and 1 in. thick. The axles are of hammered steel with a 3-in x 6-in. journal. The wheel seat is 3¼ in., the gear seat 4 in., and the motor bearings 3¾ in. long with 48 in. between wheel hubs. The truck frame is spring suspended, and in addition to providing for friction bearings the journal boxes are arranged so as to provide for easy removal.

In the ELECTRIC RAILWAY JOURNAL of Sept. 22, 1917, page 531, the usual equipment for light-weight safety cars was described. Only essential features or changes from that previously described are given in the following:



SAFETY CARS AND EQUIPMENT DETAILS. 1. INTERIOR OF CAR. 2. DOOR AND STEP CONTROLLER AND TRUSS PLANK HEATER INSTALLATION. 3. NEW TYPE TRUCK. 4. BRAKE VALVE PIPING AND FOOT VALVE INSTALLATION.

There are eight reversible cross-seats each side of the aisle, one being on the platform for use by the motorman at the front end. These seats are 34 in. over-all length and with pressed-steel pedestals and ends. The seat cushions and backs are of cherry slats, the seat backs being provided with bronze grab handles of the corner type, the cushion being stationary and does not change position with the position of the back. There is to be no opening between seat and back. The seat construction provides for the use of cross-seat type of heaters. A seat back and cushion made of

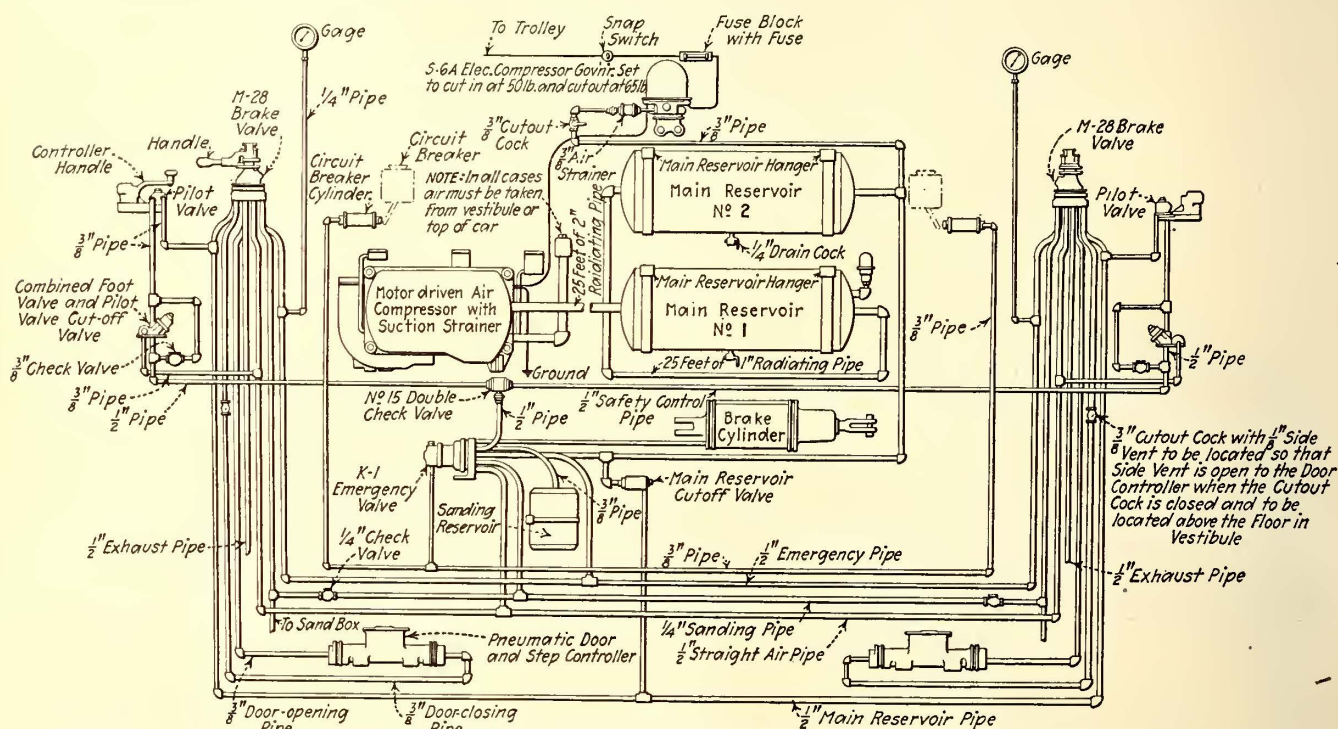
The usual air-brake and door-step operating equipment is furnished by the Safety Car Devices Company. Much time was spent by the engineers on the arrangement of the piping and the location of the apparatus to make the layout as simple as possible and to prevent any liability of freezing. All piping is carried inside the car, except where other construction is absolutely necessary. Special precautions have been taken in regard to the drainage of the pipe and all pockets are avoided. Whenever it has been necessary to change the size of pipe, precautions have been

taken to prevent rapid expansion of air which would cause freezing. The underlying principle of all this work has been to produce equipment with as great reliability or safety as it is possible to provide.

Cooling coils are arranged on both sides of the main reservoirs, which are two in number, and the pipe from the compressor to the first main reservoir is increased from 1 in. to 2 in. diameter before it enters the reservoir. Experience has shown that this is a point at which freezing is liable to occur, and this increase in diameter is an attempt to prevent any rapid expansion which might take place in the air. All air equipment having automatically moving parts is placed inside the car, the only equipment which is carried underneath being compressors, main reservoirs and brake cylinder.

The operation of the brake valve and its various operating positions are like those of the braking equipment previously described. The first position to the right of the "handle-off" position is now called the "door opening and brake maintaining position." With the handle in this

To insure that sand will always be applied to the rails whenever an emergency application of the brakes takes place, no matter how initiated, air is admitted from a sanding reservoir to the sand pipe through an emergency valve. This sanding reservoir is normally kept supplied from the main reservoir, and its use adds materially to the safety of the equipment in three important respects: First, it insures the sanding of the rails automatically for every emergency application of the brakes. Second, it removes the danger of decreasing the main reservoir pressure through blowing of air into the sand trap after an emergency application of the brakes. Third, this sanding operation will start as soon as the emergency valve moves, which insures that sand will be applied to the rails before the brakes are applied and should prevent the sliding of the wheels in case the rails should be at all slippery. The rails also are continuously sanded until the stop is made, which adds materially to the efficiency of the stop. As the sanding reservoir is of fixed volume, the sand is distributed for the required time of making the stop with-



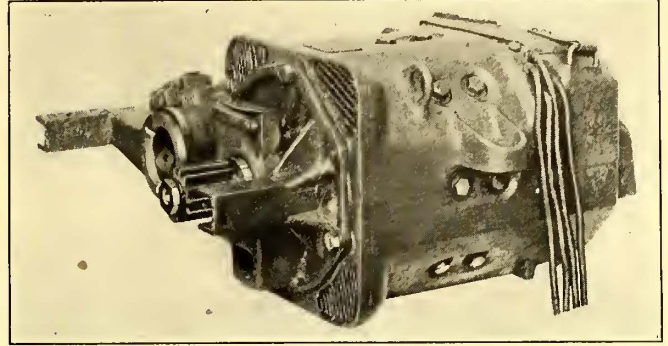
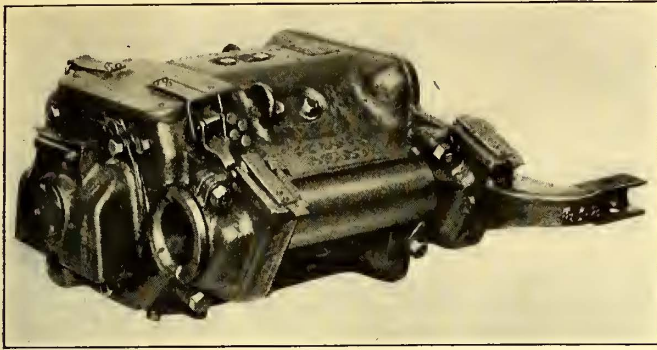
PIPING DIAGRAM FOR DOUBLE-END SAFETY CAR

position connections are provided for opening the doors and the brakes are still held applied. The addition of this maintaining port in the rotary valve in the "door-open" position insures the setting of the brakes at the same time that the doors are opened even though the brakes may not have been applied by the movement of the handle to the "door-open" position. This prevents the motorman from opening the doors without applying the brakes. Previous to the installation of this maintaining port numerous cases were found where motormen would open the door to allow policemen, firemen, or newsboys to drop off without slowing up the car. The emergency position, which is the position of the handle furthest to the right, releases the air from the closing side of the door and step controller so that the doors and steps on both ends of the car can be easily moved by hand. It is intended that the rear door and step be used as an emergency exit in such a case. The brake valve handle is of the familiar hinge type which permits of its use for sanding by merely depressing it in any position.

out danger of an excessive amount of sand being used after the car comes to rest. Sanding operations for ordinary service stops are made by the use of the sanding feature incorporated in the operating valve.

SAFETY CONTROL EQUIPMENT INCLUDES FOOT VALVE

In the description of the controller safety apparatus previously published it is stated that the controller handle should always be held down when the car is in motion. As a temporary relief from this necessity and for the convenience of the car operator, a foot valve is installed in these equipments for operation in connection with each operative end of the car. By gently pressing downward on the stem of this foot valve the connection through the safety control pipe between the relay valve and the emergency valve and the controller pilot valve is cut off. The pressure on this foot valve must be maintained until the car operator is prepared to resume his attention to the controller handle. The foot valve is placed in the safety control pipe, with



GE-264-A RAILWAY MOTOR—AT RIGHT, SUSPENSION SIDE. AT LEFT, AXLE SIDE

one connection leading to the emergency relay valve and the other leading to the controller pilot valve.

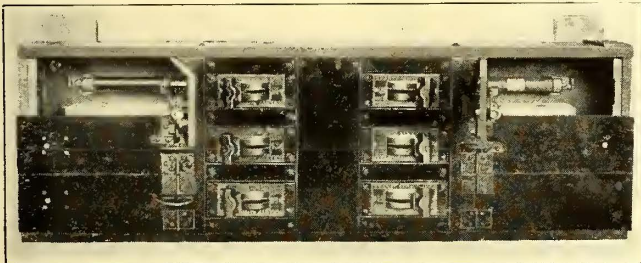
The valve is held off its seat by a spring, thus normally establishing communication from the emergency relay valve to the controller pilot valve. When it is desired to use the foot valve, foot pressure is imposed upon the plunger, which forces the valve to its seat, thus cutting off the communication previously established. Upon release of this foot pressure the spring returns the valve to its normal or open position. Should the hand be removed from the controller handle without making use of the foot valve, an airbrake application of approximately 35 lb. brake cylinder pressure will be made and the relay valve of the emergency valve will be unseated. This causes the circuit breaker cylinder to operate the circuit breaker and thus cut off the power from the motors. It also causes an emergency brake application together with the distribution of sand to the rails and the removal of air pressure from the door-closing side of the door and step controller. This balances the air pressure in this controller so the doors and steps may be operated by hand if required.

In the construction of the combined foot and cut-off valves, provision is made whereby the protection valve will lift when a straight air-brake application is made with a pressure of 35 lb., permitting straight air pressure to close off the control pipe. This permits the operator to remove his hand from the controller handle without bring-

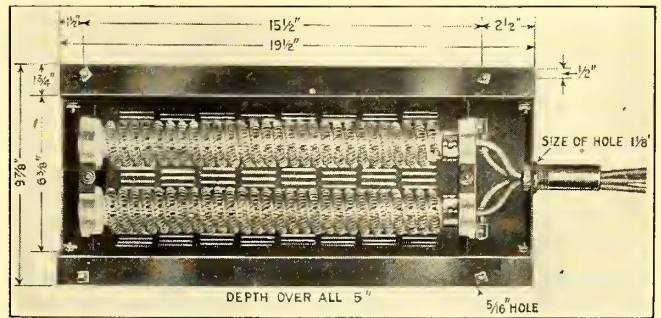
ing on an emergency application of the brakes, as is convenient for drifting down grade or when completing a stop. With the brake applied in this manner, if for any reason the brake cylinders should leak to a pressure of 15 to 18 lb., the protection valve will shift and automatically bring on an emergency application of the brakes.

The main reservoir cut-off valve is another safety precaution installed in the main reservoir pipe leading to the brake valves located on their respective platforms. The object of this device is to insure main reservoir supply of air pressure for the brake cylinders in the event of an accident of such a nature as to break the pipe on either platform. The connection for supplying main reservoir pressure to the brake cylinder is taken off before reaching the main reservoir cut-off valve. Such an accident as would break the piping on the platform or underneath the car would cause the emergency valve to operate and would insure the availability of a proper supply of main reservoir pressure for use in the brake cylinder.

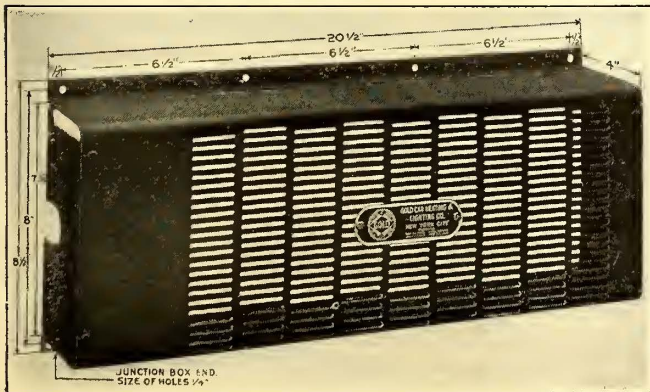
Among the recommendations of the manufacturers for the maintenance of the air-brake equipment is included one to the effect that but one brakeshoe be changed at a time. This recommendation came about as the result of a series of tests which showed a loss of 37½ per cent retardation on a safety car due to the change to new shoes, although these shoes had already been "broken in" with five days wear at the time the test was made. The fact is that on account



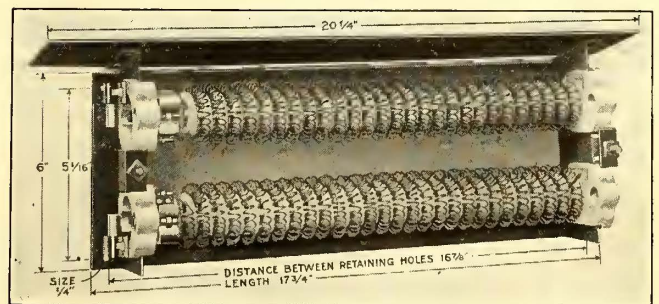
NEW TYPE SAFETY PANEL



INTERIOR OF CROSS-SEAT HEATER

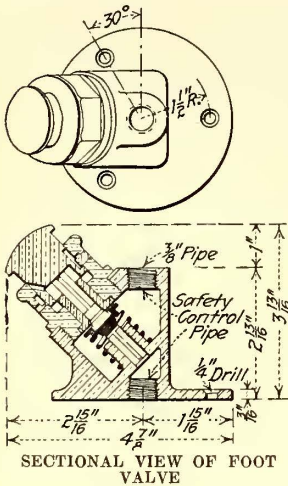


NEW TYPE OF CASE FOR TRUSS-PLANK HEATER



INTERIOR OF TRUSS-PLANK HEATER

of the light shoe pressure used with safety cars it takes more time to wear the shoes to the proper wheel bearing, and to wear off the hard outer skin of the shoes than is the case on heavier cars. In view of this loss of braking power



the manufacturer has recommended that properties operating safety cars make shoe renewals one at a time as far as possible, allowing several days between successive replacements. This situation has been taken up with the brakeshoe manufacturers and their attention called to the excessive variation in new and old shoe performance, with the idea to having this variation reduced to a minimum.

The motor equipment for these cars consists of 100 equipments of GE-264-A motors and 100 equipments of Westinghouse 560-E-10 motors. Both manufacturers are furnishing

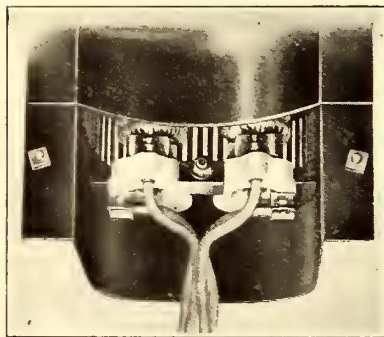
a box-frame, commutating-pole, self-ventilating type of motor. In the specifications for these equipments the manufacturers were furnished with the dimensions and approximate weight of the cars and additional operating data and information as given in Table III.

TABLE III—SERVICE REQUIREMENTS

Diameter of driving wheels, new.....	26 in.
Diameter of driving wheels, worn out.....	24 in.
Estimated total weight of car completely equipped but without passenger load.....	16,250 lb.
Estimated maximum passenger load.....	8,950 lb.
Estimated average passenger load on which speed graphs were based.....	24 passengers at 140 lb. each.
Trolley voltage, minimum.....	400 volts.
Maximum.....	650 volts.
Average.....	550 volts.
Schedule speed.....	9 m.p.h.
Number of stops per mile.....	10
Average rate of acceleration.....	1.75 m.p.h.p.s.
Average rate of braking.....	2 m.p.h.p.s.
Duration of coast.....	Not less than an average of 10 seconds for each 528 ft.
Average duration of stops.....	8 seconds.
Radius of sharpest curve.....	29 ft.
Maximum grade.....	5.3 per cent.
Length of maximum grade.....	1200 ft.; being a portion of a continuous grade of approximately 4,000 ft.

The motors were required to operate at voltages between 300 and 750 without damage to any part, and to withstand without flash-over or puncture the momentary surges in potential that occur on the system.

Additional details of motor construction requirements were the following: Motors to be outside hung, and to



CONNECTION END OF CROSS-SEAT HEATER

have a single nose suspension with a removable wearing plate. All motor leads and internal connecting wires to be secured to the shell by cleats fastened with tap bolts and lock washers. Armatures to be constructed to withstand a car speed of 35 m.p.h. without damage to any part when the wheels are worn to 24 in. in diameter. Armatures to be constructed so

that the shafts may be removed readily without disturbing the commutator or winding. The banding of the armatures to be flush with the core and wrapped over a continu-

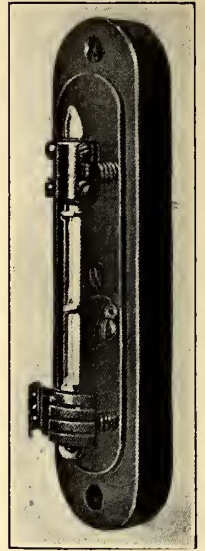
ous strip of tin held with sufficient clips and soldered with pure tin. The field coils to be made of copper straps thoroughly insulated and impregnated, and finally coated with a compound having a melting point above 135 deg. C. Brush-holders are designed to permit of 1/2 in. radial wear of the commutators, and provision to be made for the adjustment of brush tension from 3 to 10 lb. in steps of 1 lb. each. The brush-holders to be designed so that the brushes are staggered on the commutator. The gear cases furnished to be made of sheet steel in one piece.

The GE-264-A motor is similar in all respects to the GE-258 motor, which has been largely used with safety cars. It was designed to meet the preference of some customers for a motor of this size equipped with the standard type of sleeve bearings with oil and waste lubrication, instead of ball bearings. This necessitated the use of a different frame and resulted in the development of the 264-A motor. A five-turn armature is used with the new motor, which was adopted to give a low-speed armature. A special feature is the low power consumption obtained in the class of service specified.

The use of a safety panel in these cars is a new departure in safety car construction. All switches and fuses in the light, buzzer, compressor, register and heater circuits are mounted on this 600-volt panel. It is of the Westinghouse-Krantz safety type and is somewhat similar in design to panels previously used in the new subway cars and stations of the Brooklyn Rapid Transit and New York Municipal Railway systems. The panel is mounted above the vestibule window within easy reach of the operator and controls the electrical circuits of the car as shown in the accompanying diagram.

The switches are all single-pole and, with the exception of one, are all single-throw. The switch controlling the light transfer circuit is double-throw to take care of transfer of light from the front to the rear headlight as is necessary for double-end operation. All switches are double-end, double-brake, quick-break, brush-type with brushes protected by arcing contacts at each end.

Each switch is mounted on a separate bakelite micarta panel covering an individual compartment, insulated from each adjacent compartment by means of molded asbestos composition barriers. These act as arcing shields to prevent the arc formed upon opening a switch from communicating with an adjacent circuit. Fuse connections for National Electric Code fuses are provided in compartments separate from those of the circuit switches. The cover or door over each fused compartment is interlocked with the



NEW TYPE THERMOSTAT

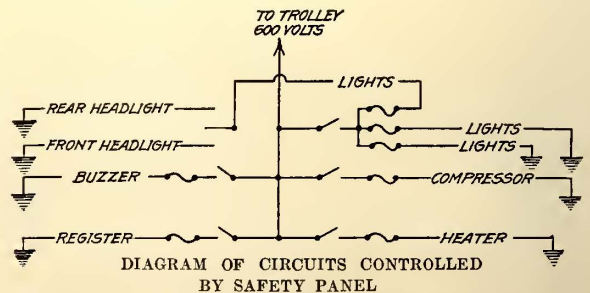


DIAGRAM OF CIRCUITS CONTROLLED BY SAFETY PANEL

corresponding switch mechanism so that it can be opened only when the switch is in the off position and the fuse contacts dead. This thus provides safety to the operator in case it is necessary to replace the fuses. The use of

this panel is an additional safety precaution to the already large number of safety devices for this class of equipment.

TRUSS PLANK AND CROSS-SEAT HEATERS USED

The heater equipment of these cars consists of ten Gold Car Heating & Lighting Co.'s interchangeable deflector cross-seat heaters No. 405-E and two truss-plank heaters No. 448-E. Each of these types of heaters has two coils per heater, and the supports with resistance coils are interchangeable. It was necessary to have twelve heaters per car so that a coil temperature of 450 deg. Fahr. per coil would not be exceeded. The cross-seat type of heater would have been used throughout except for the fact that only ten seats were available for heaters, as of the total of sixteen cross seats in the cars, four were utilized for sand boxes and two for air apparatus. The location of the truss-plank heaters overcomes the necessity of having a cabheater near the motorman. These heaters provide for a maximum power consumption for heating of approximately 7500 watts. The coils are arranged in two circuits of 3750 watts per circuit on a 550-volt circuit, which allows approximately 7 amp. per circuit. The voltage of 550 is used in calculation, but the coils are required to have sufficient carrying capacity to operate on 600 volts, and the maximum coil temperature is figured on a 600-volt basis with a car temperature not to exceed 60 deg. Fahr. when the test is made.

The seat construction employed, as already described, permits the use of the cross-seat heaters without interference with the heater parts. Also, this type of construction provides easy access to the heater coils for repairs or removal. There is no doubt that a cross-seat type of heater is the most popular with the traveling public, and the use of this type should make safety cars even more popular than they are at the present time. The operating company's engineers also felt that the cross-seat type of heater was much more efficient than the truss-plank heater and was therefore much to be preferred on this account. Experience in Brooklyn has shown that in extremely cold weather passengers have allowed cars to pass which were known to have truss-plank heaters in them, as they preferred to wait for a car with heaters of another type.

The case for the cross-seat heater has a flange along each edge so that no additional hangers are required. The flanges rest on two angles of the seat and are bolted to them. The clearances are so arranged that even should the bolts become detached the heater could not fall to the floor or jar to a position which would be dangerous in operation. The hinged type of seat construction makes inspection particularly easy, as all that is necessary is to raise the seat and remove the deflector plate, when the entire inside of the heater is exposed. The coils with ventilated porcelain cores are constructed in units, so that these can be withdrawn and reinserted as such, and repairs can be readily carried out on the bench of the maintenance shop.

Some of the improvements in heater construction which are incorporated in these heaters consist of the use of terminal spring clips, so that the connecting leads can be quickly withdrawn and inserted whenever it is necessary to remove a coil and to prevent wear and breakage of the ends of the wires, which are furnished with service wire brass tips. The cores of the heaters are of the ventilated type, and are made up of one 3-in. and two 6-in. sections per core. The cores and coils are interchangeable in all the heaters of the car. A space is provided at the ends of the coils into which the leads can be brought in conduits so that the conduits can be brought inside the heater. This type of construction is favored as being in line with the safety precautions taken throughout the entire construction of these cars. In discussing with the manufacturer the

cases provided for these heaters, representatives of the Gold Car Heating Company stated that they had in mind to recommend cases made of aluminum for safety cars. Such a type of construction would be light, and would have other desirable characteristics such as attractive appearance and ease of cleaning. The accompanying illustrations show the details of the construction of the heaters used.

THERMOSTAT OF NEW TYPE FURNISHED

The heat-regulating equipment for these cars will be of a type manufactured by the Railway Utility Company. It includes a thermostat which has recently been developed. The principal changes from the type of thermostat formerly furnished comprise the use of a dust and a tamper-proof cover, of a new method of transmitting temperature changes to the mercury bulb and of a stamped metal and molded base, and the mounting of the thermometer elements on springs. The cover of the thermostat is now made without ventilating perforations, and is clamped down so as to make an airtight joint. The mercury bulb is in contact with a sensitive metal conductor with spring tines. These in turn come in contact with the unperforated metal case, and the car temperature changes are transmitted through these from the cover to the mercury bulb. It is claimed that this new device is much more sensitive than the old one in which a case with slots or perforations was used, dependence being placed on ventilation or the circulation of air to affect the elements. By mounting the thermometer on springs the danger and troubles produced by shocks and vibration have been lessened, and the thermometer made more rugged to withstand rough usage. The base of the thermostat, which consists of molded insulation with a stamped metal base fitted over it, provides a light and attractive type of construction.

Salary Increases Recommended for Railroad Engineers

A report has recently been rendered to Engineering Council by the sub-committee on railroads of the committee on classification and compensation of engineers. The members of this sub-committee are Francis L. Stuart, Frank H. Clark and Bion J. Arnold. The committee points out that on railroads under federal control there has been an increase of the wages of men receiving salaries less than \$2,500 in the classes of draftsmen, tracers, inspectors, rodmen, chainmen, etc. Further effort in this direction, except for the adjustment of the inequalities existing in the various regions, is not recommended at the present time. The committee recommends, however, an increase in the salaries of those receiving more than \$2,500 per annum, in view of the higher cost of living.

Electric Installations in Japan

The director general of electric exploitations, Department of Communications, Japan, has issued a statistical report showing the conditions of electric installations in Japan at the end of 1917, with the exception of Formosa, Korea, Saghalien, and Kwantung. According to this report there is in Japan a single-track mileage equivalent of about 1420, with approximately 4100 motor cars and 450 trail cars, or a total number of cars of nearly 4550. The total mileage of power lines supplying electric traction, and combined electric traction and electricity supply systems is about 10,500. The fixed capital engaged in traction and combined traction and supply system is nearly \$190,000,000, estimating normal rates of exchange on Japanese money. The profits were about \$15,000,000 on these undertakings, and about one-half of this sum was paid out in the form of dividends.

Eighth Annual Safety Congress

Safety Experts Met at Cleveland Oct. 1 to 4—In Addresses by Electric Railway Men Closer Co-operation with American Electric Railway Association was Urged—

R. N. Hemming was Elected Chairman of Section

THE opening session of the electric railway section of the Eighth Annual Safety Congress was held in the club rooms of the Electrical League at the Hotel Statler, Cleveland, Ohio, on Oct. 2 with H. B. Adams, safety supervisor Aurora, Elgin & Chicago Railroad, presiding, and with John H. Cox, chief adjuster Cleveland Railway, acting as secretary. The program of the convention contained six papers by electric railway officials. Abstracts of four of these papers are given elsewhere in this issue. All the papers brought out considerable discussion, but perhaps the greatest interest centered in the proposed plan of Harry Reid to secure the co-operation of all the electric railways in the country in the safety movement by having the American Electric Railway Association adopt some standardized plan for safety work. It was pointed out that the electric railways generally have not recognized the National Safety Council as a body working for their interests, although many companies have taken up safety work and have found it of great value in the reduction of accidents. It was argued that until electric railway companies recognize the National Safety Council, it cannot extend its services to this branch of transportation. Members of the section believe that the American Association is the logical organization to take up the work in such a way as to reach a successful issue in the shortest possible time. They authorized Chairman Adams to appoint a committee to confer with the American Association on the proposal of Mr. Reid.

SAFETY CAMPAIGN SHOWS EXCELLENT RESULTS IN ACCIDENT REDUCTION

Before the close of the second session, held on Friday morning, all of the delegates reported that the safety work done by them had shown excellent results in the reduction of accidents, and that they were constantly devising new ways and means to prevent other accidents that are incidental to railway operation. It was argued that many lives may be saved, that much loss of time may be prevented and that much of the money paid out in claims can be retained in the treasury by the adoption and execution of simple but effective plans for insuring safety, when actuated by humanitarian ideals as well as by the material results that would accrue to their company.

For the first time a woman delegate was present; Miss Laura A. Roadifer, representing the Philadelphia Rapid Transit Company, who reported on the work that she had done in educating the school children in avoiding street car accidents. She has had the satisfaction of knowing her efforts have produced results, for there has been a decrease in accidents among the little people of the territory served. This was evident both by the city records and those of the railway company.

The plan generally followed has been to organize the children and hold meetings in the Chamber of Commerce building where subjects pertaining to their safety were discussed. Some time ago this organization issued a card in which the children pleaded with automobile owners and users for a "50-50" opportunity on the street. This card was planned to be distributed in various ways so as to reach every car owner, but of late the demand for the cards from insurance companies and others has been so great that there is no need for miscellaneous distribution. This appeal of the children

has brought forth a wonderful effect in increasing the care exercised by automobile drivers where children are concerned.

SKEPTICISM OF THE PUBLIC DIFFICULT TO OVERCOME IN PHILADELPHIA

In the light of what has already been accomplished, the Philadelphia Rapid Transit Company is now about to establish an accident prevention department and to adopt a systematic plan for an aggressive campaign. In Philadelphia, as in some other cities, the railway company has found it extremely difficult to convince the public of its sincerity in the prevention of accidents, for the public has preferred to adhere to the old idea that a railway company is only interested in what it can earn for its stockholders. The establishment of an active department should be of great aid to Miss Roadifer in her work, for the public should be convinced of its sincerity when it is understood that the company wants to preserve life, both because of the moral and humanitarian principles recognized and the financial saving that will result or accrue to both the company and its patrons.

The officers chosen by the section for the ensuing year as follows: Chairman, R. N. Hemming, Fort Wayne & Northern Indiana Traction Company, Fort Wayne, Ind., vice-chairman, John H. Mallon, Metropolitan West Side Elevated Railway, Chicago; secretary, John H. Cox, Cleveland Ohio Railway.

During the Safety Congress, H. B. Adams, chairman of the electric railway section, made for the congress three addresses to Cleveland high-school pupils, talking to about 3,000 pupils in all.

In the parade of 4,000 high school boys held on Thursday afternoon, Oct. 2, 1919, there was a demonstration made by the Cleveland Railway of the proper methods of alighting from and boarding cars. A special car, the only one on the street at the time, passed slowly along the route of the parade, maintaining a speed at which the boys walked and all the time a number of boys were boarding and alighting from it. It was rather an original demonstration and elicited many favorable comments.

SAFETY CAMPAIGN TO BE CARRIED TO THE SCHOOLS

The inauguration of an educational section was also decided upon at the congress. Its purpose will be to formulate courses of study for the schools and introduce them into the curriculum wherever possible. Primary schools will be taken first, but later on the officers hope to see the educational work taken up by high schools, colleges and technical institutions. They especially feel that all engineers should have safety work as part of their course of study in order that in their future operations they may have this in view.

At the meeting of the public safety section, a suggestion was made that a joint session of the public safety, electric railway and educational sections be held at the next congress, for the members believed that, as these three sections have much in common as to ways of distributing information, plans might be mapped out that would prove of importance and value to all three.

Safety Before and After the War *

By E. F. SCHNEIDER

General Manager, Cleveland, Southwestern & Columbus Railway, Cleveland, Ohio.

WHILE the war was on, it was natural to look forward to a rapid return to normal conditions in the labor world soon after the armistice was signed. It was also anticipated that the prices of foodstuffs and necessities would be lowered, and a general feeling of complacency and satisfaction was likewise confidently hoped for; but, alas, none of these things came to pass. Labor is still scarce, much more arrogant in its demands and a great deal harder to handle. Contracts with labor unions seem to be broken with impunity, invariably against the advice of the national officers. The general feeling of unrest has been greatly intensified and there seems to be an almost universal sentiment, regardless of consequences, of "I am going to get mine while the getting is good."

There is perhaps more to be said regarding safety before and during the war than there is to be said of safety after the war. Safety, so far as the application of the fundamental principles is concerned, reached its highest state of perfection just before the war, in the use of all kinds of safety devices and appliances, such as the installation of block-signal systems, the display of cautionary signs, the use of moving pictures. All of this had a tendency to carry the propaganda of the prevention of accidents to a successful conclusion. The idea heretofore has been to make things as "fool-proof" as possible; and I understand it is estimated that the accident account in our industrial world has been reduced some 8 per cent. That of course makes it worth while and I do not wish to depreciate the use of any device which will eliminate accidents. I do, however, wish to protest against the abstract proposition for which we seem to be striving, *i. e.*, to make things fool-proof, for I am not a believer in trying to make automatons out of intelligent employees. We need men who are honest, industrious, painstaking and careful, and the best safety device known is a careful man.

Before we entered the war there was not the strained and intense feeling which was so marked and prevalent everywhere after war was declared. But the employee who had a son of draft age, or one who had enlisted, was of necessity "on the anxious seat" all the time. This anxiety he naturally carried to his work, as he would not have done in normal times.

The shortage of men due to war conditions made a vast difference in the working personnel of electric railways. The difference in the attitude of the men toward their employing company was noticeable, for they realized a job could be obtained anywhere. To keep the lines filled, precedents and rules were broken and the turnover was large. An applicant was not questioned closely, his recommendations were not scrutinized. Men eighteen years of age were hired as conductors and men fifty years old as motormen. The inexperience of the younger and inability of the older man to readily adapt himself to the work caused an unfortunate condition. It was impossible to get efficiency out of either class. Those of a proper age who applied were as a rule undesirables.

As an illustration of the attitude of men regarding discipline, one of our superintendents in disciplining a trainman for an offense said to him, "You will have to lay off ten days." He came right back saying, "Oh, you go to —," and turned in.

A moderate amount of relief from this state of affairs was brought about by the employment of women in a few cities as conductors on city lines. After watching the

operation of cars with conductorettes, and scanning reports regarding their work, I am convinced that they conducted themselves properly at all times, and took care of their part of the business carefully, intelligently, politely and with fewer accidents than the men. Whether conductorettes would have maintained their efficiency after years of service I do not pretend to say, but they certainly made a good record as far as they went.

My investigations tend to show that there was a slight improvement regarding accidents after the war. Statistics upon this subject were gathered from 115 companies throughout the United States and Canada, covering 17,765 miles of track. A comparison of the accidents showed 153,878 in 1916; 167,806 in 1917; 144,554 in 1918 and 64,108 for the first half of 1919, or at the rate of 128,216 for the year.

The figures based on the first half of 1919 would seem to show a decrease over the figures of 1916, but as to whether the whole year of 1919 would show this improvement is of course problematical. A slight improvement is likewise noted in 1918 over 1917 but the difference certainly in either case is not due to any improvement in the personnel of the employees.

One-man cars are largely a result of conditions brought about by the war and wherever used have materially decreased the number of accidents. A great many roads were compelled to decrease their mileage in order to reduce operating expenses, both during and after the war. This of course, cut down the hazard in proportion to the reduction in mileage. The great increase in the number of automobiles has, however, correspondingly increased the number and severity of that class of accidents.

There are many ways to be progressive but one is sufficient if along proper lines. We do not have advantage of sufficient regulatory laws, but even if we had they would mitigate accident hazard in only a small degree. We have the benefit of safety boards, safety appliances, warning signs, etc., which are a great help as far as they go, but they do not seem to prevent the majority of railroad accidents.

Electric railways have never fully realized the benefit from rigid discipline as ordinarily enforced. The principle of "safety week" extended through the whole year is perhaps the only solution of the difficulty, to bring forcibly to the mind of every employee the moral obligation resting upon him to preserve human life and limb, relying upon the fact that all men have within them that which will naturally keep from harm those entrusted to their care and those who come within their zone of danger.

Nationalization and Standardization of Accident Prevention *

By HARRY REID

President, Interstate Public Service Company,
Louisville, Ky.

THE need for nationalizing and standardizing accident prevention is of equal importance to all sections of industrial work. Statistics covering the number and character of accidents occurring in connection with street and interurban railways are not available so far as the whole traction operation of the country is concerned. This is due to a lack of standardized accident statistics the gathering of which would be but one of the features of standardization of accident prevention. We know, however, from a survey of the figures of certain systems or groups of electric railway lines, that the total accident loss, which is made up of settlements for claims and compensation in

* Abstract of paper presented before the Eighth Annual Safety Congress, Cleveland, Ohio, Oct. 2, 1919.

* Abstract of paper presented before the Eighth Annual Safety Congress, Cleveland, Ohio, Oct. 3, 1919.

the transportation industry amounts to a vast sum. We do know that the suffering and sorrow caused by these accidents are to a great extent avoidable if the proper steps are taken for the education and safeguarding of passengers and pedestrians. We know further, that when a traction company carries on a well-organized and efficient prevention movement substantial reductions are made in the number and costs of accidents.

The first step towards working out a basis for future standardization is the determination of a proper medium through which the newly accepted standards can best be circulated. This organization, which must necessarily be national in extent, should have at its disposal the best talent obtainable. Just what body should undertake this is a question, but inasmuch as we are at present considering only accident prevention as applied to electric railway operation, there are several organizations which suggest themselves. The National Safety Council naturally comes to mind in this connection. While I am a member of that council, and appreciate the work which it is doing, I would not recommend that it alone attempt to solve this problem. The council can be of much service by promoting a movement that will lead to the establishment of a commission to set the proper standards to be recommended, or to the appointment of some existing organization for the same purpose. The most logical organization is the American Electric Railway Association, or possibly a committee appointed by and working under its auspices. I believe that the most advisable means would be a committee which would, if possible, secure the recognition and support of the federal government for the express purpose of nationalizing and standardizing accident prevention. It may develop that this committee would work in connection with the United States Bureau of Standards.

The establishing of proper standards of accident prevention, and the nationalizing of such standards when accepted present probably the most difficult of the problems connected with the entire question. This matter is not disposed of by the appointment of the commission or organization to carry on the work. This most important step towards our own ultimate goal should spur us on to take an active interest in suggesting plans for the guidance of the commission, or for the carrying out of the new work by an existing organization. The first duty of this suggested commission should be to conduct a thorough investigation of the best and most practical ideas and methods now in use for reducing accidents. The action taken from this point on will be governed largely by the results of this investigation. It will undoubtedly develop that the need for education, not now fully appreciated, will be emphasized.

The city and interurban lines in Indiana and Kentucky with which I am connected, were, so far as I know, the first electric railways to carry on safety work in the thoroughly organized manner that has in the last ten years been productive of such good results and extended to so many other public utilities. This plan lays emphasis upon the educational feature of safety work, and includes in proper groups every employee of the company.

The branch of the work, in my opinion, which is most needed by the majority of companies is that which has to do with proper organization, instruction and education of employees. The support or co-operation of the companies to be affected by such a plan will in a large measure determine its success. The most capable commission obtainable may draft recommendations as to efficient, practical and modern methods of accident prevention, yet unless these methods are endorsed and applied by the companies for whose benefit they are intended the value and results of the entire undertaking will be negligible. The necessary steps should be taken by this commission to insure the proper co-operation of the utilities concerned.

Suppose that the needs for nationalizing and standardizing accident prevention have been fully appreciated; that the proper organization has been provided to conduct the necessary investigations and set the standards; that this body has satisfactorily completed its work, and that the support of the companies concerned has been assured. What is now to be expected as a result of this progress, and just what are the benefits which may be looked for? Any advance statement as to the results to be attached by the electric railway business as a whole must necessarily be speculative in character, but as an indication of what may be expected I will cite the case of one of the traction companies with which I am connected. It operates both city and suburban lines. This company has reduced the number of its accidents 75 per cent and the accident costs 80 per cent since the safety work was first organized. Another interurban electric railway in Illinois, whose safety work is conducted upon the same plan and under the direction of the same bureau, reduced its accident costs 62 per cent in one year.

Electric railways of small size which feel (and many of them are justified in doing so) that they cannot afford to employ a safety engineer would derive a special benefit from this plan. These companies would have the opportunity of adapting methods which have been tried out and found to be practical and effective by the larger companies, and would also have a uniform outline of safety plans which could be followed and carried out by their own organization.

Why Does Not Every Electric Railway Have a Safety Organization? *

BY C. B. PROCTOR

Claim Agent, Memphis (Tenn.) Street Railway.

IT SEEMS STRANGE that it should be thought necessary to discuss this subject, because it is remarkable that any electric railway should now be without a safety organization. To my mind there can be but one fundamental reason for such failure and that arises from a failure to understand its purposes. In view of this fact, it is wise to inquire what a safety organization is, and of equal importance, what it is not.

The ideal safety organization is composed of a select body of men representing every department of the railway; men of intelligence, men whose ambition it is to render to the car patrons safe and courteous service, men who do their utmost by example and influence to develop in themselves and associates a high state of efficiency; men who practice the Golden Rule and endeavor to persuade their fellow workmen to do likewise, men who teach safety by precept and example, first, last and all the time; men who are loyal to their country, their fellow employees and their company; men who so act because it is right and are actuated by the desire to bring happiness instead of sorrow, to prevent, instead of cause, pain and suffering, at the same time realizing that such conduct redounds to the pecuniary benefit of themselves and their company.

The safety organization is most emphatically not a collection of spies. It tries to down no one, but to elevate all. It wants to derive no man of his job, but aims to help him keep it and improve himself and his job. It purposes to interfere with no one's rightful prerogatives, but hopes to better the service by pertinent suggestions. It intends in no way to interfere with the administration of discipline; nor is it to be used as a disciplinary measure. It tries to accomplish nothing through compulsion, but endeavors to get results from education and appeal to the higher princi-

* Abstract of paper presented before the Eighth Annual Safety Congress, Cleveland, Ohio, Oct. 2, 1919.

ples that are implanted in all. In such an organization there is no room for personal malice, no place for the back-biter or the disorganizer. Its purpose is not to disorganize or breed strife, but to unite and promote harmony. The successful safety organization must have the hearty support of both the management and the organized employees.

The foregoing briefly outlines the ground plan of a hundred per cent efficient safety organization. We rarely reach this mark, but with the assistance of a live safety organization, accidents with their attendant loss in life, in pain and suffering and in dollars and cents, can be reduced fully 50 per cent.

When we consider what the electric railways are facing today it seems incredible that the management, or organized employees of any electric railways, should fail to avail themselves of such a valuable adjunct. Such failure can only come from a complete misconception of the uses and purposes of the safety organization on the part of either the management, the employees or both. It is, I believe, fear of its misuse that prevents the universal adoption of the safety organization.

From experience we have learned what can be accomplished with the aid of the safety organization. It is not a panacea. It in no way interferes with the administration of discipline, nor does it operate to any man's hurt, but it does provide a medium for the getting together of officials and employees on a friendly basis. It does promote harmony and co-operation and it certainly aids materially in reducing to a minimum the risks of operation and cost of maintenance.

The Human Factor in Safe Operation and Maintenance of Rolling Stock *

BY FRANK R. PHILLIPS

Superintendent of Equipment Pittsburgh (Pa.) Railways

THE human factor, in whatsoever relationship it may be considered, is the most important question now before the minds of the people of all nations. Dissatisfaction with the present order of things is rampant. It manifests itself in many ways, but rarely survives cold clear light of reasoning. Nevertheless the minds of all the people are yearning for a "something," which seems to be lacking in our social and political structure, a remedy for which economists and other students of the problem have so far failed to provide.

A superintendent of the motive power department of an electric railway, if he would attain the full measure of success, must be in addition to everything else, a thorough student of human nature. It is not enough that his plant and equipment be provided with the most effective safety devices, nor is it enough that his system of inspection and supervision be the last word in the art. He must know men—their weak and strong points—and he must be able in some measure to define their various moods.

Even if the safety equipment and organization be ever so efficient, and the campaign of education in accident prevention ever so complete, one dissatisfied employee may in an unguarded moment, through an act of commission or omission, be the means of a holocaust or shambles.

While I strongly advocated the use of the most effective safety devices and a comprehensive, thorough and continued educational campaign through the medium of shop talks, committee activities, scareheads, and bulletin boards, I am convinced that the ultimate can be reached only through a personal appeal to the individual employee.

A personal appeal, however, to be effective must be clothed with sincerity and an earnestness of purpose. Moreover, if

a personal appeal to an individual is to be productive of the greatest good, the right to make such an appeal must first be established. The mere fact of being a superior officer does not give the right.

If we are to be successful in our relationships with men, we must eschew subterfuge and insincerity and, without other purpose than mutual good, meet them on their own plane. Their acquaintance must be cultivated until one knows them and can address them by their first names, until one knows their families, their associates, and home surroundings—their hopes, joys and sorrows. In other words, there must first be prepared the seed-bed of mutual understanding. Judgment and due regard for the other's welfare and viewpoint must be exercised in planting the seed of desire, and the growing plant must be nurtured and cultivated until it blossoms forth into the maturity of accomplishment. Then if the winds and storms of demagogism, bolshevism, and all other "isms" of social unrest come, a relationship founded upon mutual confidence and respect will weather the storm.

Perhaps the importance which a personal appeal to the individual occupies in safety work may best be emphasized by reference to the results of observations made by the writer during the pre-war period. A personal examination into the underlying causes of many accidents of major and minor degree, covering a period of several months, showed that more than 93 per cent were the result of man failure and less than 7 per cent to equipment failure. In practically all of the accidents charged to equipment there were evidences of lack of proper care on the part of some individual. I can recall but two or three cases directly chargeable to defective material. The accidents under observation included collisions, derailments, controller burn-outs, etc.

With respect to accidents to employees in the shops and carhouses, it is of interest to note that the bureau of factory inspection of the Department of Labor and Industry of Pennsylvania has made the Pittsburgh Railways the object of special commendation because of the completeness and efficiency of its safety equipment. The most is made of the literature and bulletins issued by the National Safety Council. They are posted conspicuously in prominent places throughout the shops, carhouses, substations, etc., as well as in all places where our men congregate. At the weekly staff meetings and monthly round-table conferences, safety discussions are a permanent item on the program. Without this equipment and these activities, the company would feel delinquent in its duty. Nevertheless, it holds to the belief that the personal appeal is productive of more efficacious results than all of the others.

As most plant accidents cause incipient local infection due to slight cuts and bruises, and minor accidents resulting from neglect to use goggles to protect the eyes when grinding or chipping, or when cutting rivets or bolts, etc., all of our plants are equipped with first-aid kits, in charge of one or more men trained in first-aid methods. At the principal shop a first-aid department is maintained in charge of a capable, experienced graduate nurse, and at the main office a dispensary is maintained in charge of competent physicians and surgeons, with equipment and appointments second to none in the district. Yet an employee loses an eye, another an arm, and a third his life, all because they thought it nonsensical to have such a trifling thing as a scratch tied up in a rag or to take the time to put on the goggles; besides they were busy anyway and did not want to be bothered. This is the attitude that must be combated, and under such circumstances disciplinary measures would do nothing more than to make the men resentful and perhaps even more careless. But a suggestion given in the proper spirit, and at the psychological time, from one in whom the employee has genuine con-

* Abstract of paper presented before the Eighth Annual Safety Congress, Cleveland, Ohio, Oct. 2, 1919.

fidence and manly respect, will accomplish vastly more practical good than a multitude of "curtain lectures" and front-office interviews. It is not an easy or simple task to create a foundation of mutual respect. It requires seasoned judgment, patience, persistence, courage and some sacrifice.

With us the new employee is afforded a probationary period, which provides an opportunity for observing his particular traits of character, fitness and ability to fill the job. Set rules of procedure are impossible of formulation. Each case is a problem in itself. Many rebuffs, frequently sneers, suspicion almost always, will be met, but the individual is hopeless indeed who will forever withstand such an effort to improve his condition.

If then, it is a maximum of safety we seek, which means more to the individual than to the company, how much more probable is its accomplishment, therefore (given the physical essentials) if we have the honest support of the employees.

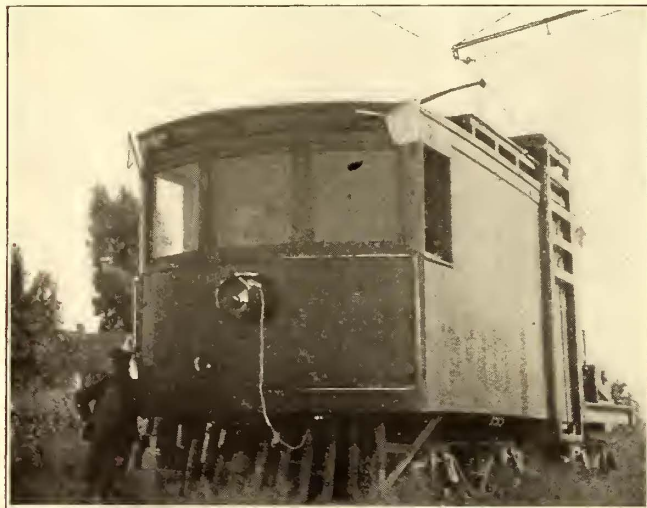
Carelessness, thoughtlessness, selfishness, and irresponsibility are enemies to safety as well as to social order, and they are without the reach of material things. First, let us seek and establish a basis of mutual understanding between the men and their employers, founded upon genuine respect and trust, and greater success will be added to the effort to improve their condition.

Air-Operated Tower for Line Cars

Indiana Railways & Light Company Replaces Hand Operation With Air Operation at Slight Expense

UNTIL recently the Indiana Railways & Light Company had hand-operated towers on all its line cars. Realizing, however, that the raising of these towers required much labor on the part of the crew, M. S. Ferguson, master mechanic, applied a simple air-operated device for performing this function. The cars were already equipped with compressors and air brakes so the adoption of an air-operated device was a logical step.

The tower of the car, shown in an accompanying illustration, was formerly hand operated from inside the car by means of a winch. Two men were required to raise the tower and at best it was a laborious procedure taking several minutes. As now equipped a gentle pressure on the handle of an air brake valve places the tower in position almost instantaneously. The cost of the change was



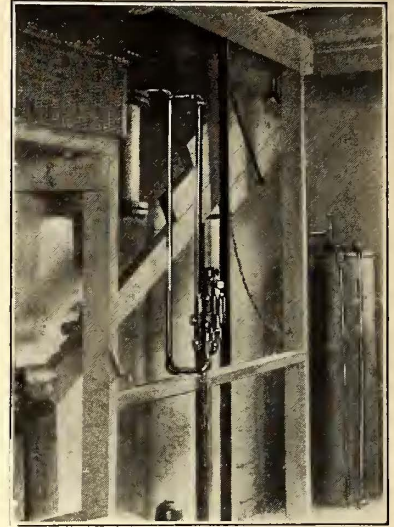
TOWER CAR OF INDIANA RAILWAYS & LIGHT COMPANY

small as practically all of the material was salvaged from old equipment.

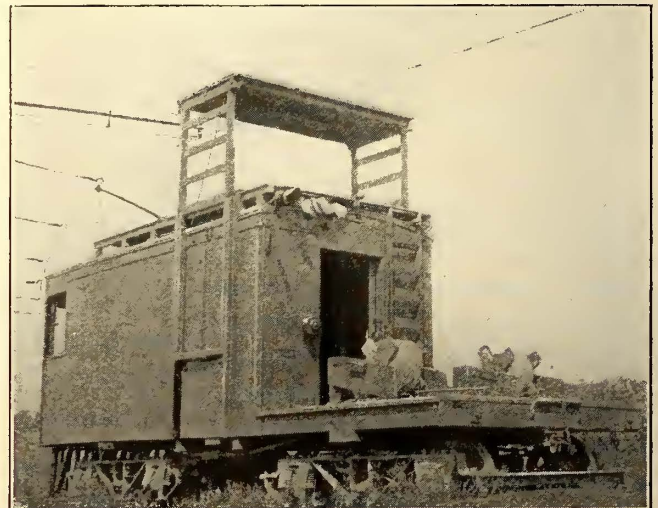
A 10-in. brake cylinder, removed from an old car, is mounted on a 2-in. x 18-in. oak plank. This is bolted to the side of the line car in a vertical position with the piston end of the cylinder down. The plank is also securely anchored to the sill of the car. The piston end is fastened 1 ft. from the end of a 2-in. x 4-in. iron bar, 6 ft. 6 in. long, and this end is held by a 1½-in. bolt and a 1-in. x 6-in. iron U-strap bolted to the floor through the sill. On the other end of the lever are strapped as counterweights three pieces of 2-in. x 4-in. iron totaling about 6 ft. in length. This lever works vertically between two 2-in. x 2-in. x ¼-in. angles set 2½ in. apart and the lever can be held in any position up or down by means of a pin. This pin is safety precaution which eliminates the possibility of accident resulting from the accidental movement of the brake-valve handle. A "straight-air" valve controls the operation of the tower.

One half-inch twisted chains, by means of which the tower is raised and lowered, are fastened to the counterweighted end of the lever. These chains pass over pulleys suspended from the roof of the car. The one passing out through each side of the tower leg near the roof is fastened to the lower member of the tower leg. The air equipment was so located that these chains would come in the center of the tower supports. The tower has an effective rise of 5 ft.

C. W. Rice, chairman of the employment bureau conducted by the engineering societies, reports that during the ten months ending Sept. 30, 1919, the bureau interviewed 17,083 men, registered 4858 men and 1988 positions, and placed in positions approximately 1000 men. The work is to be continued.



BRAKE CYLINDER, LEVER AND CONTROL VALVE MOUNTED INSIDE CAR



AIR OPERATED TOWER IN POSITION FOR WORK

Fares in Chicago, Cleveland and Philadelphia Compared*

The Nominal Fare Tells Only Part of the Story—Actually the Average Fare in Chicago Is Less Than in Philadelphia and the Average Length of Ride Is Greater in Chicago Than in Either Philadelphia or Cleveland—Other Comparisons Made

By L. A. BUSBY

President Chicago Surface Lines

THERE is a 7-cent fare in Chicago, a 5-cent fare in Cleveland, and a 5-cent fare in Philadelphia.

On this statement it would seem that the car riders in Cleveland and Philadelphia were paying the same rate of fare. But they are not. Car riders in Cleveland are paying 7 per cent less fare than car riders in Philadelphia, although each city has a 5-cent fare.

It would also seem that car riders in Chicago with a 7-cent fare are paying much more than car riders in Philadelphia on a 5-cent fare. The exact reverse is true. The average fare per passenger in Chicago is now 3.92 cents, while the average fare per passenger in Philadelphia is 3.98 cents. The average fare per passenger is determined by dividing the total passenger receipts by the total passengers carried—cash, transfer and free.

"But how is this?" the car rider asks. "There is a 7-cent fare here, and a 5-cent fare in Philadelphia. How can the average fare per passenger in Chicago be lower than in Philadelphia?" The answer is not difficult. To say there is a 7-cent fare in Chicago, and a 5-cent fare in Cleveland or Philadelphia, tells only part—a rather small part—of the story.

While there is a 5-cent fare in Philadelphia, there is also a 3-cent charge for a transfer at 580 out of 900 transfer points—and what is more important—*there is only one transfer*. This means that after you use one transfer, whether you pay 3 cents for it or get it at a free transfer point, you must pay another nickel if you have not reached your destination. In Chicago, you pay 7 cents and get a free transfer, not only one, but as many as you need, so long as you are traveling in the same general direction.

There is a 5-cent fare in Cleveland—and by the way, the fare in Cleveland before the war was 3 cents. But in addition to the present 5-cent fare, there is a 1-cent charge for a transfer, and the average fare is 3.7 cents per passenger—about 7 per cent less than the average fare in Philadelphia and about 5 per cent less than the present average fare in Chicago.

CHICAGO GIVES LONGER RIDES FOR LESS FARE THAN PHILADELPHIA

In Chicago, the percentage of free transfers and free passengers to passengers paying cash fare, is 77.85 per cent—in Philadelphia, the percentage is only 21.35 per cent. This means that in Chicago, for every 100 passengers paying fare, seventy-seven receive and use free transfers, while in Philadelphia, for every 100 passengers paying a 5-cent fare, or 3 cents for a transfer, twenty-one receive and use free transfers. Many of these passengers in Philadelphia are obliged to pay another nickel in order to reach their destination. The result is that in Chicago, with a 7-cent fare, the average fare per passenger is 3.92 cents, while in Philadelphia, with a 5-cent fare, the average

fare is 3.98 cents per passenger. It all depends on what you get when you pay your fare.

And in this connection, it must not be forgotten, that during the period from 1910 to 1918 inclusive—nine years—the average fare in Chicago was only 2.83 cents, while in Philadelphia the average fare was 3.98 cents. That is, Philadelphia until Aug. 8 last had a 40 per cent higher average fare than we had in Chicago, and even now has a slightly higher average fare than ours.

Nor is this all the difference. In Chicago, as found by the Parsons Commission, the average ride per passenger on the surface lines is 4.16 miles—the longest average ride of any street railway company in the country; while in Philadelphia, according to the Ford, Bacon & Davis report, the average ride per passenger is 2.79 miles. In Cleveland, the average ride per passenger is 2.19 miles, or about one-half the length of the ride in Chicago.

To put it another way, during the nine and one-half years preceding Aug. 8 last, the average length of ride on the surface lines was 49 per cent longer than in Philadelphia for a fare which averaged 40 per cent less. And in Cleveland where the average fare is slightly lower than in Chicago, the average length of ride is only one-half as great.

But the rate of fare and length of ride are only two of the factors to be taken into account in comparing rates of fare and operating conditions in different cities. There is also a vast difference in the amount of public burdens imposed on the companies.

PAYMENTS TO CITY AND RENEWALS COMPARED

The Cleveland Company is not required to clean, sprinkle or pave its right-of-way in the streets but is required to maintain the paving.

The Philadelphia Company is not required to clean, pave, repave or maintain the paving in its right-of-way. In lieu of this and all other compensation to the city, the company pays the city at present \$785,000 per year. For the past nine years these payments have averaged \$722,000 per year.

The Philadelphia Company has recently proposed to the city, that the 3-cent charge for transfers could with advantage be abolished, provided the city would eliminate its annual charge of \$785,000 and would also abolish the use of transfers in the central business district, it being estimated that the loss on the 3-cent transfers would be fully made up by additional fares collected in the central business district, if transfers were abolished, and by the elimination of the charge of \$785,000 a year.

But the Chicago Surface Lines have been obliged not only to maintain the paving in their right-of-way, to clean and sprinkle streets, to pay fees of city inspectors and expenses of Board of Supervising Engineers, but, in addition, to pay 55 per cent of their divisible net receipts to the city. These items have averaged during the past nine years the sum of \$2,838,207 per year, or four times the amount required to be paid for like items in Philadelphia

* Statement issued to the press by Mr. Busby on Nov. 6, 1919. Mr. Busby says that the figures for Philadelphia and Cleveland were taken from published official reports of the companies, or from statements furnished by the management. The figures for Chicago were taken from records of the companies, which are audited annually by a certified public accountant, selected jointly by the city and the companies.

In addition, the Surface Lines have been obliged to pave their right-of-way and has expended for the cost of paving, in addition to the foregoing items, during the past nine years, the further sum of \$5,694,971. This means that during the past nine years the Chicago companies have paid in the shape of direct public benefits, in addition to their general taxes, the sum of \$31,238,934, while the Philadelphia Company, during the same period, has paid \$6,498,000, or about one-fifth as much, while receiving 40 per cent higher average fare.

Nor can anyone say that we have failed to maintain our property and to provide adequate funds for renewals. The Parsons report, in speaking of the high average speed on the Surface Lines said:

The reasons for the high speed are partly the wide streets through which many of the cars run, but principally the good physical condition of the roadway and rolling stock, and the ability of the cars to accelerate and retard at high rates.

As to our renewal fund, let the facts speak: At the end of the last fiscal year the Chicago Surface Lines had a cash balance in their renewal fund of \$9,258,932 while the Philadelphia Company had a cash renewal fund of \$1,126,801. During the nine years in question, from 1910 to 1918 inclusive, the Surface Lines actually expended for renewals of their properties \$15,954,693 and the Philadelphia Company expended \$7,428,124 which means that at the end of the nine years, the Chicago companies had more than eight times as much cash in their renewal fund as the Philadelphia Company and had spent for renewals during the period more than twice as much. We are building up a cash renewal fund so that our equipment and other property, when worn out will be replaced by new equipment and new property without increasing the price at which the city may purchase the property.

COMPARISON OF WAGES AND PERFORMANCE

There is also another vital factor to be considered—the rate of wages paid employees. For some years, Chicago and Cleveland have paid their trainmen about the same rate. Since last August, however, the maximum rate for trainmen in Chicago has been 65 cents per hour, as against 60 cents per hour in Cleveland. But during the nine year period we have been discussing, the Chicago companies have paid considerably higher wages than have been paid in Philadelphia. At the present time, the maximum rate for trainmen in Philadelphia is 58 cents per hour, while in Chicago, the maximum rate is 65 cents per hour. And approximately this same difference in wages applies to the employees outside the train service.

While Chicago trainmen get higher wages than Philadelphia trainmen, they are doing more work, measured by the number of passengers carried daily per trainman. The figures for 1918, based on actual number of trainmen required to fill schedules, show 444 passengers daily per trainman in Chicago, and 412 passengers daily per trainman in Philadelphia.

In September, 1919, the average daily wage of trainmen in Chicago was \$6.19; in Philadelphia the average daily wage was \$5.51. The average day's work in Chicago was nine hours and thirty-two minutes, as against nine hours and thirty minutes in Philadelphia. On that basis, the average yearly wage of trainmen in Chicago, working 307 days, would be \$1900, as against \$1690 in Philadelphia.

During the nine year period, trainmen's wages in Chicago have increased 116 per cent, and in Philadelphia 151 per cent. The greater increase in Philadelphia is due to the marked difference in wages existing in 1910, at which time the maximum wage in Chicago was 30 cents per hour, and in Philadelphia 23 cents per hour—an initial difference of 30 per cent.

Notwithstanding these differences in operating conditions, the operating cost per car-mile in Chicago during this nine year period has been less than the cost per car-mile in Cleveland, and but little in excess of the cost per car-mile in Philadelphia.

The great fact to be borne in mind is, that during all these years, the Chicago companies have borne these unequal burdens, have set aside an adequate renewal fund, and have built up and maintained a great street railway system on a 5-cent fare, and continued to do so until the great war when an increase of more than 100 per cent in wages within the past four years, and a still greater increase in the cost of most of our operating materials and supplies, made an increase in fares imperative if the companies were to survive and continue to render service.

Even under these adverse conditions, the Chicago companies were able to maintain their credit until the War Labor Board in August, 1918, increased wages \$3,700,000 per year. This, with the increased cost of operating materials and supplies, reduced the companies' net earnings to such an extent that it was impossible to sell bonds on any reasonable basis to procure new capital needed for equipment and extensions. And when to this situation an additional burden of \$9,000,000 in wages and other operating expenses was added last August, the result, without an immediate increase in fares, would have wiped out all return on the investment and left an operating deficit. The car riding public of this city realized that only an increase in fares could save the situation and have paid the increased fare practically without protest.

CHICAGO RIDERS CONSIDER 7-CENT FARE WARRANTED

A good deal has been said about higher fares resulting in loss by reason of decreased riding. In our judgment, that all depends on whether the patrons believe the increase is fair and reasonable. The best answer to this proposition has already been given by the car riding public of Chicago. The riding per capita today in Chicago under a 7 cent fare is greater than in Philadelphia under the so-called 5-cent fare, being 453 rides per annum per inhabitant in Chicago on the Surface Lines alone, as against 400 in Philadelphia.

Notwithstanding the flood of misrepresentation which has been poured out for years by politicians and others, the great majority of people in Chicago realize the truth of ex-President Taft's statement a year ago that, "A 7-cent fare is about the equivalent of a 5-cent fare before the war," and if this was true in 1918, how much more is it true at the present time with over \$9,000,000 added to operating expenses following the wage increase of last August.

The management submits these facts so that the people of Chicago may clearly understand that, taking into account their transfer privileges and their length of ride, it is manifest they are actually getting cheaper transportation in Chicago on the basis of a 7-cent fare than is being furnished in either Cleveland or Philadelphia on the basis of a so-called 5-cent fare.

In submitting this statement, the management is not suggesting increased fares in other cities as the solution of the transportation problem, because operating conditions are widely different in every city. We do say that increased fares are the only solution in Chicago under our present transfer system, our present length of ride, and with the public burdens, including the 55 per cent to the city, which by ordinance are imposed upon the companies.

The question in every city is revenue sufficient to meet operating expenses and pay a fair return upon the investment. A rate of fare which does not do this fails to meet the cost of service, and failure to meet the actual cost of service, whether in Chicago, Cleveland, Philadelphia or any other city, can only end in disaster to the public.

Investment Bankers Discuss Railway Problems

Importance of Utilities to Every Individual—Advantage of Customer Ownership of Stock of Utilities—Importance of Proper Maintenance and Depreciation Funds—Municipal Ownership Not Looked Upon With Favor as Solution

THE Investment Bankers Association of America held its eighth annual convention at St. Louis during the week of Oct. 20. At the closing session, George W. Hodges, New York, was elected president, and Frederick R. Fenton, Chicago, secretary of the association.

The report of the committee on public service securities, of which O. B. Willecox, vice-president of Bonbright & Company, New York, is chairman, is of particular interest to the electric railway field. In his address at the opening of the convention, President William G. Baker, Jr. had the following to say in connection with the work of this committee:

"Perhaps no committee in the association has had more perplexing problems than that on public service securities, because one class of securities with which this committee concerns itself is that of street railway transportation. It is no exaggeration to say that no industry in the country has been more demoralized during the past year than this. It is a situation in which a large proportion of the membership have a very real interest. It is obviously impossible for your committee, or the association, to perform the miracle of making a dollar buy services and supplies quoted at a dollar and a half. But they have followed the situation from the standpoint of the investment banker, and I am saying what they would probably be too modest to assert when I tell you that they have had a very large share in perhaps the most important study that has yet been made of the nation-wide street railway situation.

"In a country like ours conditions are not changed simply by asserting they should be changed. Progress follows the enlightenment of the public and the education of the people as to what is sound and fair. This progress of education is not the work of a few days. The advance only comes as a result of cumulative and constant endeavor. I am telling you no news when I say that the two classes of securities most unpopular today are those covering the railroad and street railway properties. Your association, through the committee to which I have referred, has been assisting in this work in showing the public and the law-making bodies just what it will mean for the country to have these two great industries permanently discredited."

That portion of the report of the committee on public service securities, which is of interest to the electric railway field, follows:

REPORT OF COMMITTEE ON PUBLIC SERVICE SECURITIES

About \$15,000,000,000 capital, representing a considerable part of all of the savings of the people of the country, is invested in public utilities, devoted to great community needs, furnishing the common requisites of business and community life, particularly light, heat, industrial power and local transportation. The securities representing these savings are held by thousands of investors, large and small, and by nearly every bank and financial institution of the country, and in endowment funds of churches, colleges, schools, hospitals, and in other trust funds. The integrity of these investments is of direct or indirect consequence to every citizen, and the maintenance of the service and the expansion of the time and money and labor-saving devices of public utilities are incalculably important to every man or woman with an industrial interest in the country whether as investor, employer or wage earner.

While all operating costs and every expense of living have increased, the investor in whatever class of securities has made a compulsory contribution to the common burden in receiving a fixed return in dollars of much depreciated purchasing power. The cost of new capital has also risen. The expansion of utility systems in the last few years has been of limited extent.

The commissions charged with the regulation of utilities have endeavored quite generally to adjust the machinery of regulation to the exigencies of war and reconstruction and have quite generally recognized their most important function, the securing of good service, as even more essential than insistence upon low rates. The regulation of utilities as now practised is by the state utility commissions, and where untrammelled by franchise provisions, legislation or other conditions beyond direct control, it is generally constructive and protective of the investment.

Utilities which are economically sound and which have successfully survived the stress of the war and early reconstruction periods; those which are regulated with the avowed effort on the part of commissions to encourage efficient service, provide good credit, and promote reasonable extensions in the interest of the public through the exercise of the right and the power to raise rates in proper cases, as well as to lower them; such public utilities offer investment in all essentials second to none.

CUSTOMER OWNERSHIP

Most public utilities were originally established and financed in the communities served, but with expansion and large capital requirements, the local financial interests have often been superseded by general public distribution of securities. This is unfortunate. The customer is a better customer and the community more alive to the interests of the local public utility if the securities of the utilities are held in large part by the public served. The customer who is also a security owner will find his interest as an investor protected by equitable rates, which upon reflection he will find that he can well afford to pay as a consumer; the taxpayer will hesitate to throw unjust and inequitable burdens upon property in which he is a part owner, or to contemplate their confiscation through starvation; the local banker who profits by prosperity in his community may well afford the effort to distribute among his customers the securities of local public utilities, upon the success, credit and expansion of which the prosperity and growth of his community depend.

TWO IMPORTANT ITEMS IN UTILITY FINANCING

The investor is primarily interested in the integrity of his investment and this is very largely affected both by expenditure for replacements to offset wear and tear and obsolescence, so that the property which is security for the investment shall be maintained at 100 per cent of its original value, and by provisions which will guard against the loss of the property through foreclosure which may be due to a deficiency in earnings resulting from temporary conditions.

Investors in their own interest may well recognize the insistence of utility operators that adequate provision be made out of earnings for maintenance, replacements and

obsolescence, and can even afford to accept a smaller return on their investment in order that large provision may be made to protect their capital. It is fortunate that provisions in mortgages and in conditions for stock issues, for the protection of the property and against injudicious distribution of earnings are becoming more frequent.

On the other hand, the investors in both bonds and junior securities of utilities will find their several interests protected by a small ratio of bonded indebtedness to total values, of bond interest to total earnings, and by provisions against the payment of an undue proportion of the costs of additions and extensions out of the proceeds of bonds, and both the stockholder and the bondholder should wisely guard the safety of their investments by the proper provisions to establish and maintain these safeguards. The bondholder would have a large proportion of equity to safeguard his investment and a smaller proportion of earnings required for his interest; while the stockholder would own his proportionate share of the larger equity and have the protection of a larger proportion of earnings for interest and dividends and therefore run less risk of either suspension of dividends or of default in meeting the provisions of the prior lien security, which might completely wipe out his interest in the property.

CONSTRUCTIVE ATTITUDE OF COMMISSIONS

The Maryland Public Service Commission has recently declared:

"In the course of a relatively few years the street railway has become one of the most important adjuncts to life in all thickly populated communities. With water, gas and electricity, it has become one of the prime necessities of life. Without it, business would come almost to a standstill, and social life in our cities and suburban communities would be most radically changed. So dependent have the people of our cities become upon the street railway, that an interruption of only an hour or so in the service is almost instantly felt throughout the length and breadth of the community, and continuous, bad or inadequate service is a thing which no community will long tolerate if redress of any kind can be found.

"From the above reasons it follows that the prime obligation which any state regulating body, such as a public service commission, owes to the public, in connection with the property and affairs of a street railway corporation, is, first, to see that the property of such corporation is at all times so constituted, equipped and maintained as to enable those in charge of the same to render at all times adequate service to the public; and, second, to see that such character of service is at all times rendered.

"The former proposition requires that the company shall at all times be kept in such a condition, financially, that it can command investments in its property by the investing public, in order that the necessary extensions to meet the demands of a rapidly growing community may be made promptly when and as required; and that its roadbed, power houses, and equipment may always be of a type and capacity to render adequate service economically and efficiently. There is no statutory law which can be resorted to in order to compel the investing public to invest its money in a public utility rather than in any other class of enterprise, and the only laws which can be appealed to are the natural laws of trade and commerce, which lead men to invest their money where it may reasonably be expected to yield them a fair return for its use, and forbid the investment of money where there is no reasonable hope or expectation of such a return."

The Kansas Commission has declared:

"The commission is not unmindful that public interest requires that investments wisely and conservatively made,

in securities issued by public utility concerns, should be safeguarded and protected by law. Otherwise, such public utility concerns may not be financed at reasonable rates of interest, and the public thereby secure good service at reasonable rates."

The street railway systems of the country have been built upon the theory that the street car riding public should and would pay all costs of operation, taxes, special assessments, maintenance, depreciation and returns on capitals, and that the benefits to riders were sufficient to justify that theory, regardless of the enormous benefits to others, directly resulting from the operation of the street car lines and their use by the public. Upon that theory, also, towns have been laid out, industries established, residence districts defined, the financial, retail and industrial sections of cities built up, and suburban districts created.

While the attempts to maintain the integrity of some \$6,000,000,000 invested in the street and interurban railways upon the 5-cent fare have resulted in the present failure and approaching disaster, and investors in street railways have faced first diminishing returns and now the possibility of total loss, other investors in real estate, in buildings and in industries, utterly dependent upon local transportation and which would instantly become valueless if deprived of it, have doubled and trebled enormous capital. Traffic statistics indicate that, notwithstanding the enormous increase in automobiles, the street cars in almost all cases are carrying more passengers than they did ten years or even five years ago, and more striking still, they are carrying more passengers per thousand of population. If, as the figures indicate, the trolley cars are doing more business per capita than ever before, it is obvious that they are performing an increasingly useful and necessary public service; and it follows that some solution must be found for the difficulties precipitated by fixed fares and depreciated nickels.

On May 15 last the Secretaries of Commerce and Labor laid the matter before the President, who was then in Paris, by cable, resulting in the appointment by the President of the Federal Electric Railways Commission, to study and report on the problem, consisting of representatives of the Treasury Department, the Department of Commerce and of Labor, the National Association of State Commissioners, the American Cities League of Mayors, the Amalgamated Association of Street & Electric Railway Employees, the American Electric Railway Association and the Investment Bankers Association of America. The commission got to work promptly and has held hearings in Washington, in which the views of the several parties in interest have been presented. It is expected that the commission will report before the end of the year.

The street railways have needed about \$300,000,000 each year to refund maturing obligations and between \$600,000,000 and \$700,000,000 new capital each year for improvements and extensions to meet the demands of industry and commerce for local transportation. The destruction of street railway credit has effectually checked expansion and the deadening influence will be increasingly felt in every branch of industry throughout the country, until some plan for credit and investment has been found which will permit the profitable operation and the renewed and continuous expansion of street railway systems.

Is municipal ownership of street railways the solution of the problem? Experiences in public ownership and operation have convinced every honest observer that it is more expensive, and less efficient than private control, and fails to respond to public requirements for expansion and improvement because it is without the spur of private initiative; and that it is dangerous to the public welfare

because expert control is replaced by political control. Municipal ownership will be adopted generally as the solution of the street railway problem, it is safe to say, only if no means can be found under private ownership, financing and management, to divide with the public generally or that part of the public specially benefited the costs of adequate, efficient service required for community and industrial welfare and growth, above the returns from the rate of fare decided on as the maximum safe contribution to these costs to be imposed upon the riders. On no other basis can municipal ownership or operation be justified. If resorted to in certain cases, it is also safe to say that the public conscience, unless damaged by demagogues, will approve fair compensation to the private investors whose property may be taken over. Municipal efficiency and credit cannot be built upon municipal dishonesty and confiscation.

Notwithstanding the plight of the street railways as a whole, there are notable exceptions in certain street railway systems which, due to exceptionally favorable conditions of short hauls and density of traffic and in some instances to prompt and equitable increases in rates, have been able to operate successfully and profitably, to meet their obligations and maturities and maintain their credit and obtain new capital on the basis of substantial surplus of earnings and such companies should not suffer through the distress of other less fortunate systems.

Accounting for Depreciation *

Current Provision for Depreciation Is Highly Important—Historical Depreciation Data Useful in Valuations

BY JOHN JIRGAL

Hagenah & Erickson, Chicago

THE accountant finds many theories advanced with respect to the handling of depreciation, depending upon whether rate, taxation, condemnation or capitalization cases are under discussion. There are also mistaken opinions as to just what is the accepted accounting practice on the subject. For instance, the assumption among many engineers is that when reservation is made for depreciation, a fund is actually established, represented by cash or securities. Such fund is further assumed to be available at all times for the purpose for which it is created and any unused balance is assumed to be earning interest. In practice, the utilities which have established funds are so few as to be exceptional in this regard. The predominating practice is to establish a reserve which, when scientifically set up, merely measures the utility's liability for depreciation which has accrued at the present time but which will be realized at some time in the future. The annual allowance is deducted before the investor receives any compensation because it is only in this way that enough assets are retained in the business to meet the renewal and reconstruction obligations of the utility.

When depreciation first received the attention of the accountant the annual allowance made for this purpose was looked upon merely as an equalization over yearly periods of expenditures which were large and occurred at irregular intervals. To correct this condition of affairs the accountant conceived the idea of setting aside annually about the same amount for depreciation. The amount so set aside was designed to be sufficient over any given number of years to meet all payments for renewals and replacements. The amount over and above such requirements was either left in the reserve or used for other purposes.

About 1907 the period of regulation was ushered in and at about the same time investigations along other lines were being carried on. The outcome of these investigations was the foundation of certain theories of equitable relations between investors, consumers, taxpayers, etc. The result of all these investigations, as far as the accountant was concerned, was to convince him that a more scientific analysis of depreciation requirements must be made in order to insure the payment of renewal and replacement obligations and also to provide for the accrued depreciation which the commissions at that time stated was deductible from the cost of the property in determining the amount upon which a utility was entitled to earn a return. The most natural thing to do under the circumstances was to examine the causes for depreciation and in order to obtain reliable information on the subject the accountant turned to the engineer for data. The result of extensive investigations was the formulation of the life method of making annual appropriations for depreciation. This method of appropriating income, at least in a measure, insured a reserve balance which approximated the accrued depreciation in the property. Many utility companies soon found that their reserves were not sufficient to meet the estimates of commissions on the amount of depreciation, and plans for increasing the reserve balances to correct this shortage were considered.

ADMINISTRATION OF DEPRECIATION FUND

The accountant is concerned only with the establishment of the utility's liability for accrued depreciation and the retention of enough assets of whatever description in the business to meet in some way the realized or maturing depreciation. He keeps no specific funds for that purpose alone, but on the contrary by the very nature of his entry permits the temporary use of the reserve for many purposes. When renewals are actually made these temporary borrowings are in effect repaid, although there is no transfer of funds. In order that this point may be clearly understood the following explanation of the accounting practice with respect to this item is made: Suppose a utility has a plant investment of \$100,000 against which stands a mortgage represented by bonds to the full amount of such investment. If \$10,000 is set aside for depreciation each year and the depreciation reserve so created is invested in new property the utility has at the end of five years a property investment of \$150,000, a bond indebtedness of \$100,000 and a depreciation reserve of \$50,000. At this point the utility may be called upon to renew property worn out in the service to the full extent of the \$50,000 provided for depreciation. It is plain to see that there are no funds, in the way of cash or liquid assets, to pay the cost of renewal, but there is a plant investment which is in excess of the amount contributed by investors as represented by bondholders. The officers of the company, therefore, go to the trust company and request an additional \$50,000 of bonds for the additional amount of property expenditures. From the proceeds of the sale of such bonds they receive \$50,000 in cash which is used to pay for renewal. This transaction wipes out the cash account and the depreciation reserve and leaves a plant investment of \$150,000 and a bonded debt of \$150,000. In this example the entire reserve is used up for illustrative purposes only. If it is properly set up, such reserve would always have accumulated the accrued depreciation.

The above explanation has been made because it has an important bearing from the accountant's viewpoint, on the question which I am asked to discuss. Such question has been prompted by the situation in which street railway companies at present find themselves and from the explanation which has thus far been made it can be seen that even if a company had in its depreciation reserve every dollar of accrued depreciation which it was estimated it should

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have, it might not be in a position to make renewals and replacements which are urgently needed. This is so because the earning power of the street railways may be so reduced that no investor will risk his funds no matter what additional investment has been made in the property. This is only another way of saying that investment funds are prompted by two considerations, *i. e.*, the cost or value of the property and its earning power. Both must be present in order to attract funds. If the earning power of the property is so low that there is danger that even the interest on the funds contributed will not be paid, the renewals and replacements must necessarily be deferred until funds are available. The first step, then, is to increase the earning power of the property and this can be done under the present system, only by an increase in the rates of fare.

Now it may be that the accountant's method of providing for depreciation is to be condemned for this state of affairs, but it has been based upon the reasonable assumption that the street railways would always be able to earn sufficient to pay a fair return on their investment. If the failure to do this should permanently obtain, then, not only the depreciation policy of the accountants must fail, but the entire undertaking must do likewise.

When it is stated, then, that street railways as a class have not earned the accrued and maturing depreciation, it is important to distinguish whether what is meant is that no cash funds are on hand for renewal purposes or whether the amount earned each year has been such a percentage on reasonable property cost as not to permit of depreciation reservation.

CURRENT PROVISION SHOULD BE MADE FOR ACCRUED DEPRECIATION

Having thus stated the accounting method of handling depreciation there is presented this problem: "Should each generation bear its share in developing the art?" I think that the answer to this query with some qualification can be made in the affirmative and this for three reasons.

1. Because each generation and in fact each year and month within each generation is responsible for the using up of property in direct proportion to the demand which it makes upon the service.

2. Because at any given moment the investment in a utility must be found intact so that transfer of ownership will not result in loss to any of the parties.

3. Because it is only in this way that continuity in service is guaranteed.

This current provision has an important bearing on our whole transportation problem. Our corporate form of management is such that the investors in any undertaking are constantly shifting. Especially is this true of that portion of the investors which is in active control of the management. If accrued depreciation is not provided for currently there is always a question as to who is responsible for the shortage. If dividends are declared before depreciation is provided for then, the more conservative stockholders who follow in control must not only make the depreciation allowance for which they are responsible, but they must also provide for the shortage in the depreciation reserve as well. The public deals only with the property as a continuing entity, and therefore is not concerned with changes in management in so far as such changes effect responsibility for depreciation allowances. To the investor, therefore, the current reservation for depreciation is exceedingly important for it is only in this way that his investment is protected.

Another reason why each generation should bear its share of depreciation is that it is only in this way that service can be made continuous. The setting aside annually on a life basis of an amount for the depreciation of any given unit

provides a reserve which, when the unit goes out of service through the action of the agencies of depreciation, permits of its replacement. In other words continuous service cannot be guaranteed unless provision for continuation is made in advance. The importance of continuity of service is lost sight of by those who recognize in matured depreciation the only loss in value which has taken place. They neglect the important factor that when this year's earnings are not sufficient to provide for renewal expense there is no other provision by which such expense can be met.

In summary of what has been said above it may be stated that depreciation should be provided for currently because it is incurred currently, and because it is only in this way that the investment can be kept intact and continuity of service for the present and future generations assured.

But the argument may be advanced that granting all this the situation may still obtain that a utility has been unable to earn sufficiently to provide for any but maturing depreciation. If this fact can be established it would seem that the rate-making base would have to ignore the depreciation element or provide for an allowance by way of going concern value. This argument obtains only in cases where commissions have established depreciated cost as the most important evidence of value.

During the past year increased consideration has been given to cost of reproduction new and original cost as the most important evidences of value, while the advocates of depreciated cost appear to be losing ground. The tendency appears to be toward an annual allowance for depreciation based upon the sinking fund method with undepreciated cost considered as the most important element in value determination.

To those commissions which consider accrued depreciation in valuation matters it is important to submit evidence as to whether depreciation has in fact been earned and this can only be done by an examination of the records covering the entire history of the property. The importance of such examinations is not fully appreciated at the present time. The utilities are inclined to the cost of reproduction as their best basis for valuation claims. The historical data are considered as secondary and very often ignored. The commissions passing on these matters must often content themselves with mere statements of historical facts without much in the way of exhibits, and quite naturally because of the intangible character of such statements they choose to ignore them.

When the historical facts are available it is a simple matter to make a yearly allowance for depreciation such that when the renewal and reconstruction charges which have been incurred are taken into account there is left an amount which represents the accrued depreciation either on a straight line or a sinking fund basis, the basis used depending upon the theory of value held by the regulating body. In order to avoid distinguishing between repair and renewal charges the yearly allowance made should be sufficient to cover both items. This is more in accord with present-day street railway accounting practice and has the advantage of eliminating all disputes on the method of handling maintenance and depreciation items in the past. If one allowance is made to cover both items all charges of whatever nature which have to do with maintaining the property in service condition can be made against such allowance.

In conclusion I may be permitted to emphasize that it is highly important in matters involving depreciation and valuation to have historical facts at hand so that claims with reference to the property can be definitely substantiated. Old records which may appear to have little connection with present investigations may be useful in settling matters now very much in dispute.

News of the Electric Railways

FINANCIAL AND CORPORATE . TRAFFIC AND TRANSPORTATION
PERSONAL MENTION

Toledo Company Ousted

Following an Official Announcement of Franchise Vote Railway there Suspends Operation

Unless some plan can be devised to meet the emergency situation created by the adverse vote at the recent election in Toledo, Ohio, it would appear that the Toledo Railways & Light Company must cease operation of all cars in Toledo and that the interurban lines also will be barred from the streets.

Scanning of scattered precincts throughout the city at first indicated that the ouster ordinance would be carried by a majority of 3000 to 4000, but this was reduced by the vote from the fashionable seventh ward and the best residential precincts of the fourth and fifth wards.

The ouster ordinance was passed by the City Council on June 30 last and would have become operative on July 31, thirty days after enactment, had it not been held in obedience by a petition for a referendum. The total vote in the referendum was 39,157, of which 19,158 were cast for the ordinance and 19,035 against it.

Frank R. Coates, president of the Toledo Railways & Light Company, made the following statement after the unofficial election returns had been reported:

We do not, under any circumstances want to inconvenience the public. We shall keep on operating cars until we are informed officially whether the ouster has carried.

The company's answer when the official count had been announced was to withdraw service entirely. This was done at 1.30 a. m. on Nov. 10. Not only were the cars withdrawn from service, but they were taken out of Ohio over into Michigan.

Henry L. Doherty, of H. L. Doherty & Company, New York, operating managers of the property, issued a statement declaring that the company wished to obey the law. The people had voted to oust the company. It was their decision and the company proposed to abide by the will of the people.

Merchants, trades people and others are howling for the restoration of service. The Council, however, appears obdurate. On the spur of the moment it voted almost unanimously against the repeal of the ouster measure. Under the terms of the city charter even if the Council changes its tactics and votes, under pressure of the merchants, to repeal the ouster, such repeal will have to be submitted to the voters at another election.

The withdrawal of cars from Toledo has attracted nation-wide attention in the news and editorial columns of the daily press. There has also been started on the rounds of the press a character sketch of Mr. Doherty, which appeared originally in the Philadelphia *Ledger*. The trend of the newspaper comment is that Toledo got exactly what it wanted and deserved.

Mr. Doherty returned to Toledo on Nov. 12 from Kansas City, Mo., whither he had gone from Toledo after service had been withdrawn, and conferred with Mayor Schreiber. As a result a conference was arranged of railway officials, members of the railroad committee of the Council and representatives of the House, who voted to oust the company.

It was stated on Nov. 12 that the Kansas City Railways had made an offer for the Toledo cars. Mr. Doherty was quoted to the effect that the cars were for sale, if the company in Toledo could not make the city see the point.

Meanwhile the trainmen have been heard from. They have adopted resolutions insisting that the men receive pay for the time they are out of employment.

Favor Retaining Sir Adam Beck

The Provincial elections held on Oct. 20 resulted in the defeat of the Hearst government, and Sir Adam Beck, chairman of the Ontario Hydroelectric Power Commission, who ran as an independent candidate in London, Ont., was also defeated. In consequence of this, a meeting was held in Toronto, Ont., on Oct. 29 of about 400 representatives of the various municipalities interested in the Hydroelectric Commission's power and electric railway projects.

The meeting was unanimously in favor of having Sir Adam retained as a member of the commission, and a resolution was passed to that effect on motion of Comptroller Maguire of Toronto, and Mayor Winter of Windsor.

A second resolution was passed providing for steps to be taken to secure a seat for Sir Adam in the Legislature, and a third resolution expressing the feeling of the meeting that it was essential to the interests of the hydroelectric projects to have him continue in office and expressing approval of his leadership in the past.

Mr. Nixon Enters Disclaimer

Public Service Commissioner Lewis Nixon of New York City issued a statement on Nov. 8 announcing his position in the matter of the buses now being operated by the city. Mr. Nixon explained that it appeared to be necessary for the commission to clear its skirts of any responsibility for the buses, and to make it plain that the commission was well aware that the buses were operating without proper authority, but that the commission did not want to interfere as long as the buses served a public need. Mr. Nixon said:

For months now buses have been running in direct violation of law. This commission has no police power, but when accidents begin the question of proper service demands that this commission so clear its skirts that it may avoid being an accessory.

Doubtless steps could be taken to stop the buses until legal requirements had been complied with, but I did not propose having the city government say that I was the one who stopped them.

Instead, I preferred to have the experiment run its course, and saw no reason why I should pull the chestnuts out of the fire for them. If a private car runs wits out a state license it is held up by the police. So a letter was written to the Police Commissioner asking him to tell me by what authority such duty is set aside in the matter of buses when transgression is flagrant.

Possibly there is an impression that bus lines run by the city, and in part at the expense of the people, paying no licenses or taxes, irresponsible as to injuries and placed on routes at will, are not subject to regulation by this commission. We shall keep in touch with the situation and see that responsibility is fixed. Again I say that if buses are of real service, and can be regulated in the public interest, they will receive every possible support by this commission.

The management so far is running true to form. Like master, like man, seems to produce rather impudent refusal to recognize any regulation other than the sweet will of some agent whose temporary exercise of power causes an inflated sense of importance.

Inter-Professional Conference

Meeting of Professional Men Planned to Be Held at Detroit in the Interest of the General Public

With the purpose of bringing together the professional men of the country in order to plan more effective relations and act together on matters pertaining to the public good, an inter-professional conference is being called to meet in Detroit, Mich., on Nov. 28 and 29. The conference was suggested by the post-war committee of the American Institute of Architects, which was established to study the new obligations thrust upon the architectural profession by the war.

SUBJECT FOR DISCUSSION ANNOUNCED

It is the hope of those fostering the movement to perpetuate to an appreciable degree the enthusiasm of the war-time service rendered to the public by the professional men of the nation. The subjects which might well come before such an inter-professional organization have been classified under three heads:

- A—The functions and inter-relations of professional organizations.
- B—Relations of professions to the public.
- C—Educational obligations of the professions.

The Detroit program provides for an opening session in which representatives of the various professions will give their views as to the desirable objects, scope, method of procedure and organization of an inter-professional body. Following this discussion, which will be opened by Thomas R. Kimball, president of the American Institute of Architects, the purpose is to appoint a committee on plan and scope which will be asked to report on the succeeding day, when, if necessary, both sessions will be devoted to a discussion of the committee's report and to the permanent organization of whatever type of body may be agreed upon.

MANY PROFESSIONS REPRESENTED

To date, among others, representatives of medical, legal, education and construction professions have accepted membership on the organizing committee. It includes Dr. Alexander Lambert, president of the American Medical Association, New York; Thomas R. Kimball, president of the American Institute of Architects, Omaha; Calvin W. Rice, secretary of the American Society of Mechanical Engineers, New York; Frederick L. Ackerman, New York; Felix Adler, New York; Charles A. Beard, New York; Charles A. Boston, New York; N. Max Dunning, Chicago; Henry W. Hodge, New York; Robert D. Kohn, New York; Arthur D. Little, Cambridge, Mass.; Basil M. Manly, Washington; Milton B. Medary, Jr., Philadelphia; George A. McKean, Detroit; E. J. Mehren, New York; Frank A. Waugh, Amherst, and Charles H. Whitaker, Washington.

The office of the organizing committee of the Inter-professional Conference is at 56 West Forty-fifth Street, New York. The meeting in Detroit will be held at the Hotel Statler.

Detroit Mayor Disagrees With Commission Settlement There Depends Upon Reconciling Views of the Mayor, the Street Railway Commission and the Council

Mayor James Couzens of Detroit, Mich., has presented his views on the recent Street Railway Commission report in a communication to the City Council. The Mayor stated that in his belief the Board of Street Railway Commissioners and the engineers of the board had given the most thoughtful consideration to the necessities of the situation. Evidence was shown that careful surveys had been made as to location of population, trend of traffic and the probable developments of the future. In view of the fact that the center of the city is reached by radial streets, providing facilities for getting to the downtown section by subway lines as proposed in the report, the suggestion of the board in this connection is agreed to. The proposed surface line extensions, rerouting, etc., were also approved in a general way by the Mayor.

NO PLAN FOR FINANCING

It is pointed out that the commission's report does not state how the proposed subways or dips are to be financed. In asking that the Council favor the financing of the subways by issuing general public improvement bonds without provision for sinking funds, and providing for the interest thereon being placed on the general tax roll, the Mayor emphasized the fact that the necessity of the subways is not brought about wholly by the needs of the car riders themselves, but rather for the relief of congested surface traffic. These conditions are attributed to the large increase in the use of the automobile, the immense growth of the city and the consequent handling of commodities over the streets. In as much as the car riders are not responsible for these conditions, they should not, in the Mayor's opinion, be required to bear the expense of putting the cars under the surface.

In the matter of financing the surface line extensions, the Mayor states that one of the objections to having the financing done by the Detroit United Railway is the cost to the company of raising the money, which cost must be added to the fares. According to the report 147.54 miles of track at a cost of \$11,113,650 are needed. Other expenses would bring the total to \$16,613,650. To raise this amount Mayor Couzens estimates would cost the company including brokerage discounts, etc., 10 per cent of the principal, or \$1,661,365. On the other hand, judging from the city's ability to borrow money, the city would be able to finance these extensions on a 4½ per cent basis, thereby saving \$913,749 a year.

MAYOR OUTLINES HIS OBJECTIONS

What the Mayor asserted were unsurmountable objections to entering into an agreement with the street car company embodying the best features of the Taylor, or Cleveland, plan were enumerated as follows:

1. It would be obviously necessary to agree at a valuation of the now existing property and the subsequent approval of the people to such a valuation.
2. It would mean the absolute death of municipal ownership even though a price were agreed upon, because the people would never consent to purchase at a price on which they might even be willing to pay interest.

3. It provides city control of the operation of the cars by the dictation of the schedules, number of cars, routes, and other conditions directly affecting the public comfort. It is inconceivable that the city, having failed in its control of the company under present conditions, would be able to control the company after it had once got a definite term agreement.

To the Mayor an agreement to guarantee a return on the company's investment would mean that the company would have no interest whatsoever in the rate of fare because it would be permitted to charge any rate of fare that would insure the 6 or 7 per cent agreed return on the investment. Briefly, there would be no incentive for economy or efficiency.

The main difficulties to the plan as set forth by the Mayor are:

1. Providing funds for extensions.
2. Providing a sliding scale of profit so that the company has an incentive to economize after the regular interest is earned.
3. The 6 per cent interest provided for is inflexible and does not take care of the costs of capital for investment in street railway utilities.
4. The plan under which the number of cars for service is determined does not lead to satisfactory conditions of car loading nor of frequency. The standards of car loading applied in Cleveland call for a larger proportion of standing passengers than is permitted by any standards ordered or recommended by any regulating authority. The question of standards of service has a very important bearing upon the rate of fare.
5. Absolutely controlling the character of expenditures made by the company is a great difficulty.
6. Determining the value upon which earnings are allowed.
7. Determining the amounts allowed for operating expenses, legal expenses, depreciation, deferred depreciation, cost allocated to interurbans, etc.

To carry out the plan of constructing a subway requires future legislation, specific authority being necessary to undertake the construction of it. This means asking the Governor to call a special session of the legislature.

In concluding his report the Mayor suggested to the Council that a proposition be submitted to the people authorizing their public officers to issue public utility bonds to build the surface extensions recommended and to purchase all such necessary equipment as will give the service thereon needed; that the legislature be asked to pass legislation to permit or require an interchange of use of the Detroit United Railway and city trackage facilities, thereby permitting the use of complete electric railway facilities of the city, eliminating the objections to the so-called piece-meal construction plan.

There are now three parties to the controversy, the Mayor, the Street Railway Commission, and the Council. It is realized that the first thing to be done is to decide upon a plan which will be indorsed by both the Mayor and the commission as well as the Council, before the voters are asked to decide for or against it, as nothing could be gained in asking the voters to support a scheme upon which the administration and commissioners cannot agree.

Wage Increase Follows Arbitration

A wage increase of 8 cents an hour, which means an annual expenditure of \$150,000, has been granted the employees of the Memphis (Tenn.) Street Railway by the board of arbitrators. The back pay

under the award will amount to \$25,000. The new rate is retroactive to Aug. 1.

The motormen, conductors, barn and shop repair men will work a minimum of eight hours and a maximum of eleven hours daily. The board of arbitrators after an executive session and deliberation lasting twenty-four hours decided on the shorter working time and also ruled that the men were not entitled to their demand for an average wage of 75 cents an hour.

Roane Waring, H. P. Hanson and Bishop Thomas F. Gailor, arbitrators, ruled that the dual check system of registers was not too intricate. On the question of heaters for vestibules the board decided in the negative. The scale of wages as adopted by the board is as follows: 42 cents an hour for the first six months; 45 cents for the next eighteen months, and 48 cents for two years or more of service. The old scale of wages, put in effect fifteen months ago, was as follows: 38 cents an hour minimum and 40 cents maximum.

T. H. Tutwiler, president of the company, said that the decision, increasing the company's expenditures as it does, would have a bearing on the company's request for increased fares before the State Utilities Commission. The commission appointed to appraise the property of the company is expected to report soon. Following this the company may submit any additional facts desired. The wage increase will of course be brought to the attention of the appraisal commission.

Paving Cost a Problem

Seattle Must Decide Whether Its Municipal Electric Railway or Property Owners Shall Pay

At a special session recently, the City Council of Seattle, Wash., adopted a general policy, which is later to be expressed in the form of an ordinance, requiring the electric railway department to defray the cost of paving its right-of-way in the residence districts, and to assess the cost of paving between the car tracks in business districts against the property, abutting upon the street improvement.

Thomas F. Murphine, Superintendent of Public Utilities, is preparing to make a strong fight on the proposal when it comes before the City Council in the form of an ordinance. Marked differences of opinion were expressed by the members of the Council. Mayor C. B. Fitzgerald takes the position that it is unjust to saddle the street paving costs on the railway. The Mayor is strongly opposed to raising fares, which it is generally conceded will be inevitable if the lines must bear franchise obligations. Mr. Murphine calls attention to the fact that the municipal railway is asked to pay for street paving and build streets for the use of other traffic, including its competitors, the jitney buses.

About a month before the city began the negotiations for the purchase of the Puget Sound Traction, Light & Power Company's lines, a report filed by Mr. Murphine recommended that the company be relieved of certain obligations on condition that service be continued at a 5-cent fare. During the negotiations between the city and the private company, Mr. Murphine's report was the basis on which the probable returns to the city on a 5-cent fare were estimated. Members of the Council who were most active in pushing the deal continually referred to the fact that under municipal ownership, the system could be operated without the obligations required of a private corporation.

Tunnel Talk Again

Project for a Route from Manhattan to Staten Island Revived—Two Routes Are Proposed

The city administration of New York has decided to build a tunnel to Staten Island. Surveys, maps, and plans are now being made by engineers under the direction of John H. Delaney, Transit Construction Commissioner. The actual work of constructing the tunnel is expected to begin in the coming year. The most important question to be decided now is the route.

PUBLIC HEARINGS PLANNED

Public hearings will be held by Commissioner Delaney to obtain the consensus of opinion as to whether the tunnel should connect with the Fourth Avenue subway in Brooklyn and extend to St. George, Staten Island, from a point at Sixty-fifth Street, Brooklyn, or whether it should connect with the Interborough subway at the Battery.

It is stated that the city officials favor the Brooklyn connection. The reason given is that the distance is only about 2 miles, in comparison with the 5 miles from the Battery to St. George. It is explained that a tunnel could be built under the shorter stretch of water for about \$12,000,000, which is something like \$6,000,000 more than the estimates made before the war; that a tunnel from the Battery to Staten Island would cost about \$20,000,000, and that the long trip direct from the Battery to Staten Island, during which no passengers could be picked up, would be very serious from an operating standpoint.

It was said that the lack of money might delay the actual beginning of the work, after the route had been decided upon, for six or nine months. With a tunnel operating from Richmond Borough, it was said, past inconveniences from strike of ferry and longshore workers would be wiped out, supplies could be brought to all points of the city from the New Jersey shore in case of need, and the residents of Staten Island would not again be marooned because of a strike of the ferry hands.

OBJECT TO BROOKLYN ROUTE

The Staten Island subway committee, which has been urging a tunnel connection with Manhattan instead of with Brooklyn, objects to the attitude of those city officials who want the proposed tunnel connected with the subways operated by the Brooklyn Rapid Transit Company, instead of those operated by the Interborough Company.

Legislating Against the Interurbans

Councilman John W. Reynolds, of Cleveland, Ohio, has prepared an ordinance that, if passed, will compel interurban cars to stop at the city limits and force passengers to transfer to the already crowded city cars. He contends that the interurban cars operating over the city tracks have caused most of the track and pavement troubles. The Taylor grant, under which the Cleveland Railway operates, provides for the payment of 25 cents per car-mile by the interurban companies. According to Mr. Reynolds, this amounts to \$125,000 a year, while the city is compelled to spend many times that amount in track and pavement repairs. To compel the interurban railways to stop their

cars at the city limits would put Cleveland in the same position as regards interurban railways that Cincinnati has labored under for years. Within a few years provision will be made for bringing the interurban cars into Cleveland over the Van Swerigen right-of-way.

Councilman Mitchell has prepared an ordinance that would limit electric freight trains to two cars. The present ordinances allow three-car trains to be operated, but the roads have not yet exercised this right. Street Railway Commissioner Sanders has ruled that the City Council has authority to limit the number of cars that may be operated as a train.

Trenton Wage Award Announced

The board of arbitration which recently took up the wage question for the employes of the Trenton & Mercer County Traction Corporation, Trenton, N. J., has instructed the company to grant the following increase:

Platform men employed for first three months, 46 cents an hour; nine months, 48 cents an hour; more than nine months, 50 cents an hour; 5 cents an hour additional for all employees engaged in teaching new motormen and conductors; time and a quarter for all employees who work over the schedule time of runs, the same pay to apply to men employed on snow plows and sweeper work and car-house work; 5 cents an hour additional for operators of one-man cars, and a pro rata increase to all other employees. All extra platform men are to receive pay for six hours a day.

The new agreement is to expire on April 1, 1921. The increase pay is to date from July 1, 1919. The operators of one-man cars have been receiving 47 cents an hour. They demanded 75 cents. Other platform men have been receiving 42 cents an hour. They demanded 50 cents an hour.

News Notes

City Votes Purchase Funds.—On Nov. 5 the Municipal Council of Attleboro, Mass., appropriated \$30,000 as its share of the purchase price of the Norton, Taunton & Attleboro Street Railway. Another \$5000 was voted to cover the purchase of equipment and supplies.

Calls on Men for Arbitration.—The "Mayors' Committee," comprising executives of towns in the vicinity of East St. Louis, Ill., who have interested themselves in the dispute between the employees and the management of the East St. Louis & Suburban Railway, met on Oct. 23, and passed a resolution calling on the railway employees to submit their demands to the State Board of Arbitration.

First Installment of Back Pay.—The United Railways Company, St. Louis, Mo., recently paid its trainmen the first of six installments of back pay awarded by the Public Service Commission, to which the controversy on wages was submitted. The total payments will be \$684,000, the October installment being \$114,000. The back pay dates from the expiration of the old

contract on June 1. The men are now being paid at the rate of 50, 55 and 60 cents an hour, according to length of service.

Strike in Aberdeen.—The trainmen of the Grays Harbor Railway & Power Company in Aberdeen and Hoquiam, Wash., are on strike, supporting union linemen, who walked out because of alleged violations of the closed-shop agreement. All cars between Aberdeen and Hoquiam and Aberdeen and Cosmopolis are also idle. To date power for operation of the industrial plants of the city has not been interrupted. The management of the company has declined to grant the demands of the men.

Drive for Membership in American Association of Engineers.—The American Association of Engineers contemplates a national drive for membership along the lines used in obtaining subscriptions to Liberty Bonds. The ninety clubs and chapters will divide their members into membership teams, each with a certain territory to cover, under the supervision of a team captain. Prizes will be given for the largest accessions to membership. It is hoped to increase the number of members from 8500 to 10,000. The drive will take place during the first two weeks of December.

Fender Trial in Washington.—A demonstration of a new type of "pick-up" fender will be held in Washington, D. C., before the Public Utilities Commission on Nov. 17. Motion pictures of the fender in operation will be shown and a working model of it will be submitted to the commission for inspection. The commission now has under consideration a request from the local companies, submitted several months ago, that fenders be abolished entirely. Fenderless cars have been in operation on certain lines in Washington since that time. The commission will hold in reserve any decision on the fender question until after the demonstration of the new fender.

East St. Louis Men Make Demands.—The East St. Louis & Suburban Railway, East St. Louis, Ill., in contesting the demand for increased wages which have been made by its conductors and motormen shows a table in the East St. Louis Daily Journal comparing the wages paid in a large number of cities in the Central West in 1916 and in August, 1919, together with the percentage of increase in the three years. The increase in wages paid East St. Louis trainmen in 1919 over 1916 was 88 per cent. It exceeded the advance made in all but two of the cities included in the list, those being Davenport and Des Moines, Ia., where the increase was 93 and 100 per cent. The East St. Louis trainmen have voted to strike unless their demands are met.

Court Authorizes Paving.—An order was issued by Judge William I. Grubb, of the United States District Court at Birmingham, Ala., on Nov. 1 authorizing Receiver Lee C. Bradley, of the Birmingham Railway, Light & Power Company to proceed with the paving of Tuscaloosa Avenue. The company is required to pave between its rails and a strip 18 in. wide outside of its rails. According to a statement filed by the receiver in the Federal Court the work will cost \$100,000 exclusive of the rails, which have already been purchased by the company. The contract for the paving of the remainder of the street was let by the city to the Dunn Construction Company in 1917, but the work has been held up because the Birmingham Railway, Light & Power Company was not prepared to pave its portion of the street.

Financial and Corporate

Brooklyn Road States Its Case

Shows Its Stock Is Held Mostly Locally by 1472 Individuals, etc., 742 of Them Women

On Oct. 28 Frank Lyman, president of the Brooklyn (N. Y.) City Railroad, recently separated by court order from the rest of the Brooklyn Rapid Transit System, addressed the following letter to the stockholders of the Brooklyn City Railroad:

The property of your company, which was leased to the Brooklyn Heights Railroad on Feb. 14, 1893, was operated by that company until the latter was placed in the hands of Lindley M. Garrison, receiver, under order of United States District Judge Mayer, on July 14, 1919.

The receiver in compliance with an order of the court, failed to pay on Oct. 1, 1919, the rental as provided in the lease of the Brooklyn City property by the Brooklyn Heights Railroad, and the officials of your company thereupon demanded the return of the property. This demand was ordered to be complied with, and the receiver of the Brooklyn Heights Railroad, by court order, ceased to operate the lines of your company at midnight between Oct. 18 and 19, 1919, at which time your company began the independent operation of its properties under the direction of its own officials.

The gross receipts from the operation are encouraging, and it is hoped will exceed the operating costs. It is impossible, until the period of operation has been much more extensive, to submit estimates of earnings, or operating costs.

Your directors hope that ultimately the state and city authorities will relieve surface railroads from their present universal embarrassment. Every share of your capital stock was paid for in cash, a dollar in money for a dollar in stock, and we cannot believe that a fair return will be denied on such an investment devoted to the public service.

Demand for a fair return upon the property of the Brooklyn City Railroad should now be made by its shareholders, a great number of whom are Brooklyn men and women, the guardians of children and the trustees of deceased shareholders. They live in this borough, and wish it well, and only ask a fair return for the service they are giving their fellow citizens. If every shareholder will be at pains to inform himself or herself of the justice of our claim, and then make known the facts, a just public opinion will be created.

There was appended the following analysis of the stock list of the company:

	Number of Holders	Shares	Par Value
Women	742	391,951	\$3,919,510
Trustees, administrators, executors, guardians, life insurance companies, charitable institutions and colleges	208	407,799	4,077,990
	950	805,750	8,057,500
Other corporations, individuals, etc.	522	394,250	3,942,500
Total stock list	1,472	1,200,000	\$12,000,000

Merger Urged for Ohio Roads

The State Public Utilities Commission on Nov. 4 issued warning to the Union Bank & Trust Company, trustee for the Cincinnati & Columbus Traction Company, that unless service was maintained to Owensville, Ohio, heavy penalties would be exacted for failure to comply with the commission's orders. The company has at various times sought to discontinue service, receiving at one hearing a grant to discontinue its service beyond Owensville; now the company seeks to shut off service from Norwood to Owensville, which resulted in a protest from Owensville citizens.

Citizens of Hillsboro, Ohio, a village beyond Owensville, without electric railway service for some time, have appealed to B. H. Kroger, owner of the Cincinnati, Milford & Blanchester Traction Company, urging a merger of this line with the Cincinnati & Columbus Traction Company. As the latter company is desirous of discontinuing operation, the merger is generally regarded as the most practical solution.

Shore Line Receivership

Proceedings Reviewed Covering the Appointment for City and Inter-urban System in Connecticut

As noted previously in the ELECTRIC RAILWAY JOURNAL R. W. Perkins, president of the Shore Line Electric Railway, Norwich, Conn., has been appointed receiver of the company. The application was brought by the United States Trust Company, New York, and others, executors of the will of M. F. Plant. The application stated that the estate owns 6,921 shares of the 7,000 shares of common stock, 2,898 shares of the 3,000 shares of preferred stock, both of a par value of \$100, \$2,725,000 of bonds, and \$3,460,000 of the \$3,500,000 of debentures.

REASONS FOR ACTION

The plaintiffs set forth that the outstanding accounts must be paid and that actions are threatened that would interfere with the complete operation of the road and that its assets are in danger of waste through litigation and attachments. The plaintiffs also alleged that there was urgent need of a receiver to take possession of the property and franchises in order to protect the interests of the creditors and stockholders.

Following his appointment Mr. Perkins made a statement in which he said in part:

The owners of the Shore Line Electric Railway have secured the appointment of a receiver for the protection of its creditors.

This action seemed necessary because of the fact that the property, as a whole, for the first six months of the year 1919 operated at a material loss, the gross revenue not being sufficient to meet actual operating expenses, exclusive of taxes, rentals and interest, and the expectation for the coming three months, based upon the earnings of 1918, indicate a still further loss in actual operating expense.

It will be remembered that in the testimony before the special commission at Hartford last winter the statement was made that the trend of expense, as compared with earnings, was such that it would not be possible to operate the properties after Labor Day without material loss, and that the community was facing the failure of at least some of its transportation service. This condition has been emphasized by the recent strike of employees and would also have been emphasized had an increase of wage been granted. Just what is to be the future of the properties in eastern Connecticut is a problem, the solution of which will call for the co-operation of all who are in any way interested in the continuance of electric railway transportation.

The Shore Line has never been a profitable investment, and it is now numbered among the many properties in New England and outside of it that have been compelled to surrender to the inevitable where gross revenue does not equal operating cost.

Mr. Perkins then reviewed electric railway conditions generally.

MR. PERKINS ALSO APPOINTED IN RHODE ISLAND

After Mr. Perkins had been appointed by the court for the Connecticut lines of the company Herbert W. Rathbun, acting for the executors of the estate of Mr. Plant, presented a petition for the appointment in Rhode Island of an ancillary receiver to take over the properties of the Shore Line Electric Railway. He stated that Mr. Perkins had just been appointed receiver by a judge of the Superior Court for New London County for the Connecticut properties under a bond of \$50,000. The properties in Rhode Island include the lines between Westerly, Watch Hill, Pleasant View, Weekapaug, Ashaway and

a part of the Norwich and Westerly system and appurtenances. Judge Dunn promptly entered a decree appointing Mr. Perkins temporary ancillary receiver to operate the road in Rhode Island and make contracts for a period of three months.

No Deposits Now

Mention is made elsewhere in this issue of the appointment of a committee in the interest of the holders of the first and refunding mortgage 5 per cent bonds and the three-year secured convertible 7 per cent notes of the Interborough Rapid Transit Company. The committee, of which J. P. Morgan is chairman, does not deem it necessary at the present time to ask for the deposit of bonds and notes, but it did make a public statement. It said:

The Interborough Rapid Transit Company, notwithstanding great increase in its operating costs and the maintenance of the 5-cent fare, has been able thus far to pay its fixed charges upon the first and refunding mortgage 5 per cent bonds and three-year secured convertible 7 per cent notes.

As the issuing bankers, we are deeply interested in the continuance of such payments and the avoidance of defaults. For some time past we have informally conferred with others similarly interested as to the propriety or necessity of taking steps in the interest of the holders of such bonds and notes. We have caused careful analyses of past and prospective earnings of the subway system to be made, but it has not heretofore appeared that concerted action was necessary to protect such investments.

We have always believed, and we still believe, in the inherent soundness of investments in the bonds and notes. In view, however, of the general traction situation in New York and in response to requests from the holders of large amounts of the bonds and notes, we have agreed to head a committee, to act when necessary or advisable, to further the interests of the holders of such securities.

Yonkers Road Still Going Behind

The Yonkers (N. Y.) Railroad, in its condensed income and profit and loss statement for the quarter ended June 30, 1919, filed with the Public Service Commission for the Second District, shows:

Operating revenues	\$273,873
Operating expenses	238,886
Net operating revenue	\$34,987
Taxes assignable to railway operations	8,982
Operating income	\$26,004
Non-operating income	266
Gross income	\$26,270
Deductions from gross income:	
Rents	35,713
Interest on funded debt	12,500
Interest on unfunded debt	20,545
Total deductions from gross income	\$68,758
Net corporate loss	\$42,488

From the above a loss of over \$42,000 is shown for the quarter. The railway operating expenses and revenues, if maintained during the year, would thus show a total loss of something less than \$170,000 for the twelve months.

This is the first report made public by the Yonkers Railroad covering any part of the period during which the extra fares have been collected. It was on April 28 that the extra fares to points outside of the city limits were put into effect. The report shows receipts and disbursements for two of those months—May and June—and three days of April.

Richmond Company Has Smaller Surplus

The annual report of the Virginia Railway & Power Company, Richmond, Va., for the year ended June 30, 1919, shows a surplus after taxes, charges and depreciation, of \$435,332, equal to \$5.45 a share earned on the \$7,999,400 preferred stock. In the preceding year surplus was \$958,645, equivalent after preferred dividends to \$3.39 a share on the common stock. The consolidated income account for the year compares as follows:

	1919	1918
Gross receipts	\$8,429,283	\$7,457,530
Operating expenses	5,393,533	4,100,493
Net earnings	\$3,035,750	\$3,357,037
Other income	154,771	115,865
Total income	\$3,190,521	\$3,472,902
Taxes, interest, etc.	2,104,700	1,924,378
Other charges	144,732	120,077
Depreciation	505,757	469,802
Balance	\$435,332	\$958,645
Preferred dividends	239,976	479,952
Common dividends	195,356	478,693
Deficit	\$103,323	*\$299,450

* Surplus.
† Paid in stock of Old Dominion Iron & Steel Corporation.

St. Louis Earnings Increase

An increase in revenue of \$123,790 for the last three months over the preceding quarter is revealed in the quarterly report of the United Railways, St. Louis, Mo., filed with the City Register on Oct. 15. The total revenue for the quarter was \$3,846,605. The daily average gain for the three months ended Sept. 30 in passengers carried is given as 9,814 passengers over the previous period, totaling 885,746 passengers.

The report also shows a daily average increase of 22,434 passengers over the similar quarter last year. The total number of passengers carried during the quarter was 63,504,230, of which 7,289,462 were 7-cent fares, 55,114,329 were 6-cent fares, 51,566 were 5-cent fares in the county, 78,371 were 3.5-cent child fares and 970,512 were 2.5-cent child fares. The number of cars, on an average, used daily during the last three months, is given at 1,280 for days of week except Saturday and Sunday. For Saturday the average is given at 1,178 cars and for Sunday an average of 723.

The fifth monthly report of Rolla Wells, receiver for the company, was filed in the United States District Court on Oct. 14 and shows that the company had twice as much money on hand at the conclusion of the month of August as it did at the end of July. On July 31 the cash on hand amounted to \$577,725, while exactly one month later the balance on hand was \$1,010,543. During the month of August the company collected a total of \$1,418,400, while the disbursements amounted to \$985,583. Of the receipts for the month more than \$1,300,000 was realized from fares.

Sale Under Foreclosure Confirmed

The protective committee of the Lewiston, Augusta & Waterville Street Railway first and refunding 5 per cent mortgage bondholders, who bid in the property at the sale held in Auburn, Me., Sept. 5, complied with all necessary requirements and the sale has been confirmed by Judge Morrill.

The Lewiston, Augusta & Waterville

Street Railway has been reorganized under the title of the Androscoggin & Kennebec Railway, following the sale of the property of the company at public auction early in the fall. Alfred Sweeney, Lewiston, continues as general manager. The service on the Turner branch, the property of which was sold without the franchise, has been discontinued.

Municipal Railway Head Optimistic

In a communication filed recently with the City Council, Thomas F. Murphine, superintendent of public utilities, in charge of the Seattle (Wash.) Municipal Railway, said:

Our increase for this year over the receipts of the company, combined with the city lines of last year, will approximate 11½ per cent. If this increase should continue for the first three years at even 7 per cent (which is less than the average percentage of yearly increase in the city's population during the last ten years) the year ending March 1, 1922, will show revenue more than sufficient to make the first payment on the bonds, and unless non-paying extensions are authorized by your honorable body, our expense of operation will not be materially increased. This without any further savings in the way of economies in operation.

It will be remembered that among the various demands of the traction company, during the negotiations which resulted in the purchase by the city, were those providing for a 6-cent fare, with 1 cent additional for transfers, and the abolition by the city of jitney transportation, and that the city officials were willing to grant all the demands to the company except the 6-cent fare and the 1 cent additional for transfers.

This department has not asked that the jitney transportation be abolished for the reason that at the present time, during the peak load, we believe the jitneys are performing a good service, but the city is at present losing approximately \$1,000 a day to the jitneys during the off-peak hours when our cars are running at not to exceed a 10 per cent load, and we again recommend to your honorable body that this jitney transportation be so regulated that it will furnish service when and where needed and do away with useless and senseless competition.

As before stated, this would increase our net revenue approximately \$1,000 a day and would just about meet the increase in wages which we understand your honorable body expects to put into effect on Oct. 1.

Action such as has been suggested in the interest of the Seattle Municipal Railway has been taken by city officials in practically all cities of the United States for the benefit of private companies and also the private companies have been allowed to increase their fare to 6, 7 and even as high as 10 cents. Surely such action would be justified by a city not only to protect its own investment but to keep the fare down to 5 cents.

Kansas City Reports Deficit of \$2,391.115

The comparative income statement of the Kansas City (Mo.) Railways, for the fiscal years ended June 30, 1919 and 1918, follows:

Year Ending June 30	1919	1918
Income from transportation ..	\$6,414,148	\$6,622,706
Income from power sales, etc. .	1,614,449	1,549,698
Gross earnings	\$8,028,598	\$8,172,404
Wages and expenses—transportation department	\$2,916,025	\$1,985,609
All other expenses—shops, power plant, maintenance, coal, etc.	5,119,839	4,538,787
Taxes	\$8,035,865	\$6,524,396
	515,460	517,125
	\$8,551,325	\$7,041,521
Loss in actual operating (1919)	\$ 522,737	
Net operating income (1918) ..		\$1,130,882
Interest	1,868,387	1,569,901
Deficit	\$2,391,115	\$ 439,019

It will be noted that while the gross earnings from July 1, 1918, to June 30, 1919, decreased \$143,806 over the corresponding period for 1917-1918, the wages and expenses in the transportation department increased \$930,416.

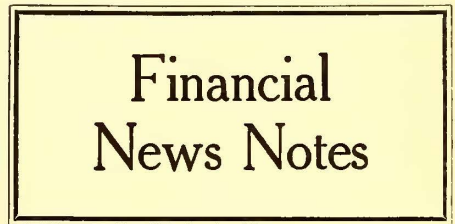
New Hampshire Towns Take Over Roads

Exeter and Hampton, in New Hampshire, have taken over the Exeter & Hampton Street Railway, which serves those two towns and the town of Hampton Falls and runs from Exeter to Hampton Beach. The voters of Hampton have appropriated \$60,000 to buy the franchise and rolling stock of the road and to operate it in conjunction with the other two towns. The voters of Exeter have adopted three propositions, a committee to determine which will go into effect.

One of the plans suggested appropriates enough money to buy one-fourth of the railroad and to operate it in co-operation with the other towns or to hire some private individual to operate it.

The second proposition which has been advanced is to let somebody operate the road and have the towns guarantee its operation against loss, Exeter appropriating \$25,000 a year for the next five years to meet its share of a deficit in operation.

The third proposition is to operate the road municipally and each town pay a straight operating subsidy, the deficits to be met by taxation. The price fixed upon for the municipal purchase of the railway is the value of the equipment of the road as junk.



One-Year Notes Offered.—A syndicate headed by the Fidelity Trust Company, Baltimore, Md., is offering for subscription \$550,000 of one-year 6 per cent collateral trust notes of the Hagerstown & Frederick Railway, Frederick, Md., operating 91 miles of road in Maryland and Pennsylvania.

Arranged to Pay Notes.—The Reading Transit & Light Company, Reading, Pa., announced recently that arrangements had been made to pay on Oct. 7, 1919, the two-year 6 per cent gold notes which matured on Aug. 1, together with interest thereon at the coupon rate to said date.

Interest Payment Announced.—It was recently announced that the semi-annual interest which became due on Aug. 1, 1919, on the \$1,750,000 of first mortgage 5 per cent bonds of the City & Suburban Railway, Washington, D. C., of 1948 would be paid at the office of the Baltimore Trust Company on Nov. 1.

Washington Merger Postponed.—The *Financial Chronicle* says that the plan for the merger of the Washington Railway & Electric Company, Washington, D. C., and the Capitol Traction Company has been postponed "to see how the recent 25 per cent increase in fares will effect the financial status of the companies."

Not Earning Guaranteed Return.—The Dallas (Tex.) Railway has published its financial statement covering the month of August and the twenty-three months it has operated under the service-at-cost franchise, showing that the company has failed by \$413,948 to earn the 7 per cent return on the agreed valuation of the property as permitted under the terms of the franchise.

United Railways, St. Louis, Mo.—Another improvement announced by the United Railways is a proposal to establish fifteen new substations at an approximate total cost of \$450,000.

Interest Payment Deferred.—Powell Evans, president of the Schuylkill Railway, Girardville, Pa., recently sent notice to the bondholders that the interest due on Oct. 1, on the first consolidated 5's of 1939 (about \$640,000 outstanding) and on the \$500,000 of Schuylkill Traction Company first mortgage 5's of 1943 has been deferred. The company recently offered its road for purchase by the municipalities through which the line operates.

Debentures Hold.—In compliance with a decree of the Supreme Court of Connecticut, Judge Green of the Superior Court has entered final judgment in the \$10,000,000 ouster suit of the Connecticut Company, New Haven, against the New York, New Haven & Hartford Railroad. The judgment prevents the electric railway from declaring null and void debentures purchased by the New York, New Haven & Hartford Railroad and secured on the property of the electric railway.

More Time Allowed for Payment.—According to terms of an order entered by Federal Judge George W. English of the Eastern Illinois District, H. D. Mephram will be allowed until Nov 15 to pay a balance of \$325,000 on the \$400,000 he recently bid at public auction for the holdings of the Southern Traction Company of Illinois. Under terms made at the sale the bid was to have been paid to the receivers of the road before Oct. 1. In extending the time limit Judge English ruled that \$25,000 on Oct. 15, \$25,000 on Nov. 1, and the balance by Nov. 15 would meet the requirements.

New Agreement Covering Road Taxes.—The Philadelphia (Pa.) Railways, under a new ordinance agreement with Councils of Philadelphia, is to pay \$3,000 annually in lieu of road repairs. The agreement is expected to help the company's credit, which has suffered like many other electric roads. A similar agreement was approved by Council for the Frankford, Tacony & Holmesburg Street Railway. Chief Dunlap, of the Highway Bureau, declared at a hearing before the Public Utilities Commission that the new agreement with the Southwestern Line is equitable for both parties.

Calls for B. R. T. Deposits.—A committee of which Walter E. Frew is chairman is asking for the deposit of the 4 per cent first refunding mortgage bonds of the Brooklyn (N. Y.) Rapid Transit Company, interest on which is in default and on which an action is pending to foreclose the mortgage. The committee points out that through the efforts of the trustee of the mortgage the attempt has been defeated that was made to subordinate the lien of the refunding mortgage to nearly \$20,000,000 of receiver's certificates and that the fact that the attempt was made and that foreclosure action is pending increases the need for united action.

Court Fixes Depreciation Reserve.—Judge Julius M. Mayer, in the United States District Court, has issued an order directing Job E. Hedges, as receiver for the New York (N. Y.) Railways, to have 38 per cent of the gross transportation revenue put aside as a reserve for maintenance and depreciation. This order was made after the submission to the court of a report by Stone & Webster to the effect that under present conditions, and with a

5-cent fare, it would take 37.4 per cent of the revenue to go as far in the way of maintenance work as was done with 20 per cent in the year 1914, which was the old figure.

Judgment Against New York Crosstown Line.—Judgments aggregating \$231,188 were entered on Oct. 30 in the Supreme Court against the Mid-Crosstown Railway, New York, N. Y., which operates a storage-battery line through Twenty-eighth and Twenty-ninth Streets. The largest judgment, amounting to \$162,889, was in favor of the Third Avenue Railway for power, materials, wages, etc. The others were in favor of these other subsidiary companies of the Third Avenue system. The debts have been accruing since December, 1914. Judgment in each case was confessed. The Mid-Crosstown Company found it impossible to operate successfully.

Pascagoula Road Resold.—E. J. Ford, the purchaser of the property of the Pascagoula Street Railway & Power Company, Pascagoula, Miss., sold recently under foreclosure by Special Commissioner C. A. Money under instructions from Federal Judge Holmes, has sold the property to A. B. Patterson and associates, Meridian, Miss., who, if satisfactory franchises can be arranged with the city, will immediately begin the work of repairing and improving the property and the operation of the water, ice and electric plants. No definite arrangements have been decided upon as to the electric railway system, but the electric current for residence and city lighting will be generated in connection with the other activities of the plant.

Committee in Interest of Interborough Holders.—Announcement was made recently that the following committee of bankers had been formed to look after the interests of the 5 per cent bonds and 7 per cent notes of the Interborough Rapid Transit Company, New York, N. Y.: J. P. Morgan, chairman; Frederic W. Allen, of Lee, Higginson & Company; George F. Baker, Jr., vice-president First National Bank of New York; Allen B. Forbes, of Harris, Forbes & Company; G. Herman Kinnicutt, of Kissel, Kinnicutt & Company; H. C. McEldowney, president Union Trust Company, Pittsburgh; John J. Mitchell, president Illinois Trust & Savings Bank, Chicago; Dwight W. Morrow, of J. P. Morgan & Company; F. H. Shipman, vice-president New York Life Insurance Company, and James A. Stillman, president National City Bank, New York.

Bondholders' Committee Purchases Collateral.—The committee representing the holders of the 6 per cent five-year collateral trust gold notes of the Fort Wayne & Northern Indiana Traction Company, Fort Wayne, Ind., has notified the depositors that in accordance with the agreement the committee has purchased \$1,941,000 of the first and refunding mortgage 5 per cent twenty-year gold bonds which were pledged as collateral security for the notes and that the notes have been deposited under the protective agreement. The holders of certificates of deposit are to surrender their certificates of deposit before Nov. 29 and are to pay the depository \$22.85 for each \$1000 of notes deposited to cover the expenses and indebtedness of the committee. The depositors will then receive pro rata certificates of deposit.

Hudson Tube's Net Income Decreases.—Total railway revenue of the Hudson & Manhattan Railroad, New York, N. Y.,

for the year ended Dec. 31, 1918, amounted to \$5,078,422, according to the annual report issued on Oct. 29. This is an increase of \$651,416 over 1917, or 14.71 per cent. The passenger fares totalled \$4,715,119, which includes an arbitrary allocation of revenue by the Director General of Railroads of \$183,588 in excess of the normal proportion of joint revenue accruing to the company under the existing contract with the Pennsylvania Railroad. The total operating expenses were \$2,581,544, an increase of \$670,079, or 35.05 per cent. The net income applicable to bond interest totalled \$2,787,712, a decrease of \$66,667, or 2.34 per cent. The balance of the net income shows a deficit of \$40,822, as compared with a credit of \$1,847 for the year 1917.

Oakland Note Issue Authorized.—In an order issued by the Railroad Commission of California on Oct. 29 the San Francisco-Oakland Terminal Railways is authorized to issue to the Realty Syndicate Company two notes, one for \$247,000, the other for \$33,630. To secure the payment of the larger note the company is to deposit 370 of its general lien mortgage bonds; as security for the smaller note fifty of the bonds are to be deposited. The notes are to refund notes authorized by the commission on June 23, 1914. The commission has also authorized the company to issue its 6 per cent demand notes, not to exceed the sum of \$169,520, to renew notes for a balance of \$169,520 due on notes amounting to \$218,459, issued to various banks. The company reports that it has paid \$48,939 of the original notes. These notes are to be secured by the deposit of \$257,000 face value of its general lien mortgage bonds.

Buffalo Affairs Reviewed.—At the recent annual meeting of the stockholders of the International Traction Company, Buffalo, N. Y., E. G. Connette, president of the company, stated that the operating account showed a surplus for each of the last three months. Mr. Connette said that the settlement of the claims of the holders of the collateral trust 4's, interest on which was in default on Jan. 1, 1919, had not yet been reached. Since the indefinite postponement of the sale of the collateral the offer of the committee representing the bondholders to accept 50 per cent of par in cash for their holdings was answered by a counter proposal of the protective committee of the stockholders to give the bondholders preferred stock to the amount of 40 per cent of their holdings at par and cash to the amount of 20 per cent. This was rejected. Final adjustment is pending. Meanwhile the sale of the collateral has again been postponed.

Deficit in St. Louis in September.—Figures have been made public by the United Railways, St. Louis, Mo., showing that 53,795 fewer fares were collected daily between Sept. 20 and Sept. 30, when a 7-cent fare was in effect, than were collected between Aug. 20 and Aug. 30, when a 6-cent fare was in effect. This was despite the fact that 21,261 more fares a day were collected from Sept. 1 to Sept. 19 under a 6-cent fare than were collected from Aug. 1 to Aug. 20 under the same fare. The average number of passengers a day carried during the last eleven days of September was 703,766. The company's statement also shows a deficit for the month of September of \$181,407. The total operating revenue was \$1,405,856, and operating expenses and taxes, \$1,374,719. The gross income was \$39,770. This was insufficient to meet the interest and miscellaneous charges of \$221,177.

Traffic and Transportation

Zones in Connecticut

New System Gives 70 Per Cent Efficiency in Schedules, Increasing after Three Days to 85 Per Cent

On Sunday Nov. 2, 1919, the Connecticut Company installed a zone system of fares on its entire system. This system differs somewhat from other zone systems in effect in that in all the large cities a zone limit is established at the center of the so-called central or metropolitan area and a minimum fare of 6 cents is established for a ride of two zones or less. Transfers good for a single zone are issued at intersecting points to connecting routes on payment of the 6-cent minimum zone fare; that is, when a passenger rides only a single zone on the first car and completes the second zone on a second car. However, if a passenger has ridden two or more zones on the first car and desires to ride only one or two on the second car he can get an identification check from the first conductor which, together with the actual zone fare will entitle him to ride one or two zones. It is of no benefit to passengers to get such a check if riding more than two zones on the second car.

MOTORMAN IDENTIFIES PASSENGER

Passengers board by the forward door and receive an identification boarding check from the motorman. All fares are collected on the pay-leave basis, the passenger handing the identification check to the conductor and depositing the proper fare in a Johnson registering fare box.

School children are carried at half rates. Special scrip books having 100 coupons are sold for \$1, each coupon being good for a single zone ride and valued at 1 cent each.

The company will also displace all paper tickets now used by the public. In place of them metal tickets having a value of 6 cents will be substituted. The company believes these tokens will be of great convenience, since each one will be good for the ordinary ride and can be used as part payment for a ride of any distance. These metal tickets will be sold by conductors at 6 cents each or at the offices of the Connecticut Company in packages of seventeen for \$1.

TRAFFIC DELAYED AT START

Due to the unfamiliarity of the car riders in general with the new system and also to the lack of experience by the trainmen, the time taken by passengers in boarding and alighting from cars was materially increased at the start, especially at heavy loading and unloading points, with the result that on the first day's operation cars on some suburban lines were far from being on schedule. However, as soon as people had ridden on the cars, found out how to board, what to expect to receive from the motorman and the fares to be paid, traffic conditions began to improve and it was reported that the rush hour service on Tuesday was a great improvement over that of Monday. The maximum amount of delay at the start seems to have been experienced in the city of Bridgeport.

There have been no reports of any disturbances except in Bridgeport where employees of one factory attempted to rush

a conductor. In at least one case cars to heavy labor centers were operated under the pre-payment plan to do away with the incentive of rushing the conductor to avoid paying fare.

ATTITUDE OF TRAINMEN AND MUNICIPALITIES

The trainmen are using every effort to make the plan a success and to provide passengers with the exact change by going through the cars at intervals and making change. Passengers can thus leave the car with a minimum of delay. President Storrs of the company sent a letter to the employees on Tuesday morning thanking them for the spirit of co-operation which they have shown.

The New Haven Aldermen have voted authority to Corporation Counsel William T. Bennett to file a protest against the zone system with the Public Utilities Commission and to ask that the commission take steps to revise the system. It is expected that Mr. Bennett will confer with civic authorities in other cities and towns affected.

H. F. Billings, secretary of the commission, has said that the commission could at any time now receive protests with respect to the zone system. Before such application is made he urged cities and towns affected to get together and advise with him as to what had best be said. The commission has power to reduce fares and to determine whether the service rendered is sufficient.

Orders Investigation of Omaha Service

The City Council of Omaha, Neb., has directed W. C. Lambert, corporation counsel, to file a formal complaint with the State Railway Commission asking that an investigation be made of the electric railway service in Omaha. This move has come as a climax to the recent order of the commission granting to the Omaha & Council Bluffs Street Railway the right to continue the skip-stop system indefinitely. The City Council feels that this order of the commission takes an important matter out of its hands and that the Omaha & Council Bluffs Street Railway is ignoring the rights of the Council.

Drops Investigation of Vancouver Fares

Owing to the discovery that the British Columbia Electric Railway, Vancouver, B. C., comes under the jurisdiction of the Railroad Board of Canada, Major J. L. Retallack, Public Service Commissioner for the Province of British Columbia, has dropped the investigation into the necessity for the 6-cent fare charged by the company. He based his action on an amendment to the Railway Act recently passed by the Canadian Parliament which declares that if any portion of any railway system comes under control of the board, the rest of that system shall be considered as coming within its jurisdiction also. The company has a Dominion charter for its Lulu Island branch, a fact which, in Major Retallack's view, takes the entire matter out of his hands.

New Instruction Method

Pacific Electric Railway, Los Angeles, Appoints Traveling Agents to Instruct Conductors

Traveling passenger agents have been assigned to each division of the Pacific Electric Railway, Los Angeles, Cal., whose duties are to explain anything pertaining to conductors' tariffs, application of fares, transfer rules or any general information that may be desired by conductors relative to matters coming within the province of the passenger department.

NEW APPOINTMENTS ANNOUNCED

F. E. Billhardt has been assigned to the western division, F. C. Patton to the southern division and J. A. Birmingham to the northern division. These men will travel over the different lines of the division to which they have been assigned or will meet conductors at division terminals, and discuss such matters for the purpose of arriving at a uniform understanding of all matters pertaining to the passenger department.

Conductors have been instructed to notify their terminal foreman if at any time everything is not clear, and one of the traveling passenger agents will make it a point to set things right.

As a matter of information and instruction for conductors, relative to proper handling of tickets, transfers, tariffs and various other matters pertaining to the duties of passenger conductors a very complete book has been compiled by the general passenger department and placed at all important terminals, where it may be studied by conductors. This, it is expected will be of great assistance to the new men, including those who have been taken on since the recent strike of the employees of the company.

These books contain an index calling attention to particular pages where information relative to certain matters may be located, and in addition to general information and miscellaneous questions and answers, each line is treated separately and also each division is segregated, so that a conductor desiring information regarding lines on the division upon which employed need not search through the entire book or lines of another division to obtain the necessary information.

SPECIAL INSTRUCTIONS NOTED CAREFULLY

Special pages have been devoted to most important questions relative to handling of war revenue tax, cash fare receipts, honoring annual card passes, government requests for transportation, employees emergency passes, honoring Southern Pacific tickets, Santa Fe and Salt Lake tickets, also steamship tickets. In the books are samples of practically all conductors' tickets, cash coupons, coupon passes, trip passes, cash fare receipts, transfers, receipt for fare paid, etc.

The book is arranged in the form of questions and answers.

New Five-Cent Service for Boston

The trustees of the Boston (Mass.) Elevated Railway have decided to discontinue the experimental 5-cent fare, non-transfer line which has been in operation for a number of weeks between the North Station and the retail business district. The line averaged only fifteen passengers per round trip. In its place a new experimental 5-cent fare, non-transfer line was inaugurated on Nov. 8 between Rowes Wharf and the South and North Station via Post Office Square.

Seven Cents in Milwaukee

Commission's Order Upholds Present Zone System—Six Tickets to Cost Thirty-Five Cents, Eighteen to Cost One Dollar

The Railroad Commission of Wisconsin, on Oct. 30 authorized the Milwaukee Electric Railway & Light Company to raise fares in the single fare zone area of Milwaukee from 5 cents to 7 cents. The company was ordered to sell tickets good in the central area at the rate of six for 35 cents or eighteen for \$1. The commission reserves jurisdiction in the matter of tickets in the hope that the revenue produced under this scheme will be such that, within a short time, it will be able to order an increase in the number of tickets sold for \$1. In the suburban area a cash fare of 3 cents for each zone, with a minimum of 6 cents is established. Suburban ticket rates are not changed. The company is ordered to submit within fifteen days a plan for the issuance of commutation tickets between South Milwaukee and the single fare area.

ZONE SYSTEM UPHOLD

The commission ruled that the double transfer system be continued. It also stipulated that the wage scale, hours of service and working conditions provided for in the decision of the State Board of Conciliation should be complied with. The company was also directed to place in operation 100 additional cars and to introduce new methods of accounting which would more accurately reflect operating costs. The new rates became effective Nov. 2, 1919.

The commission's order in effect justifies the zone system in force in Milwaukee. A higher fare was found to be necessary to enable the company to earn a 7½ per cent return upon its railway investment. The commission supported the company's contention that the provisions of the new law regulating utilities could be carried out only by the principles of automatic regulation. Wisconsin is the only state that has tied wages of labor and rates of charge for service. The commission has power to order wage increases in the event of dispute, but is required to make changes in rates simultaneously if such changes are necessary in order to produce a reasonable return upon the company's investment.

The commission claims that the amounts charged by the company in the past for certain operating expenses exceed the reasonable allowance for these expenses. Even with this adjustment, after adding the increase anticipated by the wages which were ordered to be put into effect, it finds that \$850,000 to \$900,000 additional revenue will be needed for the coming year. The estimated increase in wages for the single fare and suburban area was \$710,000.

EARNINGS NOT EXCESSIVE

The value of the railway property, exclusive of power plant equipment, in the single fare area was found to be \$15,645,534 on July 31, 1919. The commission finds no excessive earnings under the rates of fare established by the Railroad Commission on Aug. 23, 1912. The excess amounts which it is claimed should be applied to make up the operating deficit at the present time, the commission finds were prior earnings under lawful rates provided by franchises and that these excessive earnings, if any, were legal earnings and are the property of the company to do with, as it sees fit. To deprive the

company of this surplus, the commission held would not only be a violation of the Constitution of the United States, but would be establishing a principle against public policy and against the interests of the riding public. Such action could only result in crippling the company financially and making it impossible to carry out the provisions of the order.

The commission found that the working men living in the Bay View district and employed in the manufacturing plants at Cudahy had been discriminated against by the zone system, when the fares in this district were compared with those applicable to West Allis and some other territories. This situation in the commissions' view can be remedied by establishing a special rate between Cudahy depot and that territory south of Mitchell Street known as the Bay View district, applicable only on special cars and trains during rush hours. It therefore ordered put into effect for this special service the same rate of fare as applies to the single fare area.

The company was also directed to make a study of the economies that could be brought about through short routing and a development of traffic during the non-rush period with the idea of improving service conditions in the city. The commission's investigation showed a considerable shortage of cars on practically all lines in the city, over the number needed to comply with its service standards, and the railway was therefore ordered to provide at least 100 additional cars with a total seating capacity of 5000, the complete equipment to be in service before Nov. 1, 1920.

AUTOMATIC COST BASIS SUGGESTED

In a memorandum attached to the decision the commission discussed the advisability of establishing an automatic cost basis of fares within the single and suburban fare areas of Milwaukee. The commission was of the opinion that many of the problems connected with electric railway operation could be solved more easily if the regulation of fares was put on an automatic basis.

Transportation News Notes

Six Cents in Attleboro.—Six-cent fares went into effect on Oct. 13 on the lines of the Attleboro Branch Railroad and the Interstate Consolidated Street Railway, Attleboro, Mass. The rate was formerly 5 cents.

Six-Cent Fares Stand.—The Public Utilities Commission of Illinois has issued an order continuing in effect until Dec. 31 next, the 6-cent fares on the lines of the Sterling, Dixon & Eastern Electric Railway in Sterling and Dixon.

Fares to Arsenal Raised.—The Tri-City Railway, Davenport, Ia., has adopted a change in fare to the government arsenal, at Rock Island, Ill. The rate of fare for officers, soldiers and employees of the

arsenal will be 7 cents for a continuous trip to or from the arsenal, with monthly tickets sold for \$2.80.

Six Cents in Saskatoon, Sask.—The City Council of Saskatoon, Sask., has voted to raise fares on the Saskatoon Municipal Railway from 5 cents to 6 cents. Tickets will be sold at the rate of five for 25 cents, while those purchased in the cars will be six for 35 cents. The object of the increase was to increase the sale of tickets at stated points, thus decreasing delays.

Ten-Cent Fares on Middlesex & Boston Lines.—Ten-cent fares were established on the Middlesex & Boston Street Railway, Newtonville, Mass., on Nov. 1 to continue for a period of three months, upon the authorization of the Public Service Commission of Massachusetts. The commission declined to allow the company to charge an additional 2 cents for transfers.

Pay-Leave Experiment Discontinued.—The "pay-as-you-leave" experiment on the Seattle (Wash.) Municipal Railway has been discontinued by Thomas F. Murphine, superintendent of utilities. The system has been tried out a month on the Eastlake lines and has not worked out successfully. Mr. Murphine states that the cars are not of the proper type and too much confusion results.

Again Suspends Ten-Cent Fare.—The Public Service Commission for the Second District has further suspended to Nov. 15 inclusive, the operation of the proposed 10-cent fare by the Westchester Electric Railroad, Mount Vernon, N. Y., between New Rochelle and Mount Vernon. The investigation as to the reasonableness of the proposed increase has not been completed. The original suspension order was until Oct. 15.

Transfer Charge Rescinded.—A 1-cent transfer charge imposed by the trustees of the Boston (Mass.) Elevated Railway at twelve points on the company's surface system has been withdrawn after a one-day trial. The charge was established to meet the requirements of the service-at-cost act, but it was not considered necessary to maintain it as the present rate of earnings of the Boston system covers the entire cost of the service.

One-Man Cars in Raleigh.—The Carolina Power & Light Company, Raleigh, N. C., has arranged to change over its railway equipment from two-man to one-man car operation. Fifteen Birney safety cars have been ordered. P. A. Tillery, vice-president and general manager of the railway, points out that these cars will be equipped with all safety features necessary for the satisfactory operation of a railway car in charge of one man.

Wants Seven-Cent Fare.—The Trenton & Mercer County Traction Corporation, Trenton, N. J., whose application for a revision of its zoning system and a 1-cent charge for transfers is now before the Board of Public Utility Commissioners, has filed with the board a request for a straight 7-cent fare. The company says that the increase in wages recently granted its employees means an advance in operating expenses of \$85,000 a year.

Eight-Cent Fares in Effect.—Beginning at 2 a. m. on Nov. 1, the United Railways, St. Louis, Mo., put into operation the 8-cent cash fare, collection which had been delayed until the company could put into circulation the 3,000,000 tokens, which should sell for 7 cents. The company called the attention of patrons to the increase by means of advertisements in the daily papers and gave a list of the retail merchants from whom the tokens could be bought.

Seven Cents in Oswego, N. Y.—The Public Service Commission of the Second District has granted the application of the New York State Railways for a 7-cent fare within the city limits of Oswego, N. Y. The higher rate, which has already gone into effect, is to continue until Dec. 31, 1921. The company has applied to the commission for an increase in fare on its Rome city lines. A previous petition asking for a 6-cent fare in Rome was refused last July.

Increase for Burlington Road.—The City Council of Burlington, Vt., has adopted a resolution permitting the Burlington Traction Company to charge a 7-cent fare on all lines within the city, including those to Winooski and Queen City Park, with the understanding that the line to the Union Station, which has been abandoned for some time, will be reopened. The resolution becomes effective if it is indorsed by the company ten days after the Mayor's signature.

Protest Use of One-Man Cars.—A protest against the use of the new one-man cars ordered by the Birmingham Railway Light & Power Company, Birmingham, Ala., several weeks ago has been made by Division 186, Order of Railway Conductors at a recent meeting. The protest was made on the grounds that both white people and negroes enter and leave the new cars by the same door. A formal letter of protest was sent to the City Commission on Oct. 28 by John R. T. Rives, secretary-treasurer of Division 186 of the Order of Railway Conductors.

Long Island Road Asks Increase.—The Long Island Electric Railway, New York, N. Y., has applied to the Public Service Commission for the First District for permission to increase rates on five days notice. W. O. Wood, vice-president and general manager of the company, declared in the application that without an increase in fares the road would have to go into the hands of a receiver. The company has several lines in Queens and Nassau Counties. It has never paid a dividend.

Holds Jitney Ordinance Valid.—The New Jersey Supreme Court in a recent opinion set aside three contentions made by the Public Service Railway, Newark, N. J., and upheld the validity of an ordinance adopted by the city of Newark, N. J., under which auto buses and jitneys are allowed to use certain routes in that municipality. The opinion was written by Justice Kalisch. The Central Omnibus Company of New Jersey and the city of Newark were the defendants in the proceedings.

Protest Against Fare Increase.—For the first time since electric railways in Pennsylvania have been filing notices of fare increases with the Public Service Commission, the allegation has been made that the new rates exceeded the maximum charge of 3 cents a mile allowed by the Interstate Commerce Commission. In a complaint filed by the Borough of Coaldale, Schuylkill County, it is charged that the new fare rates of the Eastern Pennsylvania Railways exceeds the Interstate Commerce Commission maximum. The Public Service Commission will hear the protest soon.

Six-Cent Fares to Continue.—Electric railway fares in East St. Louis, Ill., will remain at 6 cents, according to a recent decision of the Public Utilities Commission of Illinois. The ruling of the commission was made on a petition filed by the East St. Louis Railway and the Alton, Granite & St. Louis Traction Company for

an 8-cent fare in East St. Louis, Brooklyn, Venice and Alton. The order of the commission includes these cities, where the present fares are to continue until Jan. 29, 1920. Under a petition filed more than a year ago by these companies the rate of 6 cents was inaugurated by the commission but was made temporary and was to have expired on Oct. 31.

Increase for Illinois Road.—Officials of the Coal Belt Electric Line, Marion, Ill., have been authorized by the Railroad Administration to raise the rates between Marion and Herrin, Marion and Carterville, and Herrin and Carterville, all in Illinois. The new rates are an increase of more than 50 per cent. Heretofore from Marion to either Harrin or Carterville the fare was 15 cents, divided into three zones of 5 cents each. Under the new order there will be four zones, and the fare will be 6 cents for each zone, or 24 cents for the trip. From Herrin to Carterville the trip now is 10 cents and two zones. The new fare will be 12 cents, in two zones of 6 cents each.

Hearing on Zones Begun.—The hearing on the application of the Trenton & Mercer County Traction Corporation, Trenton, N. J., for permission to establish four new zones on the suburban lines was begun before the Public Utilities Commission on Oct. 28. Warden Samuel T. Atchley, of the State Hospital for the Insane, protested against the new zone on the Trenton Junction line, claiming that most of the travel on that division comes from his institution. There are 300 employees of the institution. W. H. Sofman, of the accounting department of the commission, said that the railway had spent \$292,120 in nine years for construction work. The hearing was adjourned until Nov. 10.

Seven-Cent Fare Approved for Montreal.—The Public Utilities Commission of Quebec on Oct. 14 ratified the 7-cent cash fare recently granted the Montreal Tramways by the Montreal Tramways Commission. The Utilities Commission fixed Oct. 26 as the date on which the higher rates should become effective. The new rates are: single cash fare, 7 cents; five tickets for 30 cents, forty-four tickets for \$2.50. The free transfer system is retained, but workmen's tickets are abolished. The night rate remains the same as at present. The present cash fare is 6 cents. The provision that five tickets shall be sold for 30 cents means in effect a 6-cent fare, as most car riders are expected to avail themselves of the ticket rate.

Jitneys Would Reappear.—As soon as it appeared from the reports of engineers employed to make a valuation of the railway properties of the Houston (Tex.) Electric Company with a view to determining whether an increase in fares, as asked by the company, would be justified, that such an increase would likely be granted by the City Commission, scores of applications for jitney licenses to operate in all parts of the city were filed. The jitney men claim that they can operate at a profit by charging a fare of 5 cents and that if the railway is permitted to increase its fares, they will operate in opposition to the railway. With the railway seeking an increase in fares in order to increase its revenues, the City Council is faced by the problem of increasing fares to increase revenues and at the same time decrease revenues by permitting jitneys to operate in competition. It has been proposed that a city ordinance be passed fixing the jitney fare at 7 cents if the railway fare is raised to this level.

New Publications

Burning Steam Sizes of Anthracite

Prepared by the United States Fuel Administration in collaboration with the Bureau of Mines, Washington, D. C.

A leaflet based on an article by William B. Frey, fuel engineer, and issued in the campaign of the Bureau of Mines for more effective use of the coal resources of the United States.

The Electrification of the Metropolitan Railway System of Melbourne

By C. T. Stephenson, 376 Flanders Lane, Melbourne, Australia. 66 pages.

This booklet describes all phases of the electrification of the suburban railway system of Melbourne, including the power house, track, signals, transmission system, overhead construction and rolling stock equipment.

Joint Industrial Councils of Great Britain

Report of Committee on Relations Between Employers and Employed, and other officials documents of the Joint Industrial Councils of Great Britain. Bulletin No. 255 of the United States Bureau of Labor Statistics. Government Printing Office, Washington, D. C.

This bulletin is issued in the series on labor as affected by the war, under the auspices of the United States Bureau of Labor Statistics, of which Dr. Royal Meeker, a member of the Federal Electric Railways Commission, is commissioner.

Practical Helps for Electric Railway Men

Published by McGraw-Hill Book Company, Inc., from articles in the Mechanical and Engineering Edition of the ELECTRIC RAILWAY JOURNAL.

This furnishes a series of articles of a character particularly helpful to the men who are responsible for the maintenance of equipment of electric railways, such as overhead line construction, track building, power plants, substations, shops and rolling stock. Several specialists in the different branches of the electric railway field have written these articles, and all are qualified by practical experience and theoretical study to furnish the kind of material desired by workers in the engineering departments of the electric railways.

Report of United States Housing Corporation, Vol. 2. Houses, Planning, Utilities

United States Department of Labor, Bureau of Industrial Housing and Transportation. Government Printing Office, Washington, D. C.

This illustrated report of the Housing Corporation gives the details of numerous housing projects and installations, with voluminous data regarding the problems met and the solutions determined upon. The volume does not go into the subject of transportation, but it will be very valuable to transportation companies which have housing problems confronting them. The editor, Henry V. Hubbard, has succeeded in producing a very readable report, with segregation of statistics apart from the reading matter. An important feature is a selected bibliography of buildings and industrial housing in America and Great Britain during and after the war.

Personal Mention

Mr. Neal Resigns

Retires as President of Boston Elevated to Head New Financial Corporation at Boston

J. Henry Neal, president of the Boston (Mass.) Elevated Railway, has resigned. Mr. Neal will assume the presidency of a financial corporation now being organized in Boston. In a statement announcing the change in his plans he declared that his action was induced by the belief that greater opportunity awaited him in his new capacity. He pointed out that the time was opportune for him to give up the presidency of the Boston Elevated, since the company "is now evidently emerging from its period of greatest difficulty and from now on a constant and increasing improvement may be expected."

Mr. Neal has been connected with the company for more than thirty years. Before becoming president in November, 1918, he held the positions of vice-president and general manager. He had been acting as president since the resignation of Matthew C. Brush.

Mr. Neal was born in Boston in 1872. He was educated in the Boston public schools, later entering the employ of the Hinckley Locomotive Works, Boston, as a stenographer. When these works were purchased in 1898 by the West End Street Railway Mr. Neal became a clerk in one of the power stations of the latter company. In 1890 he joined the accounting department, being assigned to duty in the Barlett Street shops. He was appointed chief clerk of several consolidated mechanical and electrical departments in 1892. In 1907 he was made auditor of disbursements. In the following year he was appointed general auditor of the Boston Elevated Railway.

Mr. Neal has been active for many years in the affairs of the American Electric Railway Association. He has served as president of the Accountants' Association and on the executive committee of the American Electric Railway Association. He is a past president of the New England Street Railway Club. He was the inventor of the Neal electric headlight, one of the first devices of this kind to find extensive use on electric cars.

H. B. Flowers Promoted

Becomes General Manager of United Railways & Electric Company, Baltimore

Herbert B. Flowers, formerly assistant general manager of the United Railways & Electric Company, Baltimore, Md., has been elected general manager of the company. Mr. Flowers succeeds James R. Pratt, who continues as vice-president in charge of claims, as noted elsewhere in this issue.

Mr. Flowers was graduated from the Law School of the University of Michigan in 1903 and from the Engineering School two years later. He immediately thereafter entered the operating department of the Detroit (Mich.) United Railway, becoming assistant superintendent successively of the Orchard Lake and the Pontiac divisions. In these capacities he was a

member of the staff of Sir Albert Stanley, at that time general superintendent, now head of the London (England) Underground Railway.

Mr. Flowers went to Baltimore in 1910 as assistant superintendent of transportation of the United Railways, retaining this position until his promotion to assistant general manager in 1917.

R. A. Leussler Manager

Becomes General Manager of Omaha & Council Bluffs Street Railway After Seventeen Years Service

R. A. Leussler, assistant general manager of the Omaha & Council Bluffs Street Railway, Omaha, Neb., has been promoted to be general manager of the company. Mr. Leussler succeeds W. A. Smith, who recently resigned, retaining the vice-presidency.

Mr. Leussler has been connected with the Omaha & Council Bluffs Street Rail-



R. A. LEUSSLER

way for the last seventeen years. He joined the company at the time of the consolidation of the Omaha Street Railway, the Metropolitan Cable Railway and the Omaha & Council Bluffs Street Railway & Bridge Company. He served as secretary of the company for five years. For the last five years has acted as assistant general manager.

He entered the electric railway business in 1897 as an employee of the People's Railway, St. Louis, Mo. He left his position with that company to become connected with the St. Louis Transit Company, the operating company of the United Railways, St. Louis. He resigned in 1902 to join the Omaha & Council Bluffs Street Railway.

During the period of his service with the Omaha traction system the receipts and the number of cars operated have increased 100 per cent. The entire system has been rebuilt and a power plant and a car shop have been opened. The company now employs more than 1,000 men.

James R. Pratt has been relieved of the duties of general manager of the United Railways & Electric Company, Baltimore, Md., and as vice-president has been placed in charge of claims. Mr. Pratt has risen to the position of vice-president from that

of conductor with the old Baltimore Traction Company.

E. Thomason, vice-president and general manager of the Piedmont & Northern Railway, Charlotte, N. C., has resigned, effective Nov. 1.

R. L. Miller, Galveston, Tex., formerly of Fort Worth, has been appointed general passenger agent of the Northern Texas Traction Company, which operates an interurban line between Dallas and Fort Worth, and the local lines in Fort Worth. Mr. Miller succeeds Tully Bostick, who resigned to enter the real estate business in Fort Worth. Mr. Miller has been assistant claim agent of the Galveston (Tex.) Electric Company for the last two years. Before going to Galveston he was connected with the claim department of the Northern Texas Traction Company at Fort Worth.

Obituary

Herbert L. Breneman, a director of the Cincinnati (Ohio) Street Railway, died at his home in Cincinnati on Sept. 21. Mr. Breneman was a retired capitalist. He had taken a prominent part in the business development of Cincinnati.

Frank T. Hamilton, president of the Omaha & Council Bluffs Street Railway, Omaha, Neb., is dead. He was actively engaged in business in Omaha for thirty-seven years, and at the time of his death was president of the local railway and the Omaha Gas Company and vice-president of the Merchants' National Bank. Mr. Hamilton succeeded Gurdon W. Wattles as head of the Omaha & Council Bluffs Street Railway on March 4 of this year. During the few months when Mr. Hamilton guided the affairs of the railway he averted a strike. He was president of the Omaha Gas Company for ten years. He was born in Omaha on Dec. 18, 1861, the son of a prominent pioneer family. His father was one of the first bankers of Omaha. Mr. Hamilton was stricken with heart disease in a Pullman car while journeying to the sandhills of Nebraska with companions who were bound for a hunting trip. He is survived by Mrs. Hamilton, who was Countess Luisa De Cistue before she met Mr. Hamilton in Paris. There are also two young sons.

William D. Weaver, formerly editor of the *Electrical World*, died suddenly at his home in Charlottesville, Va., during the night of Nov. 1. Mr. Weaver was graduated from the United States Naval Academy in 1876 and served in the navy for the twelve following consecutive years except for one year's leave of absence in 1884. During that year he studied electricity and conducted investigations in the electrical laboratory of the Sorbonne in Paris and in the School of Electrical Engineering in London. In 1883 he accompanied the first Greeley relief expedition to the Arctic. He resigned from the navy in 1892 and engaged in electrical manufacturing for a year, but in 1893 he became editor of the *Electrical World*, then published by the W. J. Johnston Company. In 1896 with the aid of James H. McGraw, he founded the *American Electrician*, but in 1899 when the *Electrical World* and the *Electrical Engineer* were consolidated by the McGraw Publishing Company, he became editor of the combined paper. He retired as editor of the *Electrical World* in April, 1912.

Manufactures and the Markets

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

Coal Strike Conditions on Nov. 8

Non-Union Fields Mine More Than Usual Quota—Prices Fixed by Government to Prevent Profiteering

From the standpoint of production, the Pocahontas and New River districts were leading the field in the non-union districts at the time this account was written. There 10 to 15 per cent more coal was being mined than the normal rate, which is in the neighborhood of 50,000,000 tons a year. On account of the mines in other parts of West Virginia being closed, production for the State was about 50 per cent normal as was also the case in Kentucky. Less than 50 per cent of the men left their places in Pennsylvania, but in Illinois, Indiana and Ohio all mines were closed with few exceptions.

To prevent profiteering on the part of unscrupulous operators, and dealers, the government on Oct. 30, re-established the maximum prices of bituminous coal which prevailed prior to Feb. 1, 1919. It also again assumed control of distribution. In addition, an embargo was placed on coastwise and foreign coal shipments. It was expected that in case of the prolongation of the strike this would work out to the benefit of the so-called essential industries in this country whose reserve stocks were dwindling. No complaints of hardships as a direct result of the strike had come to hand up to the time of this writing except in one or two instances in the Middle or Central West.

As a result of the present situation, the demand for all grades of coal increased to such an extent that it was a virtual scramble for any coal that then remained in the market. Railway and utility companies were particularly active and have in a number of instances been enabled to get some quantities of coal although paying more for the same grade, or accepting a slightly different grade than that to which they have been accustomed in order to be able to have a surplus on hand.

Production of soft coal for the week ending Nov. 1, the latest statistics available, was estimated at 12,142,000 net tons, which is the second highest output in the present coal year. The exception was the preceding week, that of Oct. 25, which full reports confirm as the record in the history of coal mining in the United States.

Gear Makers Discuss Standardization

The semi-annual convention of the American Gear Manufacturers Association was held at Boston from Oct. 13 to 16, gear standardization and the labor situation being the principal subjects under discussion.

A general standardization committee and sub-committees were appointed and a number of sessions were held by these committees at which the technical and commercial considerations of standardization were discussed. President F. W. Sinran, made an address on "Association Pro-

gress." The association was also addressed by Roger W. Babson of Wellesley, Mass., on "The Labor Problem." Papers were presented by A. A. Alles, Jr., of the Fawcus Machine Company, on "Uniform Cost Accounting"; by H. Fleckenstein of the Hindley Gear Company, on "Hindley Worm Gears"; by S. L. Nicholson of the Westinghouse Electric & Manufacturing Company on "System and Organization as They Fit Commercial Activities"; and by A. F. Cooke of the Fawcus Machine Company, on "Herringbone Gears." H. D. Sayre, secretary of the National Metal Trades Association, Chicago, made an address on "The Individual and Associations." In addition to the above, F. D. Hamlin presented a report of the International Trade Conference by the Chamber of Commerce of the United States at Atlantic City.

Carbon-Brush Market Outlook is Promising

Prices Are Steady, and Even if Labor Troubles Develop No Large Advance in Price is Anticipated

The carbon-brush business is good. Sales are keeping up better than has been expected and are continuing to improve all the time. Brush sales, as a rule, are made up of about 80 per cent renewals and 20 per cent new business. The renewals, however, often run as high as 90 per cent. New business generally follows new building construction fairly closely, and although this has fallen off to some extent during the summer months, a renewal of activity in building lines has caused brush sales on new business to increase considerably. As the sales manager of one large manufacturing company recently said, "We hardly know the war is over."

Although nearly all manufacturers have some standard grades of brushes in stock, brushes are mostly made up to fill certain requirements. Stocks are in good shape, but owing to the special nature of orders brush users find that it is best policy to place orders three to four weeks ahead of the time desired for delivery. In emergency cases brushes are made up in from twelve hours to two days, depending upon the size and quality. This practice, it is stated, is not only dangerous where large machines are in operation, but tends to upset factory production schedules.

A considerable amount of business is being done with foreign countries, especially in South America. Moreover, this business is increasing from month to month. Carbon brushes that have been used in foreign countries have increased confidence there in American-made goods and a large export trade in brushes is looked forward to in the future.

Prices are steady under present conditions, and it is not believed that any immediate labor difficulties will be met, despite the fact that a considerable amount of work on carbon brushes must be done by hand. In short, manufacturing conditions are satisfactory, and a good increase in production is assured.

Car Equipment and Tool Deliveries Good

Lack of Orders Cuts Down Production by Manufacturers and Makes Shop Schedules Uncertain

According to several well-known manufacturers of car equipment and tools, the purchaser has everything at his disposal in the way of good deliveries. In many instances orders for car equipment, tools or small electrical repairs can be filled from stock. On account of slack production schedules, all orders receive prompt attention and are produced in good time.

BEARINGS IN DEMAND

There is a fairly good demand for armature bearings, but not nearly so great as in former seasons. A full supply of molds, dies and templates for making repairs on standard railway motors enables all of the most common types of repairs to be made quickly. The time required on armature bearings of a much-used type is one week, while on other types, ten days to two weeks is the average time. For bearings which require special work, quotations of three weeks are given.

The demand for minor electrical repairs, commutators, field coils, armature coils and bars is only fair. Some orders are being received, but not in sufficient volume to make business good. Some repair parts are being ordered, but no more than is usual for maintenance needs. Prices are firm and although there have been increases granted to labor, no price increases have been made recently. Quick delivery can be made on these products, although it is not possible to make an estimate now of what future deliveries may be.

The market for trolley poles is not very strong. The price of the raw material has gone up and the present unsettled conditions in the tube mills may cause further increases of raw material with poor deliveries. Prices, however, have not advanced as yet on this product.

The market for gear cases is quiet. It is expected orders will run up to about the same figures as during the fall of 1918.

Factory conditions are such that a large increase in production could be effected if orders should be received in sufficient volume. No estimate is made of what the volume of business may be between now and the first of the year, although no large increase in sales is looked for on account of the general condition of railway finances.

INQUIRIES FOR ARMATURE MACHINES

From inquiries being received from time to time, interest in car equipment in addition to emergency repairs and maintenance needs is confined mostly to labor-saving machinery and devices. There has been some little demand for armature banding machines and coil winding machines. On similar equipment the sales generally have been better than in the two previous seasons. All ordinary requirements can be met in regard to this class of equipment and good deliveries can be made.

Rolling Stock

Vincennes (Ind.) Traction Company, has filed a petition for permission to buy seven safety cars.

West Penn Railways, Pittsburgh, Pa., is expected to be in the market for safety cars in the near future.

St. Louis Car Company, St. Louis, Mo., is reported to be completing 100 safety cars for stock purposes.

Kansas City (Mo.) Railways expects delivery on the first lot of the sixty-five safety cars recently ordered by that company.

Manhattan Bridge Three-Cent Line, New York, N. Y., has placed an order for two double-truck cars with the Perley A. Thomas Car Works.

Orange County Traction Company, Newburgh, N. Y., is reported to have purchased three more safety cars from the Wason Manufacturing Company.

United Railways, St. Louis, Mo., through announcement by Receiver Wells, will purchase 100 or more double-truck cars for use on congested lines. It is expected the cars will cost in the neighborhood of \$1,000,000.

Elmira Water, Light & Railroad Company, Elmira, N. Y., noted in a recent issue as having placed an order for eleven safety cars, has specified the following equipment and accessories:

Builder	Osgood Bradley
Type	Safety
Seating capacity	32
Weight car body	8,000 lb.
Weight trucks	4,000 lb.
Weight equipment	4,000 lb.
Weight total	16,000 lb.
Length over all	27 ft. 10 in.
Truck wheelbase	8 ft.
Width over all	7 feet, 9 1/2 in.
Height	10 ft. 3 1/2 in.
Body	Semi-steel
Interior trim	Mahogany
Roof	Arch
Air brakes	Westinghouse
Armature bearings	Ball
Axles	A. E. R. A. No. E-2
Car trimmings	Enameled
Control (West.)	K-63-B
Couplers	Bar and pocket
Fixtures	Curtain supply No. 89
Curtains	Double-coated pantasote
Designation signs	Keystone
Door mechanism	Air-operated
Fare boxes	Johnson
Fenders	H. B.
Hand brakes	Osgood Bradley
Heaters	Consolidated truss plank
Headlights	Crouse-Hinds
Journal bearings	Friction
Journal boxes	Symington
Lightning arresters	Westinghouse
Motors	G. E. 258
Motors	Outside hung
Varnish	Anglo-American
Sanders	Ohio brass
Sash fixtures	J. L. Howard & Co.
Seats	Osgood Bradley
Seating material	Slat type
Slack adjuster	Anderson
Springs	Railway steel spring
Step treads	American mason
Trolley catchers	Keystone
Trolley base	U. S. No. 15
Trolley wheels or shoes	Wheels
Trucks	Osgood Bradley No. 25-96
Ventilators	Osgood Bradley
Wheels	Griffin 26 in. diam.
Special devices	Full equipment Safety Car Devices Company material

Trade Notes

Inquiry 30845.—An agency on a commission basis is desired by an engineer in Spain for the sale of rails, ties, screws, angle plates, and everything pertaining to railway tracks, tubular steel posts, and wheels and tires. Correspondence may be in English.

G. F. Wakeman, formerly assistant to the Pacific Coast manager of the Edison Storage Battery Company, has been promoted to be manager.

Franklin W. Gilman, combustion engineer with the Sanford Riley Stoker Company of Worcester, Mass., and the Murphy Iron Works of Detroit, Mich., sailed from Vancouver on Oct. 2 for Japan. He will remain in that country for about a year in connection with the installation and operation of stokers manufactured by the two companies.

H. D. Hawks, long connected with the General Electric Company, has been appointed general sales manager at Chicago of the Anaconda Copper Mining Company, rolling mills department. The officers of the company are at 110 South Dearborn Street. Mr. Hawks has been with the Anaconda Copper Company since leaving the General Electric Company some years ago.

Page & Hill Company, pole producer, Minneapolis, Minn., announces that S. E. Lynch has returned to the company and has taken over the management of the Chicago office. He served in France with the 311th Engineers. Sig. Norman has also returned after twenty months' service in France with the 20th Engineers. Mr. Norman was on board the Tuscania when it was sunk. He is assistant manager of the office at Newport, Wash.

G. P. Goodman, who for several years has represented the Hisey-Wolf Machine Company in the East, will join F. H. Niles & Company, Inc., on Oct. 1, to take charge of their portable-tool department. F. H. Niles & Company handles not only the Hisey-Wolf line of electric machine tools but the Canton pneumatic hammers and drills manufactured by the Pittsburgh Pneumatic Company in the East. Other changes in the Niles company are the appointment of F. H. Crawford as secretary and J. E. Haetten as sales manager.

Railway Track-Work Company, Philadelphia, Pa., by an agreement with the Atlas Railway Supply Company, Chicago, has taken over the manufacture and exclusive sale of the Atlas rail grinder. The former company will continue the manufacture and sale of its reciprocating track grinder. The latter company has been appointed sales agent for the Middle West for both the reciprocating and Atlas grinders. Sales of both machines in the New England States will be handled by the C. N. Wood Company, Boston, which has heretofore sold the reciprocating track grinder in that district.

Handy Supply & Manufacturing Company, Cleveland, Ohio, announces that E. H. Martindale, formerly sales engineer of the National Carbon Company, has been elected president and general manager of the company. He has been a frequent contributor to the technical press on the care and operation of motors and generators and for the past two years was chairman of the industrial and domestic power committee of the A. I. E. E. and is at present a member of the board of directors of that association. Mr. Martindale served during the war as a captain of engineers and was stationed one year in France.

Roller-Smith Company, 233 Broadway, New York City, announces the appointment of the General Machinery Company, 744-745 Brown-Marx Building, Birmingham, Ala., as its agent for Florida, Georgia, Alabama, Tennessee. B. A. Schroder is president of the General Ma-

chinery Company and W. H. Price is sales engineer. The company has been located in Birmingham for about ten years. In addition to representing the Roller-Smith Company, it also represents the following: Crocker-Wheeler Company, Goodman Manufacturing Company, Cutler-Hammer Manufacturing Company, Pittsburgh Transformer Company, and the Esterline Company.

Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa., announces the following changes and appointments: W. H. Garrett has been appointed manager of the electrical as well as the steam contract division of the power sales department; G. T. Gilchrist of the research engineering department becomes acting manager of the porcelain section, with headquarters at Derry, Pa.; K. B. Hunter, manager of the engine and pump department of the Pittsburgh office of the Fairbanks-Morse Company, has resigned to become connected with the Cincinnati office of the Westinghouse company. J. C. Van Norman, manager of the electrical contract division of power sales, has been transferred to the Atlantic district office.

New Advertising Literature

International Nickel Company, New York, N. Y.: Booklet telling about its nickel products.

Breeze Manufacturing Company, Newark, N. J.: A thirty-six-page booklet on flexible metal hose, tubing and accessories.

Westinghouse, Church, Kerr & Company, Inc., New York, N. Y.: A pamphlet, "The Same Payroll the Year Round."

Schutte & Koerting Company, Philadelphia, Pa.: Revised edition of Catalog 8-B on stop, stop check and emergency valves. This company will be pleased to forward a copy to those interested.

Asbestos: There has recently come out a monthly market journal entitled *Asbestos*, published by Secretarial Service, 721 Bulletin Building, Philadelphia, devoted to the interests of the asbestos and magnesia industries.

Van Dorn Coupler Company, Chicago, Ill.: An illustrated pamphlet descriptive of automatic car couplers and draft gears for electric railway cars, with special reference to a late design of coupler with air connections in the coupler head.

Milliken Brothers Manufacturing Company, Inc., New York: Catalog No. 10 on transmission towers, radio towers, and pinlock poles in addition to Milliken buildings. Catalog No. 11. Erection handbook for steel buildings, including foundation plans, and erection diagrams.

Whiting Foundry Equipment Company, Harvey, Ill.: Catalog 149, twenty-four pages illustrated on cranes, foundry, and railway equipment, including screw-jack hoists, turntable tractors, and turntables, also catalog No. 150 superseding No. 129 on the Whiting converter.

O. M. Edwards Company, Inc., Syracuse, N. Y.: Catalog W-19. A sixty-four-page 8 x 11 in., illustrated booklet with drawings, designs, and cuts of everything descriptive of window fixtures, metal sash balancers, brackets, locks and racks, compression devices, metal stop casings, and weather strippings.