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## Transportation of United States Mail

The portion of the report of the Second Assistant Postmaster-General relating to the transportation of mail by cable and electric cars for the fiscal year ended June 30, 1909, as published in abstract in last week's issue, was of special interest. Unfortunately, the amount paid by the Government for electric mail transportation is not divided in the report between closed pouch service and postal car service. Nevertheless, it is interesting to note that the average payment made to the steam railroads per mile traveled is about twice the average payment to the street railways. Mr. Stewart refers to the demand made by the electric railways for higher rates for service, says that in some cases it will be found desirable to substitute automobile service for that of electric cars and asks for authority to expend \$100,000 of the street railway mail appropriation for screen or motor-wagon service. Street railway companies do not have much to fear from competition of this kind. The larger cost of automobile operation is so well known that we do not believe that the electric railway companies will suffer in any fair comparison of like service.

## Limiting Number of Passengers on a Car

Rigid limitation of the number of passengers on a car has proved unsatisfactory to the public in Albany, N. Y. The plan, which was undoubtedly of fully as much interest to the traveling public as to the railway, was given a thorough trial as the result of an order of the Public Service Commission, Second District, limiting the number of passengers to be carried on the cars of the Pine Hills line of the United Traction Company. Public dissatisfaction aroused by the experiment has led the commission to direct the abandonment of the scheme and the return to the old method of operation. The rule requiring limitation of the number of passengers on a car, as tried in Albany, was passed by the commission on March 30, 1909, after a hearing called to consider a complaint regarding the service on the Pine Hills line. Various expedients were suggested at this hearing, but the final decision of the commission was that the company should limit the number of passengers to 40 on cars with a seating capacity of 26 and to 35 where the seating capacity was 24. The testimony presented at the hearing on Jan. 12, which followed the experiment of nine months, as published elsewhere in this issue, shows that the attempt to regulate the question in this way not only did not solve the problem, but that it aroused a measure of public dissatisfaction greater than that which had existed under the previous plan of operation. Various citizens testified about the length of time they were compelled to stand on street corners in inclement weather when car after car passed having available standing space which they could have occupied except for the limiting order. The position which they took is unquestionably the prevailing American point of view on a question

of this character. If people want to stand in a car which has no available seats, they do not like to be prohibited. The problem of accommodating the rush-hour travel is a most serious one in American cities, but a rigid limitation of the loads to a little more than seating space does not constitute the solution.

### Raising Fares on Interurban Roads

The theory that low rates build up profitable traffic on interurban lines was a popular one in the early days of long-distance electric transportation, but its fallacy is becoming apparent as the cost of operation steadily rises. Increased costs of labor and material, depreciation and higher taxes have created an imperative need for higher fares commensurate with the true cost of the service rendered. The problem which faces every company when considering fare increases is how to apportion the higher rates so as to cause the least immediate falling off in traffic and to distribute them equitably between all communities and classes of patrons. The major part of the receipts of interurban roads is derived from the sale of one-way and round-trip tickets at ticket offices and the collection of cash fares paid on cars. Nearly all systems of passenger fares are built up from a basic rate per passenger-mile. An increase in revenue may be secured either by raising arbitrarily the basic rate and proportionately all of the derived traffic in previous use, or by readjusting the relations between the one-way, round-trip and cash-fare rates so as to raise the cash fares and materially lower or abolish altogether the reductions on round-trip tickets.

If the basic rate is already low the first method is probably the least difficult to pursue and to justify before the public. All patrons are treated exactly alike and there can be no outcry over alleged discrimination. On the other hand, it may violate one cardinal principle of rate making, namely, that of fixing rates primarily on the basis of what the traffic will stand. A pro rata increase of even a small amount might affect seriously and permanently the largest and most profitable, because most cheaply handled, class of traffic.

The other alternative is that of readjusting the round-trip and cash-fare tariffs without materially changing the standard one-way ticket fares, and where the practice exists of making such reduction, we believe that the revenue per passenger will often be secured by the abandonment of the plan without seriously affecting the volume of traffic. It has been the general experience of interurban railways, both in competitive and non-competitive territory, that low rates have less effect on the promotion of traffic than the frequency, comfort and convenience of the service rendered. At the same rates or in some cases at lower rates the steam roads have not been able to compete with the interurbans for traffic carried moderate distances of, say, less than 50 miles. This being true, there is little to be gained in selling round-trip tickets to competitive points at reduced rates in order to insure the return trip being made by trolley. It is reasonable to suppose that the inducements offered by the electric line for the going journey will be equally effective in diverting the passenger from the competitive road on the return journey. For journeys to non-competitive points nothing whatever is gained by offering round-trip tickets at reduced rates. The ordinary reduction on a single round-trip ticket is an inheritance from steam railroad practice and is an application of

the principle of wholesale discounts to retail trade. One of the largest railroad systems in the East, the New York, New Haven & Hartford, abandoned it some years ago. Put the one-way ticket tariffs on a satisfactory basis and the round-trip business will take care of itself with profit to the railway company and without hardship to the traveling public.

The advisability of charging cash fares collected on the cars in excess of the one-way ticket rates depends very largely on the character of the traffic. Where the traffic is principally between towns some distance apart the practice is both justifiable and expedient. It increases the revenue and encourages the purchase of tickets at stations where the receipts can be audited accurately.

The question of fares, tickets and methods of selling and collecting are so intimately related to the character of the traffic to be handled that generalizations admittedly are of small value in suggesting a possible solution of the problems of any particular road. Nevertheless, we believe that it is well worth while to give careful consideration to the matter of round-trip and cash fare rates in studying means of increasing fares.

### Stopping a Car Short of Its Destination

Where a passenger on a street railway car is entitled by his contract to be carried to a certain point, and the railway company breaks the contract by turning the car back at a point short of the destination, the passenger's right of action for damages for breach of contract is complete. He has remedy in civil action, but if he elects to remain on the car for its return journey he must pay for his ride. He may include this amount in his damages, but he is not entitled to remain on the car without payment of fare. This is the gist of a decision last summer by the New Jersey Court of Errors and Appeals in *Wright vs. Orange & Passaic Valley Railway Company*. As cases occasionally happen where obstinate passengers remain on a car, it will be interesting and instructive to refer briefly to this New Jersey decision.

The plaintiff boarded a car displaying the sign "Eagle Rock," but, owing to the condition of the tracks at the time, cars had for some days been stopping about a mile away from Eagle Rock. This the plaintiff probably well knew, for he was a daily traveler on the road. On the day in question the car was turned about a mile away from Eagle Rock, and Wright was told that it would proceed no further. The plaintiff then demanded to be carried to the end of the line, and when this was refused, declined to leave the car or pay his fare for a return trip. He was thereupon ejected. He brought suit for ejection, but made no claim of serious injury.

Upon the trial the issue was narrowed to the determination of the question whether the ejection of the plaintiff from the car was wrongful. The company met this claim by insisting that after Wright was requested to pay his fare and refused he became *ipso facto* a trespasser, and when he declined to alight, the right inured to the company, through its conductor, to eject him. The plaintiff did not claim that he was entitled to be carried back free to his starting point, but stood upon a right, as he claimed to the conductor, "to stay on that car until it went to Eagle Rock."

The court held that it was immaterial in this action whether the plaintiff was warned when he got on the car that it would not go through to Eagle Rock. Such negligence, if com-

mitted, would under the circumstances have justified an inference that the company had contracted to carry the plaintiff to Eagle Rock, but his remedy for breach of that contract was an action for damages, and not the trespass action which was then under consideration. According to the court:

"He had his election, when the car came to the end of its actual trip, to leave and sue for damages, or to make a new contract for carriage on the return trip, and add its cost to his damages, subject, of course, to the rule which requires one to minimize his damages. He chose the latter alternative. Having done so, he became bound to pay his fare to the conductor, who had no authority to carry him free. \* \* \* The plaintiff was entitled to stay on the car until he knew that the defendant had finally determined not to run it to Eagle Rock. As soon as the company so determined, and started the car on its return trip, his right of action was complete; but his right was a right to damages merely, not a right to occupy the car indefinitely. The right claimed by him would, in effect, deprive the company of the management of its own car, and make the plaintiff a tenant in common. The law of self-help has never been extended as far as that; and, in contemplation of law, damages are a sufficient redress for a private wrong."

Judge Minturn's brief and able opinion cites many authorities. He says that in Kansas, where a passenger remained on a train for an unreasonable time after it reached its destination, it was held that he thereby ceased to be a passenger, but became a trespasser. This is shown by cases cited in the courts of Wisconsin, New Jersey and Arkansas.

It is, perhaps, elementary that every owner whose property is unlawfully invaded has the right, after reasonable demand, to eject therefrom the tort-feasor.

### The Seat-Mile Unit

The suggested widespread use of the seat-mile unit, in a communication by Horatio A. Foster, published elsewhere in this issue, follows the action of the New York Public Service Commissions in prescribing the adoption of this unit for electric railways under their jurisdiction. We agree with Mr. Foster that the car-mile, and, indeed, all of the units now employed in comparisons of electric railway operations, are not entirely satisfactory for all conditions, but if the seat-mile is to be used we would much prefer for clearness its employment under that name rather than its multiple, the "kilo-seat-mile," for which Mr. Foster suggests the name "traffic unit." "Seat-mile" indicates to everyone exactly what is meant, just as car-mile, car-hour, ton-mile and passenger-mile do, whereas the proposed term might prove confusing and its exact meaning be forgotten by those who did not regularly employ it in railway work. Perhaps an analysis of the objects of some of the more common units will help to an understanding of their relative value.

There are, of course, a great many points of difference between the character and daily performances of different cars on different lines, but the most important of them are distance run per day and the speed, weight and capacity of the car. There would be no need of any more complicated unit than the car-day if all cars were alike in these points. It is because this condition does not hold true that various units have been employed, and while each is designed primarily to compensate for one lack of equality between the performance of different cars, none is so comprehensive as to equalize all of the points of

divergence. The car-mile primarily eliminates the difference in lengths of run per car per day, and for this reason is a fairly satisfactory unit for use in obtaining averages in car expenses and performance where the cars compared do not differ greatly in speed, weight and carrying capacity. It is also convenient as a general unit for those expenses which vary approximately with the distance run. It fails, however, with all statistics which are seriously affected by speed, weight and carrying capacity, the three principal factors which are not taken into consideration by the car-mile.

The largest single item of the operating expenses is labor, which varies, of course, not with the distance run, but with the time spent on the road, hence upon the speed of the cars. It was, of course, to meet this difficulty that recourse was had to the car-hour, which cancelled the main discrepancy in comparing wages, but was less desirable than the car-mile for the items of expense which vary with the distance run and no more desirable for still other items like power which may be assumed for present purposes to vary with weight of the car and distance run. Nevertheless, as the wages constitute, as a rule, considerably more than half of all operating expenses, the advantage of the car-hour as a primary or auxiliary unit for reckoning total operating expense is apparent.

The seat-mile takes some account of the weight of the cars operated, but not so accurately as the ton-mile, so would be less accurate than the latter for power statistics, and as it also disregards entirely the number of cars run, it is less valuable as a guide for platform expenses, and hence for total operating expenses, than even the car-mile. None of the units is very satisfactory for gaging car maintenance. In order of relative undesirability we should probably group them in the following order: Car-hour, seat-mile, ton-mile and car-mile. For car body maintenance the latter would be the best, for track maintenance the ton-mile, and for truck maintenance probably the wheel-mile. We believe, therefore, that the seat-mile will not displace the older established units for these, the principal items in operating expenses, but that it will be used, if adopted where it is not required by law, only to supplement existing statistics. The question then would be as to the value of the information which the new unit would add to that made available by the use of the present measures.

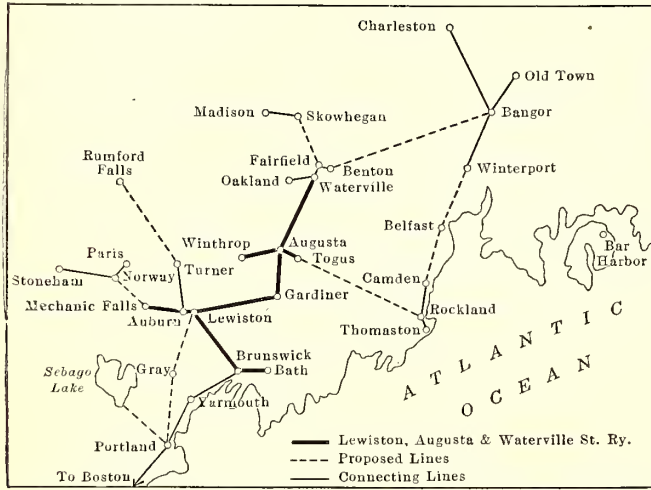
This is answered by the statement that the seat-mile affords a closer measure of the service on a given line or a given property than is possible by any of the other units which we have been considering. If, for instance, a company shows its seat-mileage for comparative periods, a discrepancy would indicate fairly well, except for total interruptions of service, whether the service has been increased or decreased, whereas similar statistics based on car-mile returns would not take into account the fact that changes might have resulted from the substitution of cars of another size or type from those operated previously. Of course, in any such use the fact should be borne in mind that the seat-mile is not an accurate gage of the extent of variations in the carrying capacities of the cars, because it rates on the same basis the cross-seat and the longitudinal seat car having an equal number of seats.

As Mr. Foster says, the public service commissions in New York specified last year that the returns from companies within their jurisdictions should give the number of seat miles run in each case, and possibly the full text of their forthcoming reports will permit further analysis regarding this unit.

## LEWISTON, AUGUSTA & WATERVILLE STREET RAILWAY

TERRITORY

A notable addition to the transportation facilities of south-central Maine has been in operation during the past year, as a result of the establishment of through service in November, 1908, by the Lewiston, Augusta & Waterville Street Railway Company over a 54-mile line connecting the cities named in the company's title. Through the consolidation of the Lewiston, Brunswick & Bath Street Railway Company and the Augusta, Winthrop & Gardiner Street Railway with itself, the Lewiston, Augusta & Waterville Company operates a system



Maine Electric Railways—Map of the Lewiston, Augusta & Waterville System and Connections

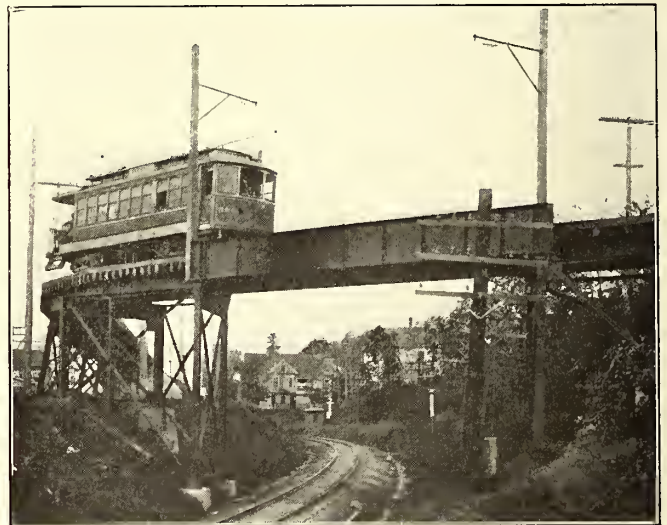
of 140 miles of track, extending from Waterville on the north to Bath on the southeast, and controlling substantially all the electric railway service in the Androscoggin and Kennebec valleys. The completion of the new line to Waterville establishes continuous electric railway facilities from that point southward to Brunswick, Portland, Portsmouth and Boston, and opens to easy access a portion of the lake region of Maine hitherto attainable only by infrequent and roundabout steam railroad service or by private conveyance. Under the executive and financial administration of a syndicate headed by John R. Graham, of Bangor, the Lewiston, Augusta and Waterville lines have been welded into a strong and unified system, providing fast and frequent interurban service in the territory, establishing flexible and short headway facilities in the cities and towns of larger size, furnishing the rural sections an entirely new method of overcoming distances, and inaugurating plans for an extended development of electric express and freight business throughout the communities served.

The Lewiston, Brunswick and Bath lines of the company were described in the STREET RAILWAY JOURNAL at the time of their completion, several years ago. The lines centering about Augusta and Gardiner have been in service for many years, and are of interest only in their relation to the through and local service of the present organization. The later work which has brought all these separate systems into a single corporate management is well illustrated by the construction of a 20-mile line from Sabbatus to Gardiner and the building of a line from Augusta to Waterville, 21 miles in length—the two filling the gaps previously existing between the present ends of the system; and the construction of a 9-mile extension of the system westward from Auburn to Mechanic Falls. In addition to the establishment of the new lines, considerable reconstruction has been done upon the older portions of the system; tracks and roadbed have been improved, rolling stock brought up to date, repair shop facilities centralized and the supply of power from different sources co-ordinated. In addition, the schedules throughout the territory have been harmonized to provide closer connections at transfer points.

The accompanying general map of the system indicates the relation of the new route to the points served and their present proposed connections with other parts of the State. Augusta, the capital of Maine, is now connected by trolley with the entire southeastern section of the State. Bangor and Rockland are now the centers of operating systems, but are not connected either with each other or the Waterville lines. It is probable that future extensions will connect Augusta with Rockland via Togus, and possibly Rockland with Bangor via Camden, Belfast and Winterport. Another proposed extension connects Waterville with the Bangor Railway & Electric Company's system, via Benton, although this line is not considered an immediate possibility.

The company operates in approximately 25 cities and towns, having a total population of about 120,000, according to the census of 1900. The most important points served and their population are: Lewiston, 23,761; Bath, 20,330; Auburn, 12,931; Augusta, 11,683; Waterville, 9,477; Brunswick, 6,806, and Gardiner, 5,501. The system is divided into two parts one division including the Lewiston and Bath lines, and the other the Augusta and Waterville lines. The normal schedule calls for 36.64 cars per day on an 18-hour basis, 10 cars being run on the Augusta division, in the interurban service there given, and the remainder being operated on the Lewiston and Bath division which has more city lines within its limits. The headquarters of the company are in the heart of the Lewiston business district. All cars pass the offices, and a commodious waiting room is available here on the ground floor for public use, with well-furnished quarters for car service employees in the basement. The offices of the general manager, electrical engineer and treasurer are on the upper floors. There are about 450 persons in the service of the company.

The new line between Lewiston and Waterville includes about 41 miles of recently constructed track, lying between the terminus of the old city system of Lewiston at Sabbatus and Gardiner, and between the outskirts of Augusta and Wa-



Maine Electric Railways—Steel Girder Bridge over the Maine Central Railroad

terville. The greater part of the route is on a private right-of-way, 70-lb. T-rails with Weber joints being used. The ties are of cedar, laid in gravel ballast obtained near the right-of-way. The rails are bonded with one No. 0000 American Steel & Wire twin terminal bonds at each joint, painted dark to escape attention. Every 1000 ft. the track is cross-bonded with 72 in. of No. 0000 copper cable. The right-of-way has an average width of 50 ft., and the maximum grade on the new work is 5 per cent.

### POWER SUPPLY AND TRANSMISSION

The power supply of the system is mainly drawn from hydroelectric stations, with a relatively small reserve capacity in

steam auxiliary equipment. The normal generating capacity and its location on the system are as follows:

Location of Station.	Normally Available.	Notes
Brunswick	750 water power	Double current generators.
Lewiston	300 steam power	Direct current.
Deer Rips	750 water power	Alternating current.
Hallowell	650 steam power	Alternating current and direct current.
Winslow	1,500 water power	Alternating current.
<b>Total</b>	<b>3,950 kw.</b>	

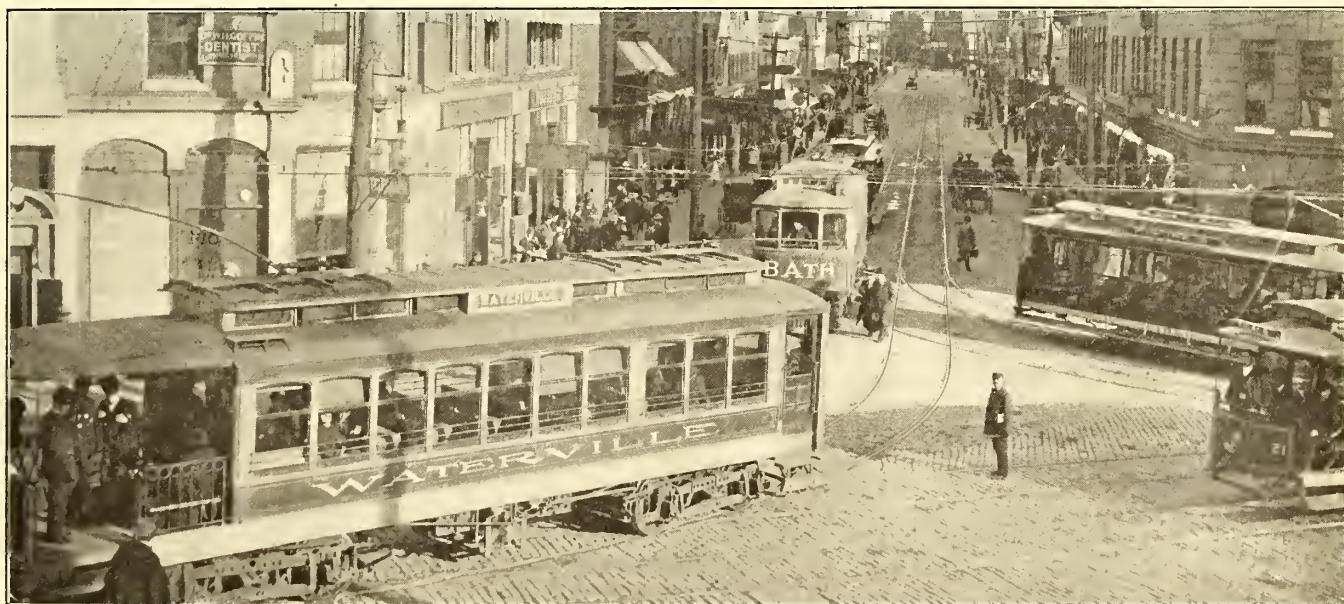
In general, alternating-current power from these generating plants is transmitted to step-down rotary converter substations for reconversion into 650-volt direct current for use on the trolley lines. Substations are located at Bath, Lisbon Falls, Lewiston, Day's Corner, Hallowell, Winthrop, Webber Pond and Winslow. The Lewiston and Bath Division of the system is supplied with 60-cycle current, and the Augusta and Waterville lines with 25-cycle service. A physical separation of the two electrical supply systems is made at Sabattus.

The power plant at Brunswick was built in connection with the construction of the Lewiston, Brunswick & Bath line. It is operated by the Androscoggin River under a normal head

of the generators are employed to feed the trolley service in the vicinity of the plant. The railway company does not own the water wheels in this station.

The Lewiston power plant is located at the company's main car house, near the center of the city, and is used only as an auxiliary in times of low water. It contains two 200-hp B. & W. water-tube boilers, a 400-hp Westinghouse horizontal compound condensing engine and a 300-kw, 550-volt d.c. belted General Electric railway generator. At this point a substation consisting of six 200-kw single-phase step-down transformers supplying current to two 500-kw, 600-volt three-phase Westinghouse rotaries, and also a battery consisting of a set of 270 cells from the Electric Storage Battery Company and a Western Electric booster. The one-hour discharge rate of the battery is 240 amp, and is controlled by an automatic carbon regulator of the company's standard design. This substation is connected with the Deer Rips plant by a 10,000-volt three-phase line of aluminum, having a section equivalent to No. 1 copper. The battery is operated in parallel with the rotary converters in the substation, and was installed to facilitate the handling of peak loads. The Deer Rips line is 5 miles long.

The railway company has also installed a line battery in a wooden building, with concrete floor and asbestos roof, on its



Maine Electric Railways—A Scene on Lisbon Street, Lewiston, Showing in the Foreground an Interurban Car with Observation Platform.

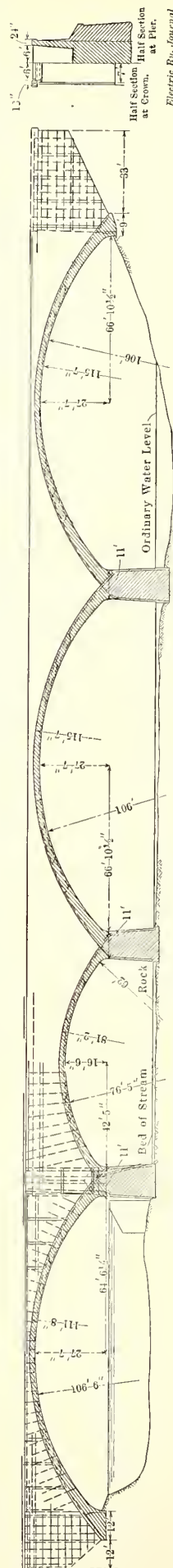
of 18 ft., and contains four 250-hp Holyoke and Globe-Dayton horizontal turbines driving three 250-kw, double-current generators. One side of each generator delivers current at 550 volts d.c., and the other at 330 volts, three-phase, for transformation to 10,000 volts for transmission to the Bath and Lisbon Falls substations. There are two banks of three-phase transformers in the Brunswick station, both transformers and generators being of Westinghouse manufacture. The turbines are controlled by two type B Lombard governors. An emergency transmission line connection is made from the Brunswick station to the substation in Lewiston, continuing the Lisbon Falls line. From Brunswick to Lisbon Falls the line is of No. 1 copper, and from the latter point to Lewiston of No. 3 copper. The Bath line is of No. 6 copper, the distance being 9 miles. From Lewiston to Brunswick the line is 19 miles long. In ordinary operation the line is not used beyond Lisbon Falls. The Brunswick power station also supplies current to the Freeport substation of the Portland & Brunswick Street Railway Company over a 9-mile transmission line. The line is built of cedar poles from 30 ft. to 35 ft. long, with an average spacing of 115 ft, and porcelain insulators are used. The plant is operated in three eight-hour shifts of one man each, the line being kept alive 20 hours a day. The d.c. sides

recently completed extension to Mechanic Falls. This installation consists of 204 Gould cells, having a one-hour discharge of 160 amp., and connected in parallel with the cars, so as to float upon the line in service. The battery is located about 8 miles west of Lewiston. The Deer Rips power plant is owned by Libby & Dingley, of Lewiston, proprietors of the electric lighting and power company operating in Lewiston and Auburn. The station is located on the Androscoggin River, and is purely hydro-electric. The railway company has reserved for its normal use in this station 750 kw in machinery, but additional power can be obtained in times of need.

The Hallowell power station is an old plant, formerly used to operate the Augusta, Winthrop & Gardiner Street Railway, and is now utilized as a steam auxiliary station, with a substation in the same building. The power equipment consists of three 150-hp horizontal return tubular boilers, a 600-hp cross-compound Corliss engine direct connected to a 300 kw, 350-volt three-phase Westinghouse alternator; a similar 300-hp engine which is at times belted to a 250 kw General Electric rotary converter, and a 200-hp simple Russell engine belted to a 150-kw, 550-volt General Electric d.c. railway generator. This station is ordinarily operated by two attendants, a watchman also being provided. Firemen are employed as needed. The

Lewiston plant is ordinarily operated by one day man and one night man, a third being called in when the steam plant has to be started in service. The Hallowell substation contains two three-phase, 200-kw, 650-volt, 25-cycle General Electric rotaries and one 150-kw Westinghouse rotary. The transformer equipment of this station includes three 145-kw sets, which raise the potential to 19,100 volts for transmission to the substations of the new through line to Augusta and Waterville, and a compensator which enables current at 11,000 volts to be transmitted to the Winthrop substation, about 7 miles from Hallowell. Each of the transformers is provided with a double secondary winding and a single set of primary coils, so that either of the rotary converters in the substation can be independently operated, although each rotary delivers direct current to the same positive busbar. By this plan an extra investment in transformers is saved, and the a.c. sides are independent of each other. The windings of the transformers are designed for future operation at 33,000 volts, if desired. All but one of the rotaries on the 25-cycle system are started on half-voltage taps. Any or all of the rotaries in the Hallowell substation can be operated from the 300-kw alternator if desired in case of low water, and one of the rotaries, as stated above, can be run as a generator by a belted engine in case of necessity. Under normal conditions the steam plant is shut down at Hallowell, and the rotaries are run off the transmission line from the Fort Halifax water-power station in Winslow.

The Winslow, or Fort Halifax, generating and substation is located at the northern end of the Waterville line, on the Sebasticook River, near its junction with the Kennebec. Exterior and interior views of this station are shown in the accompanying illustrations. The plant is owned by the Fort Halifax Power Company. The power house is a brick building with concrete cornice and "ferroinclave" roof. The floors are of concrete, laid on "ferroinclave." A hollow concrete dam with a 350-ft. spillway has been built on a ledge crossing the river at this point, with one end extending to a heavy abutment rising 13 ft. above the level of the spillway and extending well into the clay which forms the bank of the river. The other end of the dam extends to an abutment tied into a flume wall, forming a continuation of the dam, which is carried through as the wall of the generator room of the station. The station contains two horizontal turbine units set in open concrete flumes, the walls of which are carried up to the same height as the abutments of the dam. Each hydraulic unit consists of four 42-in. horizontal turbines, each set being capable of developing 1400 hp under 20-ft. head and about 2000 hp under 24-ft.



Maine Electric Railway—Reinforced Concrete Bridge over the Kennebec River

head. From the flumes the shafts of the water wheel units pass through steel bulkheads set in the wall of the generator room, and connect directly to two 750-kw, 25-cycle, 400-volt, three-phase revolving field alternators. One of the generating units is provided with a separate 60-cycle revolving field and armature, which can be used for local lighting service if desired, and to act as a frequency changer between the system of the local central station at Waterville and the railway plant. The main operating room of the station is located on the walls of the generator room and 25 ft. above the latter, to avoid danger of interruption from freshets backing up from the Kennebec River. In the operating room are located water wheel governors, motor-driven exciters, three Fort Wayne water-cooled, 250-kw, step-up transformers to raise the potential to 19,000 volts for transmission to the railway substations, high-tension and substation equipment. The latter includes a 200-kw General Electric 650-volt rotary converter for supplying direct current to the trolley line in the vicinity of the station. The high-tension circuit breakers and lightning arresters are on a gallery 12 ft. above the main operating room floor, and space is reserved in the station for the future installation of a duplicate bank of transformers. A hand-power traveling crane is installed in the operating room, and by removal of traps the heavier parts of the equipment in the wheel room below can be handled readily. The outgoing line from this station is carried across the Sebasticook River on a span of 367 ft., the wires being 9 ft. 8 in. apart at the dam, and terminating on steel poles, as shown in the exterior view.

In the new work of the company the high-tension wires are carried on 35-ft. to 50-ft. cedar poles set 5 ft. 6 in. in the ground, and 18 in. in diameter at the butts. The wires are carried on Thomas 33,000-volt, triple-petticoat porcelain insulators. The entire line construction was carried out with the expectation of raising the potential to 33,000 volts when the load requirements necessitate it. The insulators are spaced on 48-in. equilateral triangles, one insulator being carried on the top of the pole and the other two on a 5-ft. spruce cross-arm fitted with braces at the pole diameter. At the tops the poles are 7 in. in diameter. Below the high-tension wires are located two railway telephone wires spaced 20 in. apart vertically. Two No. 00 trolley wires are carried on 9-ft. brackets on the transmission poles. The three-phase line is transposed every half-mile, with one complete turn every 1.5 miles. When on the transmission poles the telephone line is transposed every 1.5 miles, the construction for the communicating service being of No. 10 galvanized iron carried on side brackets. Telephones are located on all turnouts. Special care was taken to secure accurate spacing of the telephone wires. This was accomplished by the simple expedient of driving two nails into a stick which could be fitted against the under side of the cross-arm, the nails being just 20 in. apart. When the stick was placed in position a scratch was made on the pole and the side brackets for the telephone service nailed in place by the marks. A hook was attached to the end of the stick for convenient handling.

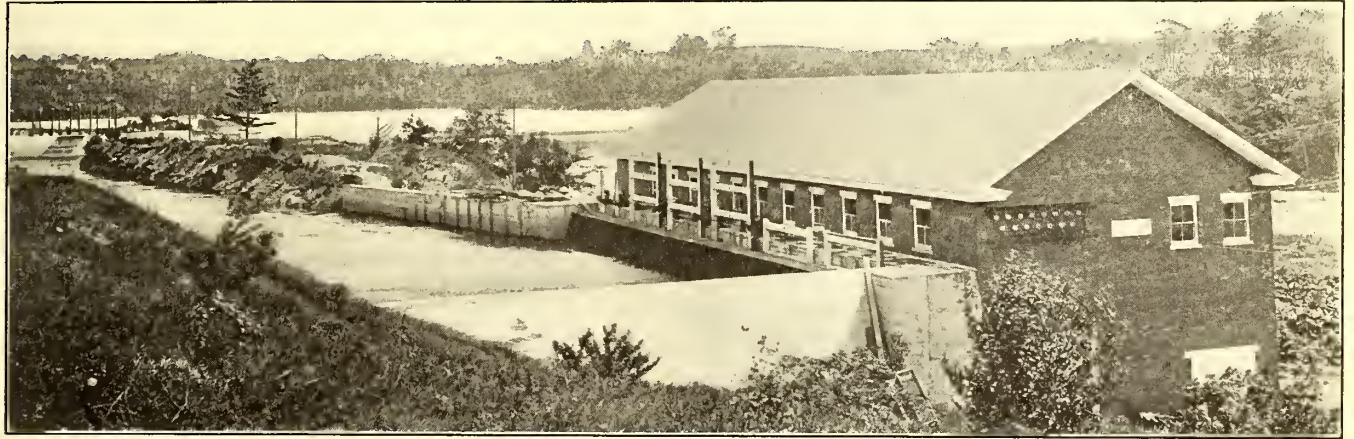
The 19,000-volt line consists of three seven-strand aluminum wires. The cross-arms were treated with carbolineum before being placed in service, and the cost of each insulator was \$1.50. The insulators are attached to wooden pins, the latter being bolted to the cross-arms and ridge iron of the pole by 5/8-in. steel bolts. The poles on the line cost on the average from \$3 to \$4 each in the rough, and about \$7 erected. About 40 miles of line were erected in connection with the building of the Augusta and Waterville extensions, 28 miles of the transmission service being carried on the trolley poles and the balance across the country.

All the trolley construction was insulated for 650 volts. The trolley wires are of grooved section, supported by 2-in. pipe brackets with 1 1/2-in. braces. The yokes have strain insulators at each end, the wire being attached to the yokes by cap screws connected with the ears. Each cap screw is provided with a lock washer to prevent its jarring loose, and the trolley wires are anchored every 17 poles in two directions.

The Bath substation is located in the outskirts of the city, and contains two 200-kw Westinghouse 550-volt rotary converters of the 60-cycle type, supplied with current through three 75-kw single-phase transformers per rotary, each being of the oil-cooled type and wound for 10,000 volts on the primary and 330 volts on the secondary side. The regular operating force of this station consists of two men, who take shifts from 6 a. m. to 6 p. m., the night force in the local car house looking after the rotaries at other times. The Lisbon Falls substation contains one 200-kw Westinghouse 550-volt rotary sup-

plied with current through three single-phase 75-kw transformers. The operating conditions are similar to those at Bath, a local car house providing for night service when the day shifts are over.

The substations at Day's Corner, in the town of Monmouth, and at Webber Pond illustrate the latest type of construction which the company has put in service. An interior and an exterior view of the Day's Corner substation are shown. Each of these substations contains at present one 200-kw, three-phase, 25-cycle, 650-volt General Electric rotary converter, supplied through three 75-kw, oil-cooled, single-phase General Electric transformers, reducing the potential from 19,000 to 400 volts.



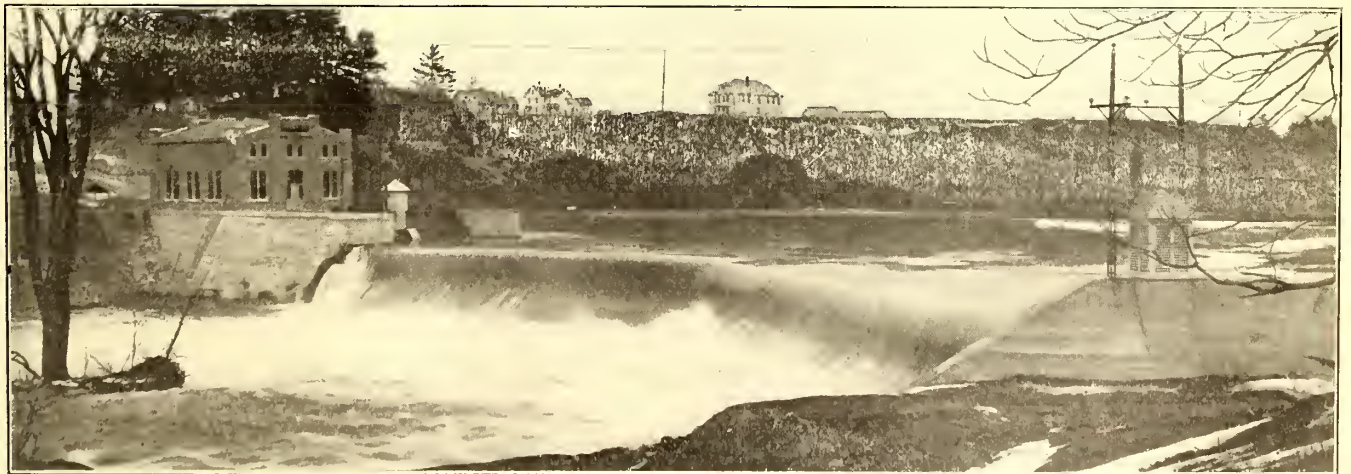
Maine Electric Railways—General View of Power House and Dam on the Androscoggin River near Lewiston

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650-volt wiring for the railway service is carried under the floor from the switchboard and out of the building to the trolley and rails at the opposite side from which the high-tension service enters. Space is reserved in each substation for a second rotary and its attendant transformers and switching equipment. The Webber Pond substation is a duplicate of the one at Day's Corner, except that the former is an intermediate and the latter a terminal substation, the high-tension line being carried no further southward. Each substation is operated by two men, the shifts being 12 hours in length.

The Winthrop substation supplies current to a branch of the old Augusta, Winthrop & Gardiner Street Railway, about 15



Maine Electric Railways—Hydro-Electric Power House and Dam at Winslow

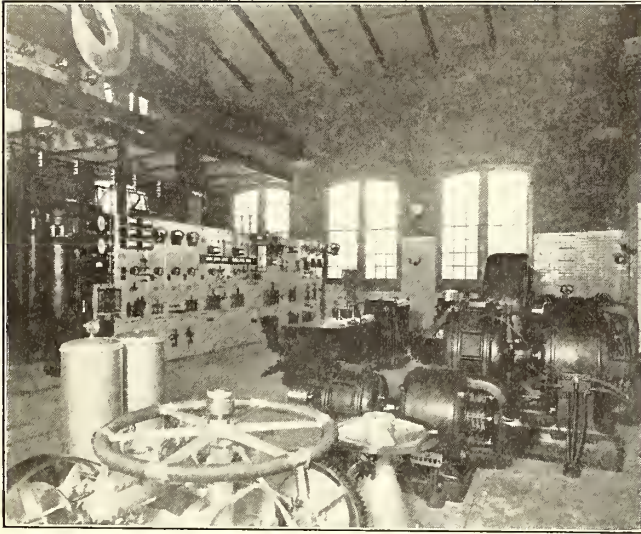
Each substation is a brick building with concrete floor and timber supported roof of hard pine, with an extension at the rear for the reception of the high-voltage wires. Lightning arresters and oil switches are installed in a separate compartment at the rear of the substation building, and from the latter place the leads are carried through the wall to the transformer primaries. The transformers are located in the operating room, behind the switchboard, and the rotary in each substation stands in front of the latter, with a clear space at each side of the machine. The lightning arresters are built for

miles in length, running westward from Augusta. It contains a 150 kw Westinghouse 25-cycle rotary converter, supplied with current through two 90-kw, 11,000 to 400-volt transformers. The substation is operated by two men in 12-hour shifts. The rotary is started by an induction motor, and, as indicated above, the service of this substation is derived from a 150-kw compensator in the Hallowell substation.

#### PROPOSED IMPROVEMENTS IN POWER AND ROADWAY

The new line has not as yet been equipped with d.c. feeders to any considerable degree. Two No. 00 and a single No. 0000

feeder divide the distance southward from the Hallowell substation to a point 3 miles south of Gardiner in order to overcome the effects of comparatively heavy grades on the line, which reach a maximum of 4 per cent near Tacoma Lake. From Hallowell a No. 0000 feeder is carried 4 miles toward Winthrop. A grade of 11 per cent is encountered on the old Augusta, Winthrop & Gardiner line near the center of Augusta, but this is near the Hallowell substation, and no feeder is as yet in service for this work. The new line to Mechanics



Maine Electric Railways—Interior of Hydro-Electric Plant at Winslow

Falls, out of Auburn, is equipped with two No. 00 trolleys and a No. 0000 feeder (copper equivalent) of stranded aluminum, carried through to the Mechanics Falls end of the route. At the bottom of the heavy grade in Augusta is a grade crossing with the highway and the Maine Central Railroad. Plans are under way for the elimination of this, the estimated cost being \$100,000. The State of Maine is to pay 25 per cent; the city of Augusta and the Lewiston, Augusta & Waterville 15 per cent each, not to exceed \$15,000, and the Maine Central the

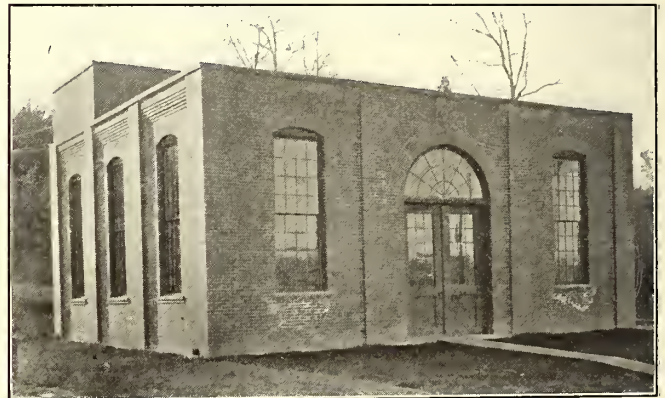


Maine Electric Railways—Substation at Day's Corner

balance. During the next five years the company plans to spend at least \$10,000 per annum on its roadbed. In connection with the new line the company rebuilt the tracks between Gardiner and Augusta, replacing the old 50-lb. rail in service by 70-lb. T-rail, with Weber joints and new ties and ballasting. In Auburn the company has put in about 1½ miles of 9-in. girder rail, section No. 222, Pennsylvania Steel Company, and ¾ mile of this rail in Lewiston.

#### BRIDGES

The most interesting feature of the company's roadbed work is found in the construction of a new bridge by it for the exclusive use of electric cars across the Kennebec River and about 54 ft. above it between Waterville and Winslow. A drawing of this bridge is shown in an accompanying cut. The bridge is a reinforced concrete structure, designed by D. B. Luten, of the American Bridge Company, Indianapolis. The contractors were Fred T. Ley & Company, Springfield, Mass. The bridge is asserted to be the second longest electric railway bridge in the country the only one surpassing it being over the Maumee River at Waterville, Ohio. The bridge is built in four spans, with a total length of about 580 ft. Its width is 12 ft. It was necessary to design the structure so that the piers of the new bridge should go directly downstream from the granite piers of the old highway bridge, which still is in service beside the location of the new structure. Three spans from 130 ft. to 133 ft. in length were put in, with an 85-ft. span in the middle of the bridge, which makes the structure a trifle unsymmetrical, but in a river subject to ice and log jams, as is the Kennebec, this was considered to be the wisest arrangement. In general, 1-in. transverse steel rods were used for the reinforcement, from 24 ft. to 32 ft. long. The longitudinal reinforcement consists in the main of 1-in. rods placed 6 in. apart on centers and 171 ft. long on the average. The ends of the transverse rods are bent up into spandrels. At the piers the structure is reinforced by diagonal rods of 1-in. steel placed



Maine Electric Railways—Exterior of Day's Corner Substation

6 in. apart on centers, and from 24 ft. to 27 ft. in length. The plans for the bridge were submitted to Prof. George F. Swain and Prof. L. E. Moore, of Boston, before construction was begun, and were approved in detail, with the single suggestion that the longitudinal reinforcement bars be installed on 6-in. centers instead of on 9-in. spacing, as at first planned. The gravel used in the bridge was obtained from a pit owned by the railway company.

At Winslow the company has also built a steel girder bridge of about 30-ft. span over the Maine Central line to avoid a grade crossing. The approach to this bridge is over an incline on a private right-of-way, and the track construction involved several difficult curves at this point. On the rest of the line there are three other steel bridges over small streams or gullies, the maximum span being about 40 ft. The bridges on the line have a car capacity of 70 tons each.

#### ROLLING STOCK

The company has 114 cars on its entire system. There are 27 closed motor cars, single and double-truck type; 41 open motor cars, single and double-truck; 18 semi-convertible Brill cars, 16 of which have observation platforms; 4 flat cars equipped with automatic air brakes but without motors; 2 flat cars equipped with both air brakes and motors; 5 express motor cars equipped with four GE-202 motors each; 10 snow plows equipped with GE-80 motors and GE-67 motors; 1 parlor car and 6 construction cars. Briggs, Newburyport and Laconia



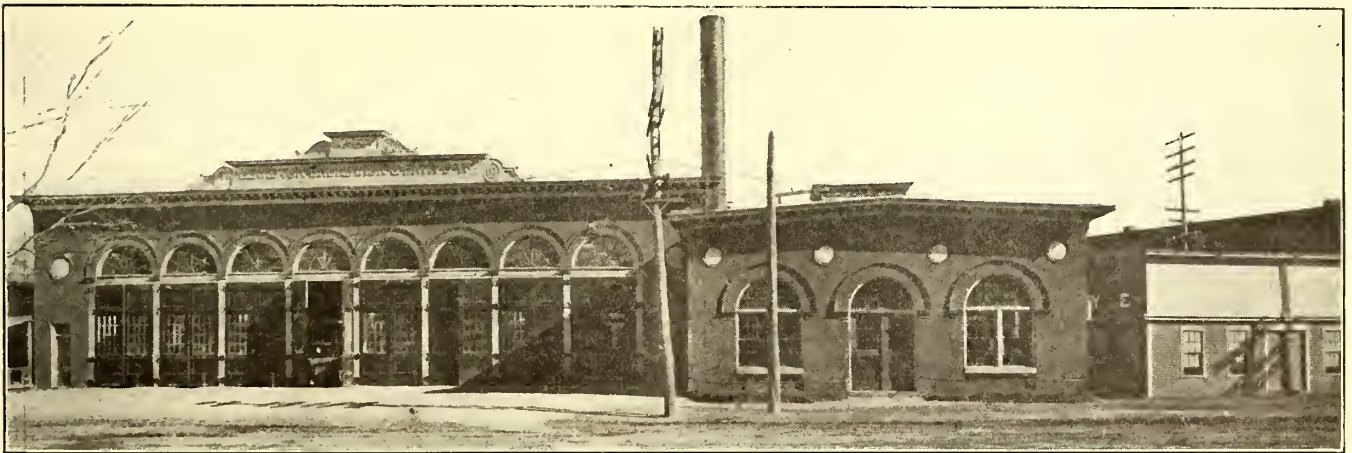
trucks are used. The GE-67 and GE-80 motors used on the snow plows are transferred to the open cars during the summer season.

The new line between Lewiston and Waterville, 54 miles, requires six cars running on an hourly schedule. These cars are 40 ft. 6 in. long over all and seat 45 passengers. Although of a type used for three years past on the Bath line, they are attracting general attention in the territory through which they operate. At the rear is an observation platform with seats facing the center passageway. The cars are single-ended, and the motorman is provided with a compartment separated from the rest of the car body. Heating is accomplished by hot water under 5 lb. steam pressure. The interiors are finished in natural wood, and the exteriors are painted chrome yellow with red trimmings, the company's standard colors. Pressed-steel wheels, 33 in. in diameter are used, and each car is equipped with National air brakes, K-35 control and four GE-202 motors, geared for a maximum speed of 30 m.p.h. Without passengers, the cars weigh about 23 tons each. Two smaller cars of the single-truck type are required to maintain a half-hourly intermediate service between Augusta and Gardiner.

The company now has under construction five express cars, two of which will be equipped with four GE-202 motors each, the other three being flat cars for trailer service. The two express motor cars will each be 36 ft. over all, 7 ft. 6 in. wide

stalled to facilitate the replacement of wheels and trucks. The shops are located at the east end of the car house, and there is a Schaffer 125-ton wheel press in the car house proper to expedite the rapid handling of this class of work. Sign painting facilities are also provided in the car house, which is lighted by a central monitor affording an ample supply of daylight illumination for the most careful work. The machine shop occupies an extension of the car house 45 ft. long by 25 ft. wide. It contains the usual lathe, forge and drilling equipment, all driven by a 15-hp motor, supplied with power from the trolley circuit. There are two forges with motor-driven air supply, one shaper and planer, two upright drills, two belt machines, a 20-in. and a 16-in. lathe and a Niles boring machine for wheels. A trip-hammer is also in service in the shop and the home-made crane with a 15-ft. hard pine boom illustrated. The stockroom is 42 ft. x 13 ft., and has a mezzanine floor 25 ft. long. A motor-driven elevator is in service between the machine shop and a small armature room on the floor above.

The company makes its own axles, winds its own coils and manufactures its own special rolling stock. The woodworking equipment includes a band saw driven by an independent motor and a large number of hand tools. The company is endeavoring to standardize its axles at  $4\frac{1}{2}$  in. diameter, with a  $4\frac{1}{2}$ -in. motor fit, a  $5\frac{1}{2}$ -in. gear fit and a  $5\frac{3}{8}$ -in. wheel fit. Solid gears and steel-tired wheels are now in its general service.



Maine Electric Railways—Combined Car House, Power House and Rotary Converter Station at Lewiston

inside, and fitted with the Westinghouse "A M M" automatic air-brake equipment. The controllers are to be of the K-35 C type. Four sliding doors will be provided on the inside of each car, 6 ft. 3 in. wide and 6 ft. 6 in. high. The sills are to be of hard pine, 10 in. x 10 in. on the sides; the underframing will be of the same material, 6 in. x 10 in., and the bolster of white oak, 10 in. x 10 in. in cross-section. Two trolleys are to be provided, and the roof frames are to be of 2-in. x 4-in. hard pine, with  $\frac{5}{8}$ -in. beaded sheathing. The roof covering is to be of two-ply canvas, and the trucks are to be of the Standard Motor Truck Company's Diamond H pattern, with 33-in. wheels. Three front vestibule windows and two side windows are to be provided at each end. Each locomotive car will weigh about 19 tons light. The company's snow plows are of Wason, Taunton and Russell manufacture, including one rotary outfit. The rolling stock also includes a 2000-gal. sprinkler car equipped with two GE-80 motors, and designed to spray from curb to curb. The flat cars which the company is building are to be equipped with stakes and pockets to enable lumber to be carried.

#### MAINTENANCE FACILITIES

The principal repair shop of the road is located in Lewiston, with an auxiliary shop for temporary repairs at Augusta. The Lewiston shops are combined with the substation and auxiliary steam plant mentioned above, and car house storage facilities are also available here. In the car house are four repair tracks and four storage tracks. Pits are provided in each of the repair tracks, and a 3-ton hydraulic jack will shortly be in-

Metal lockers are provided for all shop and car house employees.

The Augusta shop contains a small blacksmith shop, with motor-driven forge blower, a lathe and hand tools. A modern sprinkler system is installed at this point.

Car houses are located at Augusta, Lewiston, Bath (light repairs are also made here), Hallowell, Lisbon Falls and Topsham. The average mileage per car per day is 210 miles in 18 hours. The highest run per car a day is 334 miles.

#### GENERAL

The running time between Lewiston and Waterville is now three hours. The fare is \$1, the division being 60 cents from Lewiston to Augusta and 40 cents from Augusta to Waterville. The standard cash fare of the system averages 2 cents per mile. Over the entire system 11 tickets are sold for 50 cents, each ticket being acceptable as single fare by conductors. The company also maintains a half-fare pupil's ticket, applicable to public school children on school days only. Transfers are issued with a limited zone in Auburn, Lewiston, Bath and Augusta. The conductors are instructed to take a passenger's total fare to any point if desired, issuing an identification check in return.

The company is planning to develop an extensive trolley freight and express business throughout its territory. It is now able to take foreign cars from the Maine Central Railroad and to handle them between the latter and the premises of individuals and organizations located on its lines. Depots will be established for two round trips per day on all

parts of the system. Lumber, cordwood, potatoes, apples and corn are moved in large quantities in this territory at present, but the time of transit by steam lines, the numerous changes necessary and the roundabout mileage cause great delay compared with the average speed which will easily be possible on the electric railway lines. The time of delivery from wholesale and retail establishments in the cities and towns on the system to suburban and rural customers will be greatly shortened, and the company expects to make this class of work one of its most profitable activities.

The company operates several parks on its lines during the summer season. At Lake Grove, in Auburn, a tract of 8 acres is available for pleasure parties, including an open-air theater, skating rink, boating, cottages and fishing privileges. A 5-cent fare applies from Lewiston and Auburn, the distance being  $3\frac{1}{2}$  miles. At Merrymeeting Park, between Brunswick and Bath, a theater, lake and casino are available. At Tacoma Inn, 17 miles from Lewiston, there is a chain of five attractive lakes, and a tributary population of 75,000 people within the radius of a 30-cent fare. Other points of attraction are Island Park, in Manchester, the 10-cent fare zone from Augusta, where a theater and hotel are available; Cobbossecontee Lake, China Lake and the National Soldiers' Home at Togus, near Au-



Maine Electric Railways—Interior of the Machine Shop at Lewiston

gusta. Effective advertising of these attractions was done last season by the use of posters attached to the seat handles.

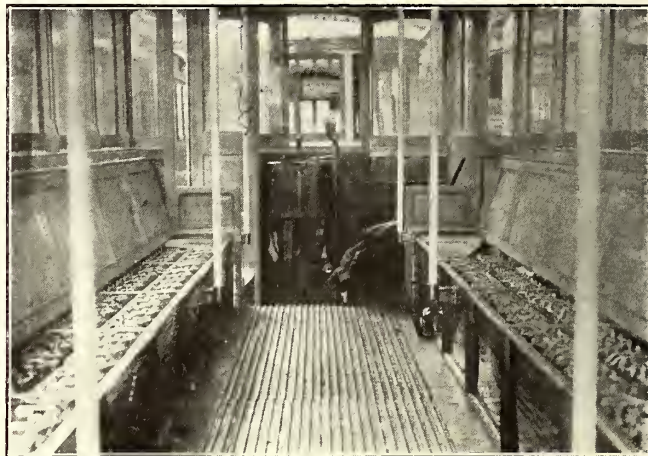
The officers of the company are: President, John R. Graham, Bangor; vice-president, Herbert L. Clarke, Philadelphia; vice-president, Frank Silliman, Jr., Philadelphia; treasurer, D. S. Hahn, Lewiston; general manager, Harry B. Ivers, Lewiston. Directors: Messrs. Graham, Clarke, Silliman, Ivers and John A. Hill, Augusta; Thos. A. Lynch, Augusta, and W. H. Newell, Lewiston. The civil engineer of the line was John A. Jones, Lewiston; the electrical engineer is Walter G. Parker, Lewiston, and the master mechanic, W. J. Ivers, Lewiston. W. G. Bowie is superintendent of transportation of the Lewiston division and L. F. Taylor is superintendent of the Augusta division.

Montevideo, the capital of Uruguay, is now supplied with street railway service by two companies, one called the Transatlantica and the other the Sociedad Comercial. The first system is about 75 miles long, has 160 motor cars and 25 trailers, and has 1028 employees, receiving total annual wages of \$350,000. It is capitalized at \$2,500,000 and carried 20,000,000 passengers in 1908. The second system operated 215 motor cars and 50 trailers for 6,022,100 car-miles, and carried 25,900,000 passengers. This company is capitalized at \$6,000,000, of which \$2,000,000 is in stock. Its gross earnings were \$1,093,870.

## NEW STORAGE BATTERY CAR

During the past week a number of experimental runs has been made in New Jersey with a single truck car equipped with the new Edison nickel-iron storage batteries of the A-4 type described in the *ELECTRIC RAILWAY JOURNAL* of Jan. 22, 1910. These batteries have already been in use for several years in automobile service, but it has only been during the past two years that a car body and truck were developed to secure the maximum advantage from this type of battery. This has been made possible by designing these parts more along the lines of automobile practice than that of street railways.

The car body is 18 ft. long between the posts and has vestibuled platforms at each end 4 ft. long. The width of the car at the sills is 6 ft. 6 in. and at the drip rails 7 ft. 3 in. The underframe is composed of two 3-in. x 6-in. longitudinal ash sills and nine 3-in. x 6-in. ash cross sills. The understructure is firmly bound by steel truss rods on each side. The roof is made of two flat arches each composed of one sheet of three-ply veneer held in place by seven steel-plated carlines, the ends of the roof plating resting on the bulkheads. The outer veneer of the roof has the usual canvas covering. The weight of the roof is only 250 lb. There are no side ventilators in this car, the ventilation being obtained by using adjustable end sash. The hydrogen and oxygen discharged by the batteries are drawn off through perforations under the seats. The car body is furnished with vertical drop sash. There are no body end doors,



Interior of Storage Battery Car, Showing Cells Under Longitudinal Seats

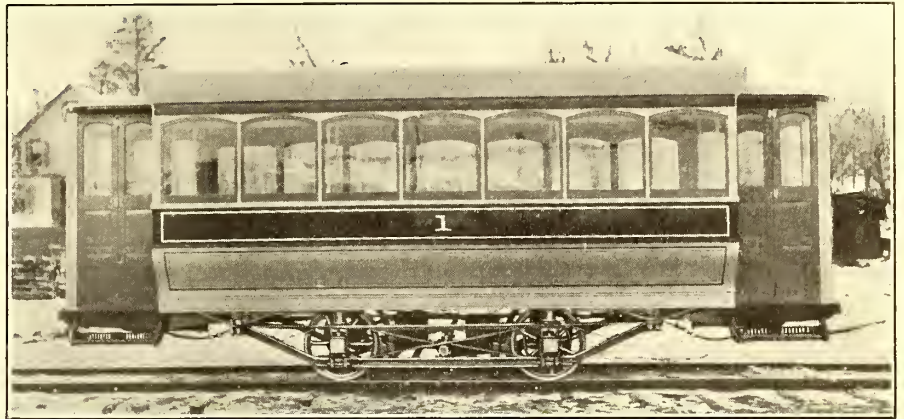
but the vestibules have been completely enclosed instead. Hand rails of white enameled steel are installed as shown to serve in place of straps, to help to carry the roof and to hold the lighting fixtures. It has been found that eight 10-cp 12-volt tungsten lamps are sufficient for satisfactory illumination. All of the lighting wires are run in the steel tubes mentioned so that no lighting fixtures are carried from the extremely light roof.

The car body is mounted on a single four-wheel truck of 6-ft. 6-in. wheelbase. The truck frame is of steel shapes welded at all joints by the oxyacetylene process. The journal housing and all castings are of steel. The bearings are of the ordinary railway type, but were ground with extra care to obtain a longer life by reducing friction. The truck axles are of  $2\frac{1}{2}$ -in. diameter steel and are divided in the center, a steel aligning sleeve being provided to permit the free rotation of each wheel with respect to its mate, as in automobile designs. It is believed that considerable power will be saved by using this form of axle. The wheels are of steel 28 in. diameter. Telescope steel spring seats as illustrated are provided between the truck and the car body, thereby giving a free upward movement, but confining the side and end swaying to within  $\frac{1}{8}$  in. This reduction in the side and end movement has also greatly simplified the braking mechanism.

The batteries are placed under the longitudinal seats in a

lattice steel electrically-welded girder frame weighing 153 lb. The frame on each side forms a box for the batteries, a support for the side posts and a firm bracing for the entire car. Each frame is bolted to the adjacent cross sills, side sills, side posts and end bulkheads, and through its connection with the vertical hand rails it helps to carry the roof. It has been found that, as a result of this novel construction, there is only

average of 14 stops per mile. The motors are connected to opposite axles by Renold chains. The accompanying drawing of the truck shows that it can be used to carry four motors driven independently, one for each wheel. The controllers are of the Cutler-Hammer type arranged as follows: First step, batteries in multiple at 50 volts, motors in series; second step, batteries in multiple at 100 volts, motors in series; third step,

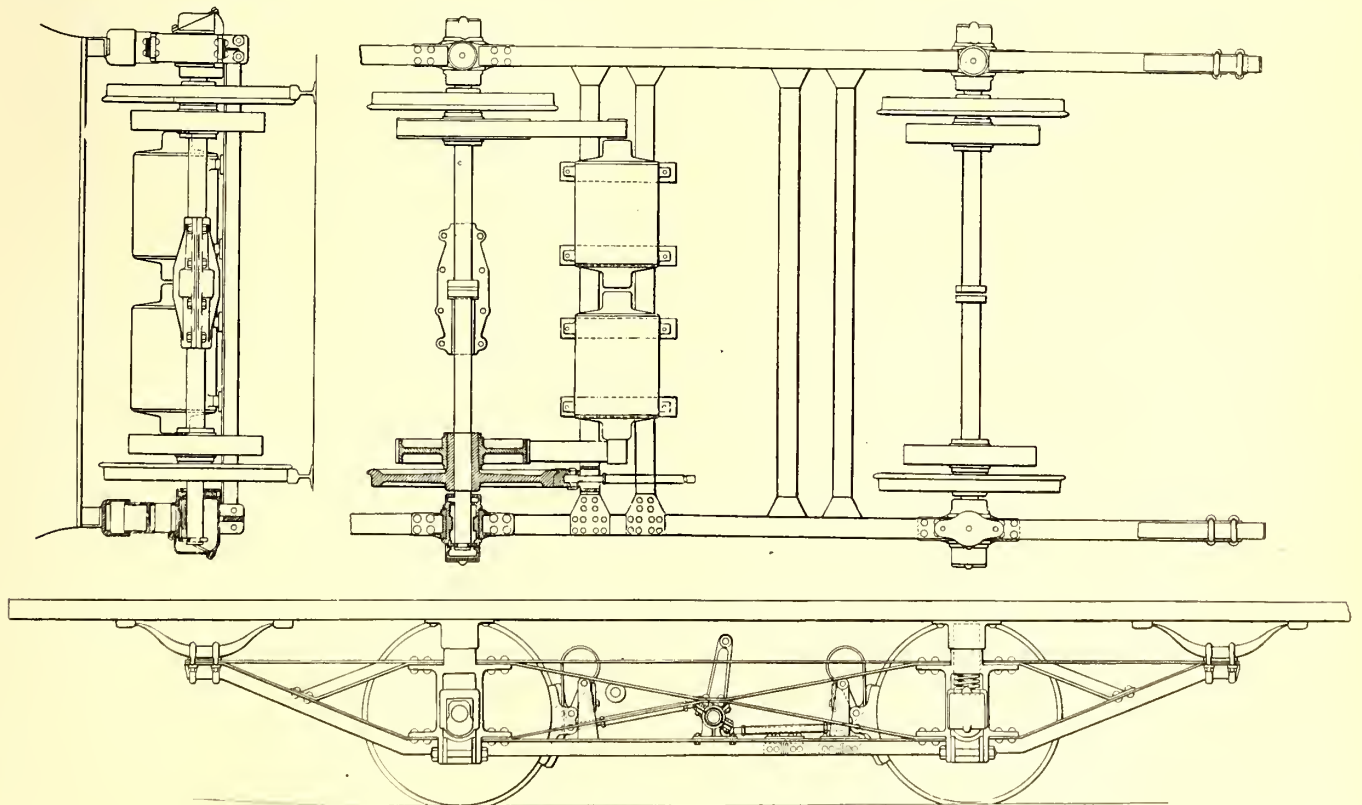


End and Side Views of Storage Battery Car

a deflection of .003 in. when the car body carries a load of two tons in the center.

The storage battery consists of 200 type A-4 cells for traction and 10 cells for lighting. These cells are separately connected when working, but are in series when they are being charged. This arrangement keeps the lights immune from variations in voltage when the car is running. The capacity of

batteries at 100 volts, motors in multiple. It will be understood that no fixed resistances are used as the voltage is built up through cell combinations. The power consumption of this car when accelerating at 1 m.p.h.p.s. is about 3½ kw and when running about 1½ kw. The weights of the several parts are as follows: Car body, 3500 lb.; truck and electrical equipment, including two motors, 3500 lb.; batteries, 3000 lb. Adding



Details of Single Truck for Storage Battery Car

the battery is such that it can run the car for 150 miles without recharging. The charging periods may vary as discussed in the article published on page 159 of the *ELECTRIC RAILWAY JOURNAL* of Jan. 22. The motor equipment now mounted on the truck consists of two 5-hp 110-volt motors of Northern Electric manufacture, capable of attaining a maximum speed of 15 m.p.h. and a scheduled speed of 8 m.p.h. when there is an

the weight of 26 seated passengers at 150 lb. each, gives the equipment a total weight of 13,000 lb.

The car body truck and equipment were designed by Ralph H. Beach, of the Edison Storage Battery Company, New York. The body was built by J. P. Sjöberg & Company, New York. The wheels and axles were furnished by the Taylor Iron & Steel Works, High Bridge, N. J.

## ANNUAL MEETING OF WISCONSIN ELECTRICAL ASSOCIATION

The first annual meeting of the Wisconsin Electrical Association was held on Jan. 19 and 20 at the Pfister Hotel, Milwaukee, Wis. About 200 members and guests were present. The membership of this new association is composed of two classes: Class A members are "companies engaged in the manufacture of electricity for railway, lighting and power use." Class B members are "individuals who are engaged in the electrical business or the sale of electrical appliances." The Class B members pay annual dues of \$5 each and an initiation fee of \$10.

The first session was opened with a few remarks by Ernest Gonzenbach, president. John S. Allen, secretary and treasurer, read the minutes of the meeting held at Waupaca, Wis., in the spring, at which time the Northwestern Electrical Association and the Wisconsin Electric & Interurban Association were united to form the new Wisconsin Electrical Association.

George B. Wheeler, Chippewa Valley Railway, Light & Power Company, chairman of the membership committee, described a successful campaign for new members which had brought excellent results during the past six months. Care had been taken to appoint as members of the committee those whose homes were scattered throughout the entire State. The territory in the association's field was subdivided systematically, and the names of the non-member companies were apportioned among the members of the committee for careful solicitation.

Mr. Allen next presented the report of the secretary-treasurer, which showed that the new association had wiped out the financial obligations of the constituent associations and had started on a substantial financial basis.

### PRESIDENT'S ADDRESS

Ernest Gonzenbach next presented the annual address of the president. An abstract of this address follows:

"That there is and has been an urgent need of an active association to protect the interests of the electrical industry in Wisconsin there can be no doubt. About a year ago an agitation was started by some members of the Northwestern Electrical Association looking toward a consolidation with the newer and younger, as well as more active, Wisconsin Electric & Interurban Railway Association. This consolidation was voted down in open meeting by the Northwestern Electrical Association. It so happened that several of the officers of the Northwestern were also officers of the Wisconsin Electric & Interurban Railway Association. A joint meeting of the two associations was called at Waupaca in June, 1909. The two associations held independent meetings and consolidation plans were discussed in detail. The members present of both associations voted for their adoption. Thereby a new association—the Wisconsin Electrical Association—was formed, and the two old associations were dissolved. This is the first regular meeting of that association.

"There is an enormous amount of work ahead of us. There are operating problems, financial difficulties and political obstacles, all of which are hurdles in the path of success to electric railway and lighting enterprises. It is not the purpose of an association to discuss operating problems only, although they are important and take up the greatest portion of our program. Other problems need attention. I do not recollect ever having heard a discussion at any of our former meetings on such questions as fire, accident and liability insurance, the premium paid and the best means of reducing the premium and getting greater protection. Neither would it be out of place to discuss ways and means of raising the standing of electric lighting and railway securities in the eyes of the investing public, and plans and methods for marketing securities so as to save the middleman's commission are entirely within the range of our sessions.

"To some extent politics enter into our business. Our franchises, unfortunately, are of political origin, and it is a lucky company that can stay out of politics outside the limits of its

franchise. Our business is exposed to political leeches, as no other business in the world is. Not only are our franchises full of the pet theories, hobbies and impractical fancies of the original grantors, but prohibitive legislation, punitive ordinances and annihilating laws have been hurled at us so much that it must indeed be a dead one in our ranks who has not yet been aroused to the danger threatening us from political incompetence. Wisconsin has a Railroad Commission which in personnel and organization is superior to any other commission in the United States. If its rulings chafe, the fault is not with the commission, but with the law. The law gives the commission an undue and unjust jurisdiction over affairs into which it is fundamentally beyond the rights of any commission or any law to inquire. The money which is uselessly and foolishly spent for the frills and fancies which are the requirements of the law and the commission could, in most cases, be more advantageously spent for the purpose of adding to the facilities and the services of the company itself. The money which should go into rolling stock and the money which should be used for providing better service has gone for the purpose of street paving, which we do not wear away nor use, and for a thousand and one requirements of Municipal Councils, city administrations, Legislatures, Senates, Tax Commissions and Railroad Commissions, who dictate to us how our business shall be conducted.

"The burdens of taxation with which public service corporations have been overwhelmed of late has been added to by the national Government, for, with the object of hitting the largest corporations, laws have been placed on the statute books which penalize every public service corporation in the country. The extra burden placed upon us is rather small, compared to the other great ills which we must suffer, at least in the case of public service companies in the State of Wisconsin, for if proper allowance is made for depreciation, sinking fund and interest, there are very few of us who will be hard hit, and those who are, are to be congratulated.

"For the good of the association, I recommend that the first vice-president be advanced to the presidency, the second be made first vice-president, and the third, second. This will only leave one office, that of third vice-president, to be filled every year. It will insure that the president's office will always be filled by some one thoroughly acquainted with the policy and work of the association."

### INVENTORIES

W. R. McGovern, engineer, Wisconsin Telephone Company, presented a paper descriptive of methods followed in taking accurate inventories of telephone plants in Wisconsin. Work of this nature, he said, was subdivided into a field survey and an office compilation. In determining the value of land, the methods followed by the State Tax Commission were used. The field survey work included a careful count and measurement of the lines, fixtures and plant. The height, size and material of each pole, the number of cross-arms and other fittings and the observed condition of the poles were all recorded on charts, according to the year of installation. The length of all copper wire and cable was measured with a steel tape line. The length of iron wire was found by scaling a chart. All furniture, office fittings and construction and operation supplies were actually counted. After a detailed count and measurement of all property comprised in each local plant as obtained in the field survey had been made the office compilation was carried forward by extending prices according to a set of basic cost units determined after a thorough study. In determining the units of value the element of time was considered carefully. No depreciation was allowed on stores and supplies for current use. In estimating the present value of a plant the scrap value was deducted first, and then after the depreciation had been subtracted from the original value, the scrap value was added to obtain the present value. To cover the depreciation of tools, 2 per cent of their cost value per month of use was subtracted. Mr. McGovern exhibited the schedules of basing costs used in the valuation work.

## DEPRECIATION

C. N. Duffy, comptroller, The Milwaukee Electric Railway & Light Company, was called upon to discuss the paper. Mr. Duffy made particular reference to the 3-cent fare case of the city of Milwaukee against The Milwaukee Electric Railway & Light Company. This case was reported in this paper during 1909. In the consideration of such a case the elements of the value of the property and the return on the investment were vital. When the Milwaukee property was valued by the State Tax Commission no recognition of a sinking fund was made, and the value as determined was about 70 per cent of the total capitalization. Mr. Duffy told how the depreciation charge of 10 per cent of the gross earnings was obtained for his company some years ago. John I. Beggs had then just undertaken the administration of the property, which was in very poor financial condition. Estimates showed that a certain sum must necessarily be set aside from the gross earnings if the property was to be kept intact against the inroads of depreciation. It happened that this sum was practically 10 per cent of the gross earnings for the year, and so to provide for each month contributing its just proportion to the depreciation fund, the charges were made on the basis of 10 per cent of the gross earnings.

Mr. Duffy said it was necessary to define maintenance and depreciation in order that the funds set up under these names might be properly handled. The Milwaukee Electric Railway & Light Company, in distinguishing between maintenance and depreciation, considered maintenance charges as those for regular repairs, renewals and replacements. Reconstruction work and extraordinary renewals and replacements were charged against the depreciation fund. Based on inventories of The Milwaukee Electric Railway & Light Company's properties made by the State authorities, and according to his personal judgment, Mr. Duffy held that 10 per cent was not one-half the amount which properly should be set aside for depreciation. His company set aside only 10 per cent of its gross earnings because that was all that could be thus reserved and not unduly work a hardship on the investors.

When questioned why the depreciation reserve was set aside according to a percentage of gross earnings rather than capitalization, Mr. Duffy said that the scientific determination of the depreciation of a property would necessarily include a consideration of age, effect of the elements, wear, conditions of use, obsolescence, inadequacy, public requirements and other factors. However, the problem must be handled practically, rather than theoretically, and Mr. Duffy did not believe it possible for a public utility company to be able to measure with utmost accuracy the rate at which the value of the property was disappearing while it was being used. Another argument for taking care of depreciation out of earnings was that of simplification of accounts, so that each could specifically represent a certain factor of the problem. Moreover, a close relationship existed in two ways between gross earnings and depreciation; an increase in gross earnings naturally would call for a greater use of the property, and this use increased the wear and tear. Again, the only money available for maintenance, operation and the settling up of funds had to come from the gross earnings.

Mr. Duffy spoke of the present electric railway situation in Detroit. In 1899 men of high personal and technical standing employed by the city of Detroit had valued the street railway property at \$14,000,000. Now, 10 years later, the same railway had just been revalued for franchise purposes by a commission made up of men of high standing and broad experience. The total value as now given was less than \$12,000,000, and although the franchise value was not considered in the last appraisal, the management of the road had shown that \$6,000,000 worth of property had been added in the intervening 10 years. Thus from a value of \$20,000,000, \$8,000,000 had disappeared, and Mr. Duffy said that the public owed this difference to the company in the consideration of the present Detroit situation. Speaking of depreciation funds in general, Mr. Duffy held that it mattered little just what means was used in setting aside the

fund, so long as this was done. The detail methods of handling could largely be placed at the discretion of the management.

T. Commerford Martin, executive secretary, National Electric Light Association, who was an invited guest at the convention, said that the association which he represented was considering the matter of depreciation as it affected electric light plants, but that those representatives of the association who had the matter under advisement felt that the National Electric Light Association should not undertake the definition and recommendation of depreciation and depreciation funds alone. Therefore, joint committees of this and other national associations, including the American Street & Interurban Railway Association, had or would shortly be appointed to act jointly with a view to the determination of some satisfactory solution of the depreciation question, and particularly as it might be considered in regard to its bearing on the corporation tax.

W. H. Winslow, Superior Water, Light & Power Company, said that the company which he represented made a depreciation charge which amounted to 16.66 per cent of the gross revenue of its lighting property.

## ELECTRIC RAILWAY FARES

Papers of interest to electric lighting men were presented at the afternoon session of the first day, as follows:

"Electric Automobiles," by O. M. Rau, electrical superintendent, The Milwaukee Electric Railway & Light Company; "Handling Complaints and Enforcing Discount Dates," W. R. Putnam, superintendent, Menominee-Marquette Light & Traction Company. Following a discussion of electric lighting subjects, J. P. Pulliam, manager railway department, Wisconsin Electric Railway Company, read a paper on "Electric Railway Fares." This paper is presented on page 195.

In introducing the discussion of his subject, Mr. Pulliam said that according to the law of the State which established the Railway Commission as a regulator of service, a railway could make new rates and put them into effect 30 days after the commission had been notified, provided no objections were made by patrons of the road within that time. If the objections were presented later, a hearing was held by the commission. When no objections were made during the 30-day period the rates went into effect without the formal approval of the commission. The rate situation and the reasons for increasing the rates on the Wisconsin Electric Railway were set forth in the *ELECTRIC RAILWAY JOURNAL*, Jan. 8, 1910, page 87.

The sale of reduced rate tickets on one of the city lines of this property was discontinued. Normally, about \$40 a day had been received for these tickets, but on the day preceding the withdrawal of the sale of the tickets \$1,500 worth were sold. Contrary to the wishes of residents of a rural district served by one interurban line of the Wisconsin Electric Railway Company, the fares had been increased. It was shown that on this line, which was thought to be typical of many interurbans, 70 per cent of the business was between the cities, the farmers at the way stations contributing but 30 per cent of the receipts.

## COMPLIMENTARY SMOKER

The manufacturers' representatives attending the annual convention of the Wisconsin Electrical Association tendered a complimentary smoker to the representatives of the railway and lighting properties. An especially interesting program, including a number of excellent professional vaudeville acts, was followed by a Dutch supper and singing. The exhibitors' committee which had this entertainment in charge was H. P. Andrae, chairman, Julius Andrae & Sons Company, Milwaukee; W. R. Pinckard, Westinghouse Electric & Manufacturing Company, and F. G. Bolles, Allis-Chalmers Company. C. N. Duffy, comptroller, The Milwaukee Electric Railway & Light Company, made an interesting speech, fittingly expressing the appreciation of the guests.

## SECOND DAY SESSIONS

W. H. Winslow, secretary, Superior Water, Light & Power Company, presented a discussion of "Profit Sharing by Public Service Corporations" during an executive session. In the

open sessions a paper on "Cooking and Heating by Electricity" was read by W. B. Voth, general superintendent, Sheboygan Light, Power & Railway Company. Following the discussion of this paper Mr. Martin spoke of the work of the National Electric Light Association in furthering the interests of its members. The association now has a membership of 4500, of which 1200 members have been gained in the last three months. It is quite probable that the next annual convention of the National Electric Light Association will be held in St. Louis in May. Mr. Martin emphasized the possibility of the great mutual good which was to be had by co-operation between the national bodies and the State associations. He called attention to the policy of the American Street & Interurban Railway Association in inviting the co-operation of State and district electric railway associations.

#### WHEELS AND AXLES

A general discussion on wheels and axles was introduced by Mr. Gonzenbach, who told of the desirability of good specifications for these important parts of a railway equipment.

E. W. Olds, superintendent of rolling stock, The Milwaukee Electric Railway & Light Company, recalled interesting steps in the history of the standardization of equipment on the Milwaukee properties. When Mr. Olds became connected with the property, 14 years ago, 17 different kinds of trucks and even a greater variety of axles were in use. The wheel treads were  $1\frac{3}{4}$  in. wide and the flanges  $\frac{9}{16}$  in. high by  $\frac{3}{4}$  in. thick. Now there is one standard axle each for city, suburban and interurban work, and the wheel treads are  $2\frac{3}{4}$  in. wide with flanges  $\frac{7}{8}$  in. high and  $1\frac{3}{16}$  in. thick. Mr. Olds spoke of the standards of the American Street & Interurban Railway Engineering Association and the specifications which that body had and was recommending. His company used the standard axles and journals of the association for all new city equipments.

Regarding the life of axles, experience had shown that a 4-in. axle in city service had a life of about three years. After that period it was doubtful whether or not crystallization and its resultant cracks had not taken place next to the gear fit. Since the Milwaukee property introduced hammered steel axles four years ago not one had broken, and thus this step in standardization had greatly reduced maintenance costs.

Mr. Olds spoke of the growing use of steel wheels for city as well as interurban cars. Rolled steel wheels on interurban cars of The Milwaukee Electric Railway & Light Company had given an average life of 160,000 miles to date, and should be available for an additional service of 50,000 miles. One reason why some small city railways had not yet begun to use steel wheels was because of a lack of facilities for re-turning the treads. To a considerable extent the need for a wheel-turning lathe could be obviated by the use of wheel-truing brake shoes. It was, of course, necessary for the wheel inspector to watch closely the treads and flanges. In inspecting a pair of wheels, one of which had a thin and the other a thick flange, it would be found that the diameter of the wheel with the thin flange would be smaller than that of the thick flange. Then if a wheel-truing brake shoe was put on the larger wheel, the diameter of that wheel and the excess metal in the flange would be reduced so that the tendency for wedging the other wheel, with the thin flange, against the rail would disappear, and the unbalanced wear be reversed.

Mr. Olds laid especial emphasis on the desirability of designing cars and car parts with careful regard to saving weight. Various companies had estimated the power cost for hauling 100 lb. of weight at from \$3 to \$7 per year. So if cast-iron wheels to be safe must weigh approximately 100 lb. more than steel wheels, their use on an eight-wheel car might bring about an extra power cost of \$24 per year per car. Any saving in weight consistent with strength would make available for maintenance a recognizable sum.

W. H. Evans, assistant superintendent of rolling stock, in charge of new shop construction and building, The Milwaukee Electric Railway & Light Company, was introduced as the former chairman of the standardization committee of the

American Street & Interurban Railway Engineering Association. Mr. Evans spoke of the need for adopting the standards now recommended by the national association, and consistently following them. He also called attention to past experience with wheels and axles. For several years the car axle was a source of trouble, due largely to the lack of appreciation of the stresses put on the wheel by the load of the car body and the transmission of the torque from the motor to the wheel. Such stresses were highest in the axle at the inner end of the hub close to the gear fit. The new engineering association standards recognized this concentration of stresses by specifying an axle with large wheel and gear fits. The engineering association had appointed a committee to study the heat treatment of steel axles, and it was expected that very good results would be obtained by including heat treatment in the process of axle manufacture. Standardization of car parts was especially desirable on the score of reducing repair stocks and prices.

Mr. Evans called particular attention to the standards of the national association as representing the combined efforts of railway and manufacturing companies. He pointed out that the present recommended standards were chosen only after full discussion by many representatives of all parties interested, and that these discussions had extended over a period of several years. The adoption of the wheel and axle standards should greatly reduce the cost of maintenance.

Mr. Gonzenbach emphasized the need and value for standardization on small roads. He spoke also of the need for reduction in car weights. His company was operating interurban cars with 40-hp motors under service conditions which were the same as those on many roads using 70-hp motors. This practice gave a reduction of weight at the sacrifice of some motor and field coils. The net result, however, was a considerable saving in operating costs.

Dudley Montgomery, vice-president and superintendent, Southern Wisconsin Railway Company, inquired for a good method by which flaws in axles could be detected. Mr. Olds said that it was hardly possible to find a crystallized or cracked axle until it had been removed from the trucks. In Milwaukee the axle after removal was wiped clean, and a flaw might be noted by the dirt remaining in a crack after the axle had stood for a minute; a line of black grease would ooze out of the crack, and this could be found with a magnifying glass, if not with the naked eye. Should there be any doubt, the axle would be hung up and given several blows to cause it to vibrate. This would force grease out of the crack, and thus indicate the location of the cracks. Defects of this kind were usually found in defective axles near the keyway or shoulder. The men had instructions not to use an axle if there was the least doubt about its being perfect.

Speaking on the reduction of car weights, Mr. Olds said that street railway passenger cars varied in weight from 1400 lb. per passenger down to 800 lb. and less per passenger. In scaling weights the safety of the passenger could not be forgotten, because of the duty which the railway owed to the public. Collisions were inevitable, and a car should be designed so that it could withstand bumping stresses. The new city cars in Chicago had seats for 44 passengers, and ranged in weight from 52,000 lb. to 54,000 lb. The Milwaukee city cars of the same seating capacity weighed between 40,000 lb. and 41,000 lb. It was recognized that the design of prepayment cars reduced the seating capacity slightly, and thus increased the dead weight per seated passenger. The most recent design of passenger car for the Milwaukee company was built with a steel floor framing which extended up to the window sill. It was thought that this design gave maximum strength with minimum weight. New cars of this type were 50 ft. long, seated 50 passengers and weighed 48,000 lb. The windows were arranged to raise straight up, and thus the walls could be reduced greatly in thickness, permitting increased length of seats and wider aisles. The over-all width of the cars was 8 ft., and the walls were only  $1\frac{3}{4}$  in. thick. Drop windows would require that the walls be made 5 in. or 6 in. thick. Therefore, an effective additional width of car interior of about 8 in. was gained.

Mr. Olds, to illustrate the strength of a car of this design with its steel bottom, told of a collision of one of the new cars with a steam locomotive, which had occurred in a driving snow-storm. The bumper of the car met the locomotive squarely, and, of course, the vestibule was slightly crushed, but it was of great interest to learn that the body was totally uninjured, and that not even a single side window or transom had been broken.

Referring to defective axles, Mr. Evans said that if the shop department of a railway would cut off the fractured part of each broken axle for saving, and keep a record of the number of the car and the time of service, there would result a collection the inspection of which should make possible improvements that would greatly reduce axle trouble.

Mr. Olds said, when questioned, that there was no doubt but a cold axle would break under much less strain than it would when at blood heat. A crack in an axle often could be found if the clean surface about the suspected location were covered with white lead; then the grease in a possible crack would define a clear line.

E. F. Berger, Midvale Steel Company, Chicago, presented data regarding the qualifications of heat-treated steel axles made according to the specifications of the Interborough Rapid Transit Company.

#### INDETERMINATE PERMITS

The afternoon session of the last day was devoted to a discussion of the indeterminate permit which a company under the public utility law of Wisconsin may accept in lieu of its existing franchise. Several companies had given up their franchises for indeterminate permits. One member, whose company had surrendered its franchise, had been advised to do so by its attorneys, who were financially interested in the company, and it was also this member's personal opinion that the acceptance of the indeterminate permit was advantageous to the company. When operating under the permit competition was prohibited so long as the public utility was satisfying the needs of the public. The association members generally held that if the Supreme Court should declare the indeterminate permit to be unconstitutional, then the old franchise terms would automatically come into effect again.

George B. Wheeler, Eau Claire, called attention to several reasons why it was good policy to accept an indeterminate permit. One was that thereby the public service company would show its good faith to the community and a law-abiding attitude to the State and city. Mr. Wheeler held the opinion that the State never would retrograde by repealing the public utilities act and withdrawing the indeterminate permit feature.

E. R. Bowler, attorney, Sheboygan, Wis., thought that no company would be the loser by accepting an indeterminate permit. Later, if the indeterminate permit should be declared unconstitutional, and if the courts did not give back to the company its rights according to the original franchise, then the Legislature of the State would take a hand and force the municipality to return these rights. The acceptance of the indeterminate permit and its preclusion of municipal competition largely eliminated political wire pulling.

Clement C. Smith, president, Wisconsin Electric Railway Company, expressed doubt as to how the franchise valuation would be considered by the Railroad Commission, and whether a railroad operating under an indeterminate permit would be permitted to earn a fair rate on its total value, including franchise value, or only on the physical property. He held that the losses due to obsolescence should be recognized. All public utilities in Wisconsin should carefully consider the indeterminate permit, bearing in mind that the real value of a property on which it should be permitted to earn a reasonable rate should include its just, tangible assets.

Mr. Bowler thought that possibly any part of a property which could not be appraised might not be recognized in determining the price for purchase by a municipality.

Mr. Duffy recalled that in the 3-cent fare case earlier mentioned, the attorney of the city of Milwaukee, arguing in favor

of the indeterminate permit, held that the building up of an amortization reserve should not be charged against the cost of service. Nevertheless, Mr. Duffy said that the classification of accounts promulgated by the Wisconsin Railroad Commission actually included an amortization fund account.

Mr. Winslow quoted from the public utility law a statement that if a municipality should take over a public service property operating under an indeterminate permit that company should receive "just compensation." This phrase had been inserted because, according to a decision of the United States Supreme Court, it had a definite legal meaning, which was that it included all elements of value that existed.

Mr. Wheeler said that the public utility law was the hardest blow ever given municipal ownership in the State of Wisconsin. Before the law was passed a public utility corporation had little protection from municipal competition or purchase. The law was a step toward State regulation as a substitute for municipal ownership. It was a wise law for both the communities and the companies, because it stopped needless competition. "Regulation" was now on trial in Wisconsin. The session closed with a general discussion of various interpretations of the public utility law of Wisconsin.

#### NEW OFFICERS

The following officers were elected for the ensuing year: President, Clement C. Smith, Milwaukee, president, Wisconsin Electric Railway; first vice-president, George B. Wheeler, Eau Claire, secretary and general manager, Chippewa Valley Railway, Light & Power Company; second vice-president, Irving P. Lord, Waupaca, president, Waupaca Electric Railway & Light Company; third vice-president, W. H. Winslow, Superior, secretary, Superior Water, Light & Power Company; secretary and treasurer, John S. Allen, Lake Geneva Electric Light Company.

#### ANNUAL BANQUET

The annual banquet of the Wisconsin Electrical Association was held on Jan. 20. C. N. Duffy officiated as toastmaster, calling upon several members of the association for short remarks in advance of the speaker of the evening. Harold Almert, engineer of examinations, H. M. Byllesby & Company, Chicago, in his remarks called attention to the necessity on the part of the smaller roads for recognition and more complete knowledge of the difference between "apparent" profits and "real" profits. George B. Wheeler set forth the reasons which justified the organization of the association. Briefly, these were the need for co-operation, protection, association and uniformity of rates, wages and methods of doing business. T. Commerford Martin spoke of the growth of the electrical industry, and complimented the new association upon the evidences of its substantiality. John I. Beggs, president, The Milwaukee Electric Railway & Light Company, called the attention of the operators of the smaller properties to their responsibilities. He spoke a word of caution regarding existing low rates. It was the duty of the administrator of each property, large or small, to give the public the best service practicable. Each operator should seriously study the conditions surrounding his property, so that he could best assure the public of good service and the stockholders just returns on an undiminished investment.

Shailer Mathews, dean of the divinity school, University of Chicago, and editor of *The World To-day*, was the speaker of the evening. His subject was "The Remaking of Public Opinion." Public opinion was held by Mr. Mathews to be the most potent element of all undertakings. Public opinion induced and controlled all important action. At the present time, the speaker said, the dynamic attitude of mind (public opinion) was going through a most remarkable change. It was not a static force. The process of remaking public opinion so that out of a community there should come effects for the good of that community was a great problem, and one in which each member of the community should take an important part. The chief molders of public opinion were held to be the press, the theater, the school and the pulpit. It was most wise for any public utility corporation to insist that its local press did not misrepresent actual conditions. This could be done in an honorable way.

## GENERAL MANAGER'S OFFICE CAR OF THE ILLINOIS TRACTION SYSTEM

A well-designed and completely equipped office car has been built by the American Car & Foundry Company for H. E. Chubbuck, general manager of the Illinois Traction System. Illustrations are presented showing the floor plan and interior and exterior appearance of this car. The general manager of the Illinois Traction System, in addition to his duties as the head of an interurban railway system extending over a territory 225 miles long with an extreme width of 90 miles, also is responsible for the operation of 30 public service utilities located in cities reached by the interurban lines. The manager's office of the system is at Peoria, the transportation and traffic department office is at Springfield and the engineering office at Decatur. New work is in progress at many points along the road, the largest projects being the erection of a bridge across the Mississippi River leading into St. Louis and a 28,000-hp power station in Venice at the eastern end of this bridge. These require frequent visits and if the regular interurban cars were used by the general manager it would necessitate the sacrifice of much time while traveling.

The new car here described furnishes comfortable traveling accommodations for the general manager of the Illinois Traction System and his secretary, and for any officials of the road or business acquaintances which the general manager may desire to have accompany him. A large amount of the general manager's office work is done in this car while he is traveling over the lines to keep appointments in different cities. It is in use day and night for an average of five days each week. Comfortable sleeping accommodations are provided so that the passengers may stay late into the evening at one point and be carried while asleep to any point on the interurban lines in time for business in the morning. A completely equipped kitchen is a feature of the car.

One of the accompanying illustrations shows the attractive exterior appearance of the car body. This view was taken while the car was mounted on freight trucks ready for shipment. The body is 62 ft. long over all and 8 ft. 6 in. wide. It is mounted on two heavy M.C.B. type trucks built by the American Car & Foundry Company. These trucks carry four GE-205

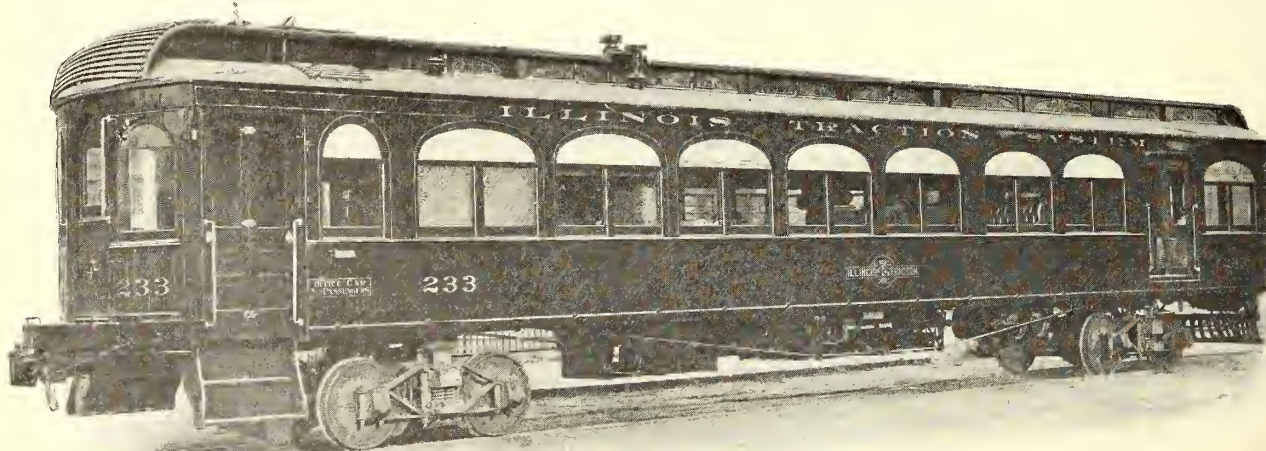
tions are provided for seven people as follows: One 6-ft. 1-in. pull-out sofa at the forward end which forms a lower berth; four pull-out seats which form four lower berths near the center of the car; a second pull-out sofa to form a lower berth in the center compartment just forward of the kitchen, and a pull-out seat on the enclosed rear platform to form a full-sized berth for the porter. In the daytime all of these berths are converted into heavily cushioned leather-covered seats.

The furniture in the car is upholstered in green Spanish



Illinois Traction System Office Car—Looking from Forward Compartment toward Dining Room

leather. Each of the pull-out berths when closed in the daytime resembles a Pullman seat. At night the seat cushion is pulled forward and the two upholstered back cushions pulled down into a horizontal position, making a berth with deep springs. Hair mattresses are provided for each berth. By means of an ingenious arrangement of silk-covered cords,



Illinois Traction System Office Car—Exterior View

commutating pole motors having type M control. Westinghouse automatic air-brake equipment is used. The motors are geared for a speed of 60 m.p.h.

The subdivision and arrangement of the interior fittings of the car were carefully planned. It is subdivided into three main compartments; a forward observation end about 17 ft. long; a middle section, used as an office and dining room, 36 ft. long, at the rear of which are the kitchen and toilet room; and the rear observation platform 7 ft. long. Sleeping accommoda-

which are stretched between the deck rails at night and removed in the daytime, green silk curtains are hung to completely enclose each berth. Bedding similar to that used in regular Pullman service, but marked with the special monogram of the Illinois Traction System, is provided for each berth. The interior trim of the car and the movable furniture, such as the dining-room table and smaller side tables, are of Honduras mahogany.

The only entrance to the car for passengers is by way of the





## CENTRAL ELECTRIC TRAFFIC ASSOCIATION WORK

At the annual meeting of the Central Electric Traffic Association at Columbus, Ohio, on Jan. 26, A. L. Neereamer, the chairman, submitted his report for the year ended Dec. 31, 1909. Mr. Neereamer said in part:

"At the annual meeting held in Indianapolis on Jan. 27, 1909, the work of this association for the preceding year was canvassed and as full a report as could be made was submitted. The Traffic Association is now about able to stand on its merits and its past history can be likened to that of a young child, who first crawls before it can walk. After it is put upon its feet it needs the support of a strong hand to keep it there and guide it. The association is now upon its feet, but it needs the support of many strong hands to assist it in walking alone. From the outlook at present, it will be able to stand upon its own feet and; if the interest during the coming year is as great as that displayed in the past, it will be the helping hand that will make the future an assured success.

"During the past year the tariff covering the interchangeable 1000-mile ticket has been revised, including more lines and making some changes in the exceptions.

"A uniform baggage tariff complying with the laws of Indiana, which are different from those of the other States, as well as the regulations of the other States, has been compiled and is now effective. This tariff, which contains a great many rules governing the transportation of baggage, has eliminated many of the difficulties of our members in the transportation of that commodity and in some cases has placed them in a position to interchange passenger traffic with steam lines.

"Uniform and official forms of tickets and baggage checks have been adopted by the association and are now used by many of its members. These forms have simplified the checking of train earnings and agents' accounts in the various accounting departments and the handling of passengers by conductors. But the year's greatest work has been the publication of Joint Passenger Tariff No. 3, Interstate Commerce Commission No. 4. So far as the chairman has been able to learn, this is not only the largest publication of its kind in the country, but the only territorial joint passenger tariff published by interurban lines. Criticisms and compliments on this publication have been received, not only from interurban men, but from steam railroad men all over the country. By its use the work of the agent and accounting department has been made easier. The traveling public has been able to secure more reliable information as to rates and routing than it has had heretofore. You who have been engaged in the work of compiling and checking this publication need no further comment on the volume of labor which was necessary to put this before the public. The rates between the important points quoted in this tariff have been equitably apportioned between the lines interested, thus enabling early and satisfactory settlement of interline passenger accounts.

"Arrangements have been made with a paper manufacturer to make a special safety paper bearing the water-mark of this association to be used on stock for tickets ordered by our members. This will give the member lines a mark of distinction in this, the pioneer electric traffic association of this country, for not only is this the only electric traffic association in the United States, but it is the first time that any organization of electric lines has been considered of enough importance to interest a manufacturer in making a special paper for it. This paper will be available on Feb. 15. The work, however, is not yet completed. There is still considerable to be done in the territory for the benefit of interurban lines and the chairman will only dwell on two or three matters which he considers are the most important.

"The first is the milk traffic. This may appear to be a small item, yet on some of the interurban lines it is the basis of considerable revenue. The rules, regulations and rates governing the transportation of milk are in the same condition that those governing the transportation of baggage were one year ago; that is, no two roads have the same mode of handling this commodity. The chairman has been requested by several members

to bring this matter up and, if possible, have a uniform basis and rules adopted. A number of steam lines are willing to place their tariffs on milk on the same basis as any uniform tariff adopted by this association.

"The freight traffic is another proposition that deserves a great deal more consideration in the future than it has received in the past and the publication of joint freight tariffs, minimum sheets, etc., will greatly assist in increasing the revenue derived from the transportation of freight on member lines. This class of traffic is increasing from day to day and has passed the experimental stage and has become a staple stock in trade. It is no small item when it is to be considered that on some of the lines in this territory the freight earnings are about 30 per cent of the gross receipts. There is also a demand for joint tariffs covering excursion and party rates, which would enable your solicitors to contract for long-distance trips. The chairman thinks that during the coming year the subjects mentioned particularly should be given considerable attention.

"In conclusion, I desire to thank the members of the association for the hearty support and co-operation which I have received in endeavoring to carry out your desires and orders. Without this support the work of the past year would have been in vain and nothing would have been accomplished, but as it is, your association now stands first and foremost in the interurban field, the pioneer electric traffic association, for other organizations are now preparing to follow your example."

## REPORT OF SECRETARY NEEREAMER TO CENTRAL ELECTRIC RAILWAY ASSOCIATION

The annual report of A. L. Neereamer, secretary and treasurer of the Central Electric Railway Association, was presented at the annual meeting at Columbus, Ohio, on Jan. 27. Mr. Neereamer said in part:

"The year just ended has been the most prosperous one during the existence of the association. The railroad membership now consists of 47 lines, representing a total mileage of 3531 miles, an increase of 4 lines and 130 miles over the preceding year. There is a membership of 88 in the supply men's department, an increase of 18 over the same period of last year.

"The association is now upon a practically sound basis, and can be operated, if economy is practised, successfully. A great deal of credit for the present financial condition is due to the untiring efforts of the vigilance and membership committee, as well as to the hearty support in securing additional membership that was given by the management of several member companies. There are still a great many lines in the territory covered by this association and possibly would if the lines connecting with them would assist the secretary in endeavoring to bring them into the fold.

"That this association is doing good work is beyond any doubt. No further explanation on this subject could be made than the calling of your attention to the fact that letters are received from lines and other associations in this country, located at various places from the Pacific to the Atlantic, and from the Gulf to the Lakes, asking for information and advice. It is evident from this that we now have a national reputation and are becoming a factor in interurban work.

"The investigations and reports made by the various committees have been of great value to our members, and those which have been made public have started our friends in other territories to thinking about and working out the same problems. It appears to your secretary, after looking over the situation, that the old catchline used by some commercial advertisers, 'We lead, others follow,' is very appropriate to this association.

"There is still a great deal of work which could be done for the benefit of our members; different problems to be investigated and worked out, and what benefits one line usually benefits all in this respect. In conclusion, I wish to thank the members of this association, both railroad and supply men, for the support they have given me in carrying out my duties and to give them credit for their share in this most successful year."

## EXPERIMENT OF LIMITING NUMBER OF PASSENGERS ON CARS, ABANDONED IN ALBANY

After an experiment of over nine months, the New York Public Service Commission, Second District, has rescinded its rule requiring the United Traction Company of Albany to limit the number of passengers carried on each car on the Pine Hills line. The withdrawal of the rule followed a public hearing on Jan. 12, at which citizens urged the withdrawal of the restrictions against loading the cars with more than a prescribed number of passengers.

The order of the commission was issued on March 30, 1909, and directed the company to limit the number of passengers on the Pine Hills line as follows: 20-ft. body car, seating 26 passengers, 40 passengers; smaller type of car, 35 passengers. It was also provided that when any cars carried the maximum number of passengers, the motorman should not stop to take on passengers until the number in the car was reduced below the maximum. The terms of the order also stipulated that the conductors should not allow passengers to enter the car when the maximum load was carried and that the company should make and promulgate proper and sufficient rules and regulations to carry the order into effect. The instructions of the company to trainmen on this subject were issued directly after the receipt of the order and were as follows:

### "NOTICE TO CONDUCTORS

"On and after Monday, April 5, 1909, and until further notice, the following orders are issued in relation to the cars running on the Pine Hills line:

"Conductors must not allow more than 40 passengers on the '400' type of box car at one time, or not more than 35 passengers on the smaller type of box car at one time.

"Whenever a car has the above number of passengers the conductor will give 'two bells' to the motorman after the car is started, which shall be the signal to the motorman that he is not to stop for passengers, and to stop only on signal from conductor. If, when the car stops to discharge passengers on signal from conductor, additional passengers get on the car to the requisite number, the conductor must again give the signal 'two bells' after the car is started. If the motorman does not receive 'two bells' after starting his car he will stop for passengers at regular stations, as usual.

"No passengers must be allowed to ride on the rear platform of any Pine Hills car while this order is in effect."

"CHARLES H. SMITH,

Superintendent."

"April 2, 1909.

Public dissatisfaction with the service under the new rule developed rapidly, although at first the interest in the experiment was widespread. H. C. Eddy, secretary of the District Electric Railway Commission, Washington, D. C., wrote letters of inquiry concerning the experiment to Edgar S. Fassett, general manager of the United Traction Company, and John S. Kennedy, secretary of the Public Service Commission. Extracts from their replies were published in the Washington daily newspapers in July, 1909, and said in part:

Mr. Fassett: "The Public Service Commission thought that by limiting the passengers on any car it could properly distribute the passengers over the whole number of cars. Our cars, which have a seating capacity of 26 passengers, were limited to 40 passengers, and those which have a seating capacity of 24 were limited to 35. The observations of the company on this service are not favorable. It means that the ends of the lines are properly accommodated, while the intermediate parts are not. This to a very large extent stops the short riding, which is really the only profitable riding to street railroads. It seems almost impossible to stop overcrowding during rush hours. If the companies could pay additional interest on the additional equipment necessary to take care of this travel it would still be impossible to obtain men to work from two to three hours a day. On our system in the city of Troy, at 6 o'clock at night from 5000 to 6000 collar girls stop work and they have to be taken care of in 20 minutes. You can

readily see that it would be impossible for us to have cars enough to prevent crowding in such a case. The factories start at 8 o'clock in the morning and we have something of the same rush at this time."

Mr. Kennedy: "In all fairness, it must be said that there is a difference of opinion as to the successful operation of this plan, although the commission feels that up to the present time it has worked reasonably well."

When complaint was made to the commission recently regarding the limitation rule notice thereof was served upon the company and a date fixed for a hearing. In its response to the notice of the complaint the company said that ever since the issue of the order it had operated its cars on the Pine Hills line in obedience thereto. The number of cars operated daily on the line was sufficient for the number of passengers carried, the company stated. During the rush hours cars were operated on a 2½-minute headway and during the rest of the day on a 5-minute headway. During the greatest rush cars were run on less than a 1-minute headway on three-quarters of a mile of track on State Street and Washington Avenue Hill, with joint occupation with other lines, constituting 25 per cent of the entire Pine Hills line, and if it were possible to operate an additional number of cars over the line during the rush hours and to earn enough to pay interest on the cost of such additional equipment it would be extremely difficult if not impossible, the company declared, to employ men to operate cars for only two, three or four hours a day. Figures were submitted by the company showing an average load of only 30 passengers per car on the Pine Hills line from 5 to 7 p. m.

### HEARING BEFORE THE COMMISSION

At the hearing on Jan. 12 the United Traction Company was represented by Edgar S. Fassett, general manager, and John E. MacLean and Patrick C. Dugan, attorneys. Walter E. Ward represented citizens interested. Charles S. May and Augustus S. Downing, complainants concerning the restrictions placed on operation of the Pine Hills line, were present. Seneca S. Smith represented the Pine Hills Association and James F. McElroy and other citizens were present.

Mr. Ward stated that when, at the previous meeting, the commission issued an order limiting the number of passengers to be carried on the cars of the Pine Hills line, the association did not object because it was supposed that the experiment would not last over a month or two months at the most. However, the experience with the rule had been very unsatisfactory. It was a common occurrence for the cars to pass people when more standing passengers could have been accommodated. What the association asked when this order was issued was larger cars and better lighting. Limitation of the number of passengers had not helped the matter at all. It had made the matter worse and so the association asked that the rule be rescinded. The people would rather be packed as solid as sardines than stand on the corner and watch the cars pass one after another.

Chairman Stevens said that there was a difference of opinion on the part of the traveling public in reference to the rule. He read a letter asking that the order be continued in force.

Mr. Ward said it was inconvenient to be left on a corner in inclement weather when one was in a hurry to catch a train or for any other reason, and if larger cars could not be secured the people would prefer to take chances of being crowded.

Mr. Downing had stated in his complaint to the commission certain days on which a number of persons had been not only seriously inconvenienced, but really placed in danger of sickness from the delay. He specified one stormy night when, with sleet falling and the streets covered with slush, he with a number of others, waited 30 minutes, during which seven Pine Hills cars passed without stopping. The standing space in at least one-half of the cars was not occupied, as the passengers were crowded together in the rear ends of the cars. A few days later a similar experience was had. Car after car passed without taking on passengers, although there was plenty of standing room and the passengers on the cars were not seriously inconvenienced. He had ridden on the line from two to three

or four times a day during the last 14 years, and he realized the condition that prevented the company from operating too many cars up State Street hill. On the evenings when he was forced to wait he saw West Albany and other cars, with full loads. He therefore complained against the abnormal rule which had been issued for the Pine Hills line, discriminating against the people who used it. He had been delayed at times as long as an hour and a quarter for his dinner. He considered that the limitation rule was outrageous treatment of the people who lived in the Pine Hills section. He would be glad enough if larger cars that would carry more people could be put on, but if the present cars had to be continued on the line, they were abundantly able to carry more people and he asked that this be allowed and the infamous rule rescinded.

Chairman Stevens asked if Mr. Downing's position was that the company should be allowed to carry as many passengers as could crowd on the cars.

Mr. Downing said that if the people wanted to board a car, he would let them do as they did before the rule was issued. If they did not want to board a crowded car they could stand and wait.

Chairman Stevens asked about the rights of those who boarded the car before it was full and wanted to pass through the standing crowd in order to alight.

Mr. Downing said that those passengers were entitled to the same sympathy as all fellow mortals. They were entitled to more than sympathy, if by giving more there was no trespass upon the rights of a great many people.

Chairman Stevens said that the Pine Hills association was not satisfied to have it that way. The members were not agreed on what they wanted. They insisted that the company should be compelled to put on larger cars and give everybody a better show for life. Some thought they had a right to a seat and if they did not get it, an enormous amount of discomfort resulted.

Mr. Downing said that these people were asking for something that it was absolutely impossible to secure at certain times in the day. It was a mistaken notion that he was paying for a seat. He paid for the transportation. If the number was to be restricted to the seating capacity, why not prohibit any standing passengers?

Chairman Stevens said the position of the association was that with the small type of car the company could not operate enough cars to accommodate all the people and that therefore larger cars should be used.

Mr. Downing said he understood that the company could not afford to substitute larger cars.

Chairman Stevens said the company was abundantly able to do whatever was required. The commission wanted to get the views of everybody concerned. It was trying to do what was best for the people and for the company.

Mr. McElroy added his request that the rule be rescinded. He had lived in Albany for 20 years and he had always found that, whatever might happen, if he could reach the lines of the United Traction Company he could get to his destination promptly until this rule was established. He had seen 15 people waiting at one point. Undoubtedly they would have been accommodated if it had not been for the rule.

Chairman Stevens said that a great many observations were made and there were not enough cars to accommodate the people if say 60 were to be crowded in a car.

Mr. McElroy then presented a petition of the Woodlawn Improvement Association asking that the rule be rescinded.

Chairman Stevens said he wished that those who objected to the rule would keep in mind that it was adopted by the commission very largely in consequence of the statement of the company that the service was adequate and that the cars supplied were sufficient to take care of the people, but that the people bunched themselves in certain cars, and that if they would equalize between the cars the overcrowding would be overcome. The rule was adopted to see whether or not that was so. The association had asked for more cars and the company had said it furnished enough cars but that the fault was with

the people who unnecessarily crowded the first car. According to the statements made, either more cars would have to be operated or more people permitted to ride in a car.

#### ADDITIONAL CARS OPERATED

Some discussion regarding the service followed and Mr. Fassett said that after the rule was established additional cars were operated in order to handle the crowds in the morning. No cars were added in the evening because it was impossible to operate more cars up the hill during the rush hour.

Mr. Smith said that aside from the letter read by Chairman Stevens, favoring the rule, he had never heard of but one person who approved it. The rule was obnoxious and un-American. People in this country generally took the car that made the closest connection and under this rule it was impossible to get home with any degree of regularity.

Various citizens then testified. William C. Rogers said that the rule had been a great convenience, so far as comfort in travel was concerned, for people who rode from one extreme end of the line to another, but it was not convenient for most of those who rode during the rush hours. He had waited 40 minutes on one occasion, and another time eight cars passed him and finally the first of these, on its second trip, took him on board. One day, when he was sick, he was forced to wait an hour and five minutes. If he had been well and the walking had been good, he could have walked to his home in about 28 minutes.

Chairman Stevens said that the rule was adopted simply as an experiment and that it was entirely obvious that it had failed to work out the solution of the problem and the commission would therefore announce that the rule was revoked.

The request of the association for larger cars was then urged.

Mr. Fassett said that the largest type of car that could be used with safety on the hill was a single-truck car with 20-ft. body, some of which were in use now on the line. The best service that could be given on a line 3 miles long was a quick service with the smaller cars. The other lines in the city were operated without complaint with practically the same types of cars. It was impossible for any railway to handle the people without crowding at certain times. If the company had all the money in the world to buy the equipment and pay interest on the cost it could not avoid crowding at times. It could not get men to operate the cars even if it had enough equipment to avoid any crowding. It was limited in hours of labor by the State law. It could not get men who would work for three hours a day at 25 cents an hour and it could not hope to pay them a day's wages for three hours' work. The same condition existed in every city in the United States. If the hours when people went to and from their work were divided it would relieve the situation.

Further discussion brought out the fact that the limitation rule had apparently reduced the gross revenues of the Pine Hills line, which averaged 22.97 cents in December, 1909, as compared with 23.04 cents in December, 1908.

Chairman Stevens said that to place 40 persons in a car of the type used did not accommodate the traveling public. It might be unavoidable. He was not saying that in criticism of the company. He was speaking about a fact that prevailed elsewhere as well as in Albany.

Mr. Fassett suggested that it might require a fare of 10 cents instead of 5 cents.

Chairman Stevens said, in conclusion, that it was impossible for the commission to make any order for relief at this time. It was but just to say that the suggestion of the limiting order did not come from the association and that it was acquiesced in by the association with some degree of reluctance at the time it was made. The commission will make a study of the Albany situation.

According to a consular report, there has recently been placed in service at Karachi, India, a pioneer gasoline car installation composed of 46-passenger coaches driven by 25-hp engines.

**DAILY INSPECTION AND UP-KEEP OF ROLLING STOCK\***

BY H. H. BUCKMAN, MASTER MECHANIC, LOUISVILLE & NORTHERN RAILWAY & LIGHTING COMPANY

To obtain a systematic and orderly system of inspection, it is highly essential to give the shop forces and inspectors a definite course of instruction as to the best methods of doing their work; they should understand the importance of inspection and feel that they are responsible for the lives of patrons while riding in our cars, and for the future welfare of the company. As great care should be taken in getting new men and apprentices as in getting new machines, etc.

Most traction companies do not give enough attention to the men who inspect their cars. They seem to think that almost any man can fill the position of inspector. This is a mistake. For example: a man is hired to clean cars; in a short time he is made an inspector's helper, and in less than one year's time he is given the position of inspector at a smaller salary than the displaced inspector received. Of course, the new man is well pleased with his rapid promotion, and no doubt tries his best to do the work, and the company thinks it is making a saving. The pay-roll will look better by using this class of inspector. But what about the risk? This man probably had little or no instructions, and surely not enough experience. He had learned to adjust brakes, change brushes and brake shoes, etc., by watching others. In fact he could get along nicely for some time, but it would surely lead to bad results. There are too many important parts to be looked after on electrical equipments of to-day to use this class of inspector.

It takes years of experience for some to become skilled inspectors, and some never become skilled. This unskilled inspector, who was made in less than a year, fails to detect a flaw in a wheel; to see a brake pin nearly worn in two; to see that the bolts which hold together the top and bottom halves of the motor are loose, or he might fail to detect other defects which might be the cause of a disastrous wreck. After such a wreck, and the car is a mass of splinters and twisted iron and steel, it would be hard to determine the cause of the wreck, when really it was the fault of the rapidly promoted, unskilled or careless inspector. Despite this, the chance that a wreck may occur is the nightmare of every operating man and the bug-a-boo of every investor in railway securities. When it occurs the operating heads of the road are apt to lose their positions and reputations, and the surplus earnings are wiped out for many months; all owing to this class of inspector.

Electric railways have increased the size of cars, motors and trucks, their speeds and the number of controlling devices, and more skilled, up-to-date and careful inspection is required than a few years ago.

Ask the ordinary inspector, after he has inspected a car, if he is sure there is no flaw in some of the minor parts of the equipment, such as the air governor, etc. If he is honest, he will acknowledge that he is not sure about it; possibly he cannot declare that there is no screw or bolt projecting above the floor to cause some one to trip and fall. Inspectors are instructed to look after the vital parts of the equipment first. This is all right, but after this is done and the car is found to be in condition to run, the minor parts are often passed over. The inspector should inspect the motors first, look at the conditions of commutator, for open circuits in the armature, and burned-out coils at armature clearance, whether there is a band loose or that has started to unwind, examine pinions and gear wear and the tightness of bolts and keys. While inspecting motors the condition of motor leads would first be examined. After this is done the inspector should start at the end wheel and inspect trucks and wheels all the way around on the outside. Then he should start at the draw bar under the car and inspect everything from one end of the car to the other, including air compressor, brake adjustment, etc. Next the body should be inspected, including doors, steps, floors, seats, curtains, sash catches, glass, etc. The roof and trolley, then the con-

trol, circuit breakers and rheostats should follow. Trucks should be inspected carefully as to cracks in frame, loose bolts, side bearing clearances, etc. Brakes should be tested as to piston travel. The air compressor should be inspected the same as any other motor, and in addition to show that it has plenty of oil; it should be pumped up, and the inspector, if trained properly, can detect by sound whether the suction and discharge valves are working right, or whether there is a loose crank shaft bearing or connecting rod. The inspector should also know the condition of the compressor by the time it requires to pump up. Car bodies should be inspected for leaky roofs, which ruin ceilings. Bolts, nails and screws, if projecting from the floor or any part of the wood work, result in torn clothes, passengers falling, etc. Bad steps and platforms also cause accidents.

If a regular system is established for the inspector he cannot fail to see every bolt, or other parts that he should see, and when he is through inspecting a car he can say, and be absolutely sure, that the car is all right in every respect. Railway shop men should be made to understand that the two most important things they should learn, if they want to advance in their trade, are that careful inspection and good repair work are the foundations upon which effective and economical maintenance and operation are based.

The purchase of supplies is a very important matter in the "up-keep of rolling stock." A cheap grade of material is not always the most economical and will, in most cases, prove to be the most expensive. A failure due to a poor grade of iron, steel, babbitt, brasses, insulation and other materials may cost the railway company many times the price of high-grade material. The mechanical department should be prepared to show which material is the best and cheapest.

Cleaning cars has its part in the "up-keep of rolling stock." It is a well-known fact that, unless cars are kept clean, attractive and comfortable, the service will not be pronounced satisfactory by the public; even the car crews lose their pride and therefore do not render as good service as they would if the cars were kept clean. Clean, attractive and comfortable cars go a long way toward increasing business. One of the best methods for keeping cars attractive, and at the same time of practicing economy, is to overhaul the car body each year, and when overhauled it should be thoroughly cleaned, rubbed down, touched up and varnished. By this method the varnish can be kept in good condition, car cleaning could be done more cheaply and easily, and the car would not have to be painted for several years.

I believe a regular system should be established for overhauling and repairing once a year. Operating men generally agree that under average conditions the practice of "shopping" cars yearly is the most economical and decreases liability for accidents. As complicated as most of the equipments are to-day, a thorough examination cannot be made with all parts assembled. A regular system of overhauling ought to improve the company's case in court, in the event of accident claims. Trucks can be overhauled yearly, in many cases, at the same time as the car body, thereby causing fewer cars to be put out of service. Considering economical maintenance, a truck that is overhauled each year will cost less to maintain than if allowed to run longer. The truck could be out of square with excessive lost motion in brake rigging, pedestals, etc., which, if allowed to continue, would increase flange wear, rail wear, power consumption and motor maintenance. A truck that has excessive play between pedestal and journal boxes, or lost motion in the brake rigging, will have its brake shoes adjusted tightly against the wheels in order to brake the car properly; the results are that the car cannot run freely, requiring the motors to carry heavier currents and for longer periods, causing flash-overs, high motor temperature, burn-outs, etc. As the old saying goes, this is "the straw that breaks the camel's back." It will also break pocket-books. As we well know, where motors are worked beyond their capacity both trouble and expense multiply rapidly.

Well instructed and trained motormen are of great im-

\*Abstract of paper read before the Central Electric Railway Association, Columbus, Ohio, Jan. 27, 1910.

portance in the "upkeep of rolling stock." They should be compelled to pass a strict examination on the electrical equipment so as to be able to show how to run a car at the least expense and what to do in the event of failure of any part of the equipment. The best organized shop force, the best possible workmanship and the best materials can be used; in fact, the best of everything can be had and still trouble, pull-ins, and high-maintenance costs will be experienced if the cars are operated by unskilled, poorly instructed or careless motormen. Most motormen believe that all that is required of them is to run the car on schedule time and to take in and let off passengers and avoid collisions, never giving the car or equipment a thought; to keep on time regardless of how the car is used is principally in mind. I believe it is possible for a motorman, more than any other employee, to save for the company or to cause it to spend more money. It would be surprising to know the amount of power that could be saved by a single motorman. It has been shown, by using meters, and offering prizes to the motorman that used the least power, that some use about one-half the amount they had been in the habit of using. At this rate the cost of motor and other electrical maintenance undoubtedly was less. Take for example a car blowing the circuit-breaker or fuse, caused by some small defect, such as a broken brush spring, or a burst band on the armature. Either one could be repaired for a few cents, but the motorman does not pay any attention to it and continues to blow the breaker or fuse; he sometimes stops and either puts in a double fuse or plugs the circuit-breaker. There is about as much reason in this as there would be if an engineer were to plug the safety valve on his engine. The motorman continues with the car until it refuses to run at all; then he has to cut out the bad motor in order to move. It is too late then, as the armature and possibly the fields and brush holders are ruined, costing probably \$50 to \$150, which at the start could have been saved in 50 seconds by cutting out the motor with the burst band or broken brush spring.

Another example: if a car is running 10 or 15 minutes late and the motorman is told to make up the time he does everything he can to do so, taking chances by running at high speed over switches and other places where he should run slowly, forcing heavy loads one over the other on the motors until they become overheated and are burned out or their life shortened to such an extent that they will burn out in a short time. Possibly the damage would reach \$75 to \$100, not including accidents he might have during that time. The question is, did the motorman know he was spending that amount of money to gain a few minutes' lost time? I know of companies that have paid many times that amount for considerably less time. Time is not worth that amount to any company, and the motormen should be so instructed as to avoid overworking the equipment.

I would say that all our motormen, before being allowed to operate a car on our lines, are required to pass a rigid examination by the master mechanic or his assistant, and to answer correctly all important questions concerning the mechanical and electrical operation of their cars. They are shown at the shop the different parts of the car and how to handle them. The shop force is instructed to answer fully any question which the motormen may ask. The close relations existing between the motormen and shop force have been found, in the past, to have saved many hundreds of dollars. A motorman with a knowledge of the equipment also makes a good witness in court when damages are claimed.

The importance and need of active co-operation between the operating and mechanical departments should not be overlooked; unless the operating department sees that the motormen do not abuse or overwork the equipment, the mechanical department is powerless to lessen troubles, pull-ins and cost of maintenance. When a car fails in service the motorman will report to the operating department that it was the fault of the mechanical department; the repair man, or inspector, will report to the mechanical department that it was the fault of the motorman. It is time then for the two departments to

get together and clear up this difference. Nothing will cause trouble more quickly between these two departments than to have a motorman find fault with almost every car he runs. This class of motormen will make careless inspectors and cause the two departments to pull against each other. I have found in my experience that cars have been turned in by motormen when nothing was wrong.

No doubt at some time or other every superintendent and manager, while riding in the vestibule with a motorman, has seen the motorman run past a stop. The motorman will then say that the brakes are in bad order and that he had reported them. If this man runs into something and causes a damage suit and is discharged, he will most likely testify in favor of the plaintiff that the brakes were in bad order and that he had so reported them at the shops.

The only way to stop this kind of thing is to have a good report and record system, one that will put a check on the car crews, the inspectors and the repair men.

The report and record system of our company has covered all of these troubles and more. By keeping mileage records we have the information desired as to the quality of materials and a basis upon which the cost of maintenance is determined. Records are kept of every part of the equipment and car body. A separate book is kept for every car. When repairs are made the fact is entered in this book. When the car is damaged in an accident a full account thereof is entered in this book, with the place of the accident, the name of the motorman and the full extent of the damage. At different dates the mileage is recorded. This enables us to see at a glance the amount of repairs that has been made between the different entries of mileage.

When wheels are removed from a car an impression is taken of flange and tread by hammering a piece of lead over it. The lead is then traced on paper, and over this tracing a templet of the correct pattern is placed and traced; the measurement is then taken of the circumference of the wheel with a steel tape made for that purpose. The mileage is marked on this paper, which is then placed on file.

When an armature is removed a tag is filled out and attached to it stating the car from which it came and the cause of removal. When it is repaired the man making the repair writes on the tag what repair is made and signs his name. When the armature is placed in a car the tag is turned into the office, giving the date, number of car and motor. Each car has an armature tag file and a glance over the files shows the repairs made and by whom for any length of time past on any armature.

A record is kept of all pull-ins and car troubles on the road. In each case the motorman's name is given.

All motormen and conductors are required to fill out a report as to the condition of the car when they have finished the run. The report is dropped in a box provided for that purpose at each barn. They are required to mark the time of receiving the car, time of leaving it, condition of car and to sign their names, giving badge numbers. These reports are looked after by the foreman inspector of each barn. He is held responsible for them until they are turned over to the master mechanic's office. If he finds a report against a car he gives it to the inspector that takes care of the class of work that is reported. If the inspector repairs the car he marks the report "repaired," signs his name and returns the report to the foreman inspector. If he cannot repair it he returns the report to the foreman inspector and reports that he is unable to make the repair. The car is then shopped. The foreman inspectors of each barn turn in a report each morning giving the number of cars inspected, the number reported in trouble, the numbers of cars oiled and cleaned, the repairs made and the cars remaining in trouble. When all these reports are in a trouble-sheet is made out from the foreman inspector's reports and posted on the bulletin board in the shop, in order to complete in the shop the repairs that were not made by inspectors. Each repair man, knowing the class of work he is to repair, reads the trouble-sheet and if anything for which

he is responsible is out of order he repairs it without being told, returns to the sheet, marks the repairs made and signs his name opposite the trouble reported. This sheet remains on the board until all cars have been repaired. It is then placed on file in the office.

Crews are checked up at the end of each day and if any have failed to put in a report, either good or bad, they are reported to the superintendent, who requires them to make out the report for that date. These reports are placed on file and kept for one year and if at any time a crew denies a report the report with signatures can be shown. By the use of this method of reports and records, a trouble once reported cannot be overlooked or forgotten, and it is possible to learn easily who made the repairs in case a trouble develops a second time.

Carhouse men are instructed not to take any verbal reports from crews as to the condition of cars, unless in explanation of one that was reported on a regular report. Crews are checked up at the end of the day and if a broken glass is found, a step damaged, a scar on the side of the body, broom missing, etc., and if they did not so report they are promptly reported.

At the end of each month a review report is made of all car troubles that have been experienced during the month and this is posted on the bulletin board in the barn. This enables the barn men making the different repairs to see how their classes of work stand. As duplicates of all reports are sent to the superintendent, he is able to see at a glance the amount of trouble that was experienced during the month. Car troubles are all numbered and all trouble records and reports, except the trouble sheet posted in the shop for the repair men, are made out by numbers, which greatly simplifies the work.

There are many other items to be looked after which are of less importance, but are too numerous to mention in this paper and I have, therefore, described what I believe to be the most important in the "up-keep of rolling stock."

### ELECTRIC RAILWAY FARES\*

BY J. P. PULLIAM, MANAGER RAILWAY DEPARTMENT, WISCONSIN ELECTRIC RAILWAY COMPANY

The railway promoter generally arranges conditions so that the difficulty of operation of the property is greatly increased. In his eagerness to secure the franchise he is willing to place the tracks before every alderman's door if desired, furnish a 10-minute service and agree to furnish his transportation at bargain rates. After the newness wears off the property it dawns upon those holding the bag that the conditions imposed make it impossible to furnish the service and maintain the property.

Five cents seems to have been the high-water mark fare for city transportation. Six rides for a quarter, workingmen's tickets at 3 cents and transfers galore have been placed in franchises as a matter of course. Now the traction lines are being investigated by competent commissions and the mistakes of the past are being corrected. In several instances, particularly in Massachusetts, the local companies have asked for and received permission to advance their city rates from 5 to 6 cents, and all over the country the transfer problem is receiving attention.

Our Oshkosh franchise requires neither six rides for a quarter nor 3-cent workingmen's tickets, but some generous soul in the past started the practice. On the 15th of this month we discontinued the sale of the six rides for a quarter or 25 for \$1 tickets, as we had sold them. We still continue to sell workingmen's tickets at eight rides for a quarter, good on working days only, and then between 6 and 7 a. m. and 6 and 7 p. m. The most of this traffic is handled by special cars and is disposed of quickly. It is questionable, however, if it is advisable or profitable. Special service of any kind is hazard-

ous, and I do not believe in performing it at bargain rates.

At Fond du Lac we sell six rides for a quarter, but issue no transfers. We have a steady traffic between Fond du Lac and North Fond du Lac, made possible by North Fond du Lac being the division point of two large railroads. Special cars are furnished at regular hours of each day to assist in taking care of the traffic, and are well patronized. At this point we have no crosstown lines; the ticket returns are better than at Oshkosh.

Interurban rates and service have been established about in line with city experience. Some one figured that not only could interurban cars be operated every hour between all points, but the rates should be about one-third of those charged by steam lines, with bargain rates for picnics, gatherings of all kinds and chartered cars. I suppose the theory was that inducements of this nature were necessary to attract traffic. As a matter of fact, the frequency of the service and the convenience to the traveling public secure the patronage for interurbans. There are no good reasons why our rates should be lower, but many why they should be higher than steam roads. We have had good experience along these lines.

Our Omro interurban line originally charged 15 cents for a 11.17-mile ride. The rate was increased to 20 cents May 1, 1905. The year previous to the change we handled 129,676 passengers; the year following, 129,405 passengers. This rate was reduced to 15 cents March 4, 1908. The year previous to the change we handled 138,665 passengers, the year following 157,836. So it is seen that when the fare was increased we handled about the same number of passengers as before, and had received the increased revenue.

On our Neenah interurban, with a mileage of 15.58, the original fare was 20 cents. The rate was increased to 25 cents May 1, 1905. The year previous to this change we carried 281,148 passengers; the year following the change, 287,805 passengers, more passengers by 6600 under the increased rate. The rate on this line was reduced to 20 cents March 4, 1908. The year previous to the reduction we carried 293,835; the year following, 298,636. The receipts for the year on this line showed a decrease of \$4,500, despite the fact that the number of passengers carried increased. Our former friends doubtless took advantage of the decreased fare, but there were not enough of them to offset the loss in the through traffic.

The original rates on the two lines were about right, and should have been maintained. Effective Jan. 15, 1910, the original rates were again restored, and despite the threats of our former friends to put us out of business by "hitching Old Dobbin to the shay," we do not notice any falling off in patronage.

We have had some experience with merchants' excursions. An enterprising merchant at Oshkosh arranged with our company to turn over our lines to him on given days, generally one per month for nine months. He would advertise to carry all passengers from Neenah to Oshkosh or Omro to Oshkosh for 10 cents. Each passenger would be given a coupon which, when presented at the merchant's store, would entitle the holder to free return transportation. The merchant would guarantee the company the average daily receipts per car. Our conductors made the 10-cent collection and the total applied on the day's guarantee.

On a line ordinarily requiring two cars we would use four to six cars on excursion days. The cars were crowded; regular traffic was driven to the steam road or teams, and dissatisfaction generally resulted. Merchants at other towns complained, and, after taking into account the loss of business preceding and following the date of the excursion, the railway company found that the scheme was impracticable. Finally the State commission ordered that the excursions be abandoned.

Maintaining the service, keeping cars well painted, clean, properly ventilated, on scheduled time and with courteous trainmen, are the best inducements for interurban traffic.

\*Abstract of paper read before the Wisconsin Electrical Association, Milwaukee, Wis., Jan. 19 and 20, 1910.

When these are done we can secure our share of the business at rates equal to those for steam roads. There is no demand for bargain rates, and their continuance is foolish.

### ADVERTISING DISCUSSED AT THE NEW ENGLAND STREET RAILWAY CLUB

A meeting of the New England Street Railway Club was held at the American House, Boston, Mass., on the evening of Jan. 25, and after the dinner, the subject of street railway advertising methods was discussed. Two papers were presented on this subject, one by C. A. Sylvester, general manager of the Boston & Suburban Electric Companies, and the other by H. A. Faulkner, passenger agent of the Boston & Northern Street Railway.

#### MR. SYLVESTER'S PAPER

Mr. Sylvester discussed the results which could be accomplished by a publicity bureau, industrial bureau, or, as he said he might term it, a "boom bureau," the function of which was to develop business. The bureau should create intimate relations with boards of trade, the public and prospective newcomers, and the head of the bureau should be keenly alert for suggestions as to improvements in the service. Practically every steam railroad west of the Mississippi River has a bureau of this kind known as the industrial department. The function of this department is to promote the growth of industries along the line of the railroad. The head of the bureau first makes himself absolutely familiar with the territory his line serves. In the farming sections he has an expert agriculturist examine the soil and if this report is favorable he spreads it broadcast. In the mining sections, he obtains a report from a mineralogist and advertises the possibilities of that region. In the manufacturing districts, he features the advantages of the district from a manufacturing standpoint and exploits them. Mr. Sylvester said that he had heard recently the industrial agent of the Illinois Central Railroad describe what his bureau was doing. Among other significant statements was one that 80 per cent of the business handled by his road was produced in territory tributary to its lines. The existence of many of the flourishing towns in the West can be laid directly to the activity of the industrial agent.

There are possibilities for the same kind of service among the electric roads. It is reported, for instance, that the New England Investment & Security Company was planning in the near future to operate a car over its lines near Springfield to interest farmers in making their lands more productive. The car would be an agricultural college in a small way.

It is very important for railway men to become closely identified with the boards of trade in the cities and towns reached by them. These organizations are in a position to take action on anything which pertains to the welfare and development of the place in which they are located and as the city or town develops, the railway company gains an advantage. There is perhaps no better way of getting the public to realize that its interests and the railway interests are identical than to form such a close alliance with the town officials and prominent business men.

The industrial agent should take the initiative in this matter and convince the public that the railway company will help in this movement of development. He should show them that one of the largest factors of success is that the town should have proper facilities for transportation. He can also indicate by figures the financial interest which the railway company has in that town, the amount of taxes paid, the amount of the pay-roll, etc. These are convincing facts, and if presented properly, will have their effect.

The speaker discussed the method of promoting new industries under three headings: (1) Transportation facilities; (2) organization of the board of trade; and (3) co-operation.

The railway representative, through the board of trade or otherwise, can describe to the promoter of new industries the transportation facilities which are under consideration. If the

board of trade becomes inactive, as it sometimes does, caring more for social distinction than for industrial expansion, the industrial agent can work toward a reorganization of the board. His object should be to instill commercial optimism and enthusiasm among the active members. After securing the co-operation of the board of trade, he can often offer inducements to a new industry which would be impossible if he worked alone.

The speaker then described the work of this kind carried on by his own company. The general manager has personally joined every board of trade, commercial club, improvement association, etc., that exists within his territory. The various superintendents have joined these same associations within their districts. This gives an opportunity for the management to announce its intentions and policy in regard to the present or anticipated service. It also offers a splendid opportunity to become directly associated with those who are most active in promoting the growth of the towns and are in a position to make valuable suggestions. The officers of the company have also become believers in the territory which they serve. They are optimists, not pessimists. They have co-operated with the real estate men in publicity campaigns. One day last week, they suggested a "boom day" to the holders of some real estate in an outlying district and offered them a car free of charge to carry people out to a tract in which these dealers were interested. The company estimates that a new house occupied means about \$50 a year to the railway company.

The company is also getting out through its publicity bureau statistics of the territory served. For instance, in one town the following type of the bulletin has been prepared:

"The finest manufacturing city in the State; 15 sq. miles; population, 25,000; 150 acres in parks; 40 acres of river; 16 miles of street railway; 10 miles of steam railroad; 3500 homes owned individually; 35 factories; 17 churches; 18 schools; healthy and high good soil, good air, every advantage, some very desirable factory locations and building lots left. Help us grow. Join us now. This is just a sample; our aim is to get everyone talking Boom and Growth. We want every single soul optimistic."

The speaker especially disclaimed any intention of discrediting the present advertising methods, but wished to increase their effect by calling attention to the phase which he had particularly discussed.

#### MR. FAULKNER'S PAPER

An abstract of the paper of H. A. Faulkner, passenger agent, Boston & Northern and Old Colony Street Railway companies, follows:

"The up-to-date street railway man realizes that there are so many people who will use his line anyway, but also, and which is equally important, there are a whole lot more who will use his line if he advertises. He also realizes that the cost of running a car full of passengers during the less busy hours of the day is no more than it is to run that car half or quarter full, or if there is a difference it is so infinitesimally small as to be entirely negligible. He also realizes that advertising is one of the most potent of all business getting forces to-day, that advertising of an intelligent character produces great returns in every other known business and that it will in his.

"The question really before us is, 'How are we to apply this intelligent advertising to our business? How are we going to advertise so as to fill up those empty seats?' That is a problem that has not been fully solved, and probably never will be to its greatest ultimate development, but there are many of us who are trying and who have accomplished something along the way.

"Primarily, we must get pretty close to human nature. We are sometimes prone in operating street railways, as well as advertising them, to consider that what we do and think is absolutely correct. Many times it undoubtedly is, but in the long run in advertising it pays to bear very strongly in mind what the other fellow thinks. Try to put yourself in the place of the man you are trying to reach, try to get the other fellow's viewpoint.



"Advertising has been defined in many ways, but for our especial purpose it may be said to be anything that attracts attention, tells a story and holds the attention long enough to impress the story so strongly that business, extra business, will be induced.

"Conditions govern a great deal of advertising unbendingly. What will do well for one road will be barren of results for another. What will fit well with one section of a large system will need entire revision in another. No advertising man can prescribe infallibly. I certainly cannot. I can simply assist in answering the question by telling you some of our experiences.

"We believe thoroughly in a very broad-minded policy. We believe in inculcating in the minds of the public that the trolley is the best way to travel for business, for health, and for pleasure, and if that doesn't cover the situation, for any other purpose that can be suggested.

"In making it easy for people to trolley you must give them all the information possible in the simplest possible way. We have found that one of the first essentials is a good map. With the map should be a folder telling as concisely and clearly, how far, how long and how much it costs to go to various points. These facts are the first that inquirers want. Then they wish to know where they must change cars. Descriptive matter is of great value as are cuts showing intersecting places on the lines, if you have the space and can afford them. Last year our companies issued 235,000 booklets with inserted map as a general folder and several smaller folders. In this folder we sacrificed beauty somewhat to facts. The cover design was the result of a contest. We offered prizes to the pupils in the drawing classes of the 60 or 70 high schools in our territory for the best designs submitted.

"Outside of the general advertising literature we have tried a multitude of mediums for specific purposes. The newspapers stand at the top in many ways, either through advertisements of parks, or special features, or in stories of interesting trips and the hundred and one things that may be furnished them which, properly written from a newspaper point of view, may be both news and of assistance to the company.

"For some specific advertising purpose there is nothing better than to use our own cars by putting poster signs upon the dashers. Long oblong cards, 9 in. by 29 in., printed on both sides and suspended in the centers of the cars we have found to be among the best sources of advertising.

"The Tri-State Tourist, a monthly publication issued during the months of the warmer season, has been found of value in promoting business and good will among our employees as well as the public. We send letters to schools, churches and other organizations calling their attention to the fact that it is the proper season for outings and that the best places were on our lines. We keep an eye on conventions and write to committees, sending them folders and suggesting many ways by which they can give the delegates a good time—by trolley. We send out our maps, framed on request, to schools. We distribute our maps and literature in insurance and other offices which have agents covering our territory. We have used bill boards to some extent, but have found other methods generally better. We have baby shows, balloon ascensions, ticket hunts, children's animal hunts, fall produce hunts, have been interested in merchants' carnivals, keep track of battleships in the harbor and other sights that might attract riding, and, in fact, try every way that our town or anybody else's mind can conceive to produce riding, with what we feel has been a measure of success."

#### DISCUSSION

A. E. Stone, general auditor of the Boston & Worcester Street Railway Company, stated that his road had found newspaper advertising very advantageous in bringing a new service or schedule to the public notice. Last year the company spent about \$2000 on newspaper advertising, and it placed this with papers as far distant as Woonsocket, R. I., Springfield and Fitchburg, Mass. A test advertisement was placed in a Worcester paper on a summer Saturday, covering a 3-in. space

across the front of the paper, or 8 columns in width. The cost was about \$45. The advertisement stated that extra cars would leave Worcester for Boston and its resorts the next morning at 5:55 a. m., and when the day arrived the cars were packed, bringing a revenue of about double the cost of the advertisement. The company takes advantage of all large conventions, lets the public know of new limited trips, etc., notably to baseball games in Boston. After the regular limited trips were started last year the through riding increased from 10 to 20 per cent. Two hundred new dwelling houses were put up along the line last year.

George Sabin Brush, Boston Elevated Railway Company, spoke of the lower cost of securing lithographed posters from Europe compared with the United States prices, including the duty. He emphasized the need of giving a satisfactory service in backing up a campaign of advertising.

C. W. Ketterman, Ohmer Fare Register Company, Dayton, Ohio, cited a case where round trip passes were given to public school teachers in the vicinity of Philadelphia. Each teacher brought a dozen or more children who paid fares.

H. F. Eaton, Brockton & Plymouth Street Railway Company, spoke of the revenue gained by his road by supplying service to the military maneuvers in that section last summer.

### PROGRAM OF THE MID-YEAR MEETING

At the time of going to press with this issue the mid-year meeting of the American Street & Interurban Railway Association had commenced.

The executive committee of the American Street & Interurban Railway Claim Agents' Association met on Wednesday morning. Those present were E. C. Carpenter, Anderson, Ind., chairman; M. Spillane, Boston, Mass.; H. K. Bennett, Fitchburg, Mass.; H. V. Drown, Newark, N. J., and B. B. Davis, Columbus, Ohio. The principal work of the committee was to hear the report of the committee on subjects and to arrange a program for the coming year. Different claim agents have been assigned to read papers, and when they have accepted their appointments an announcement will be made.

The classification committee of the American Street & Interurban Railway Accountants' Association also held its first scheduled meeting on Wednesday. The following were present: W. F. Ham, Washington, chairman; F. E. Smith, Chicago; H. L. Wilson, Boston; W. H. Forse, Jr., Anderson, Ind.; W. B. Brockway, New York, N. Y.; F. W. Sweny, special examiner, Interstate Commerce Commission, was also present. The committee began the consideration of about 100 cases involving interpretation of the standard classification of accounts. These questions have been raised since the publication of cases Nos. 1 to 58.

All of the sessions of the midyear meeting are being held in rooms in the United Engineering Societies Building, 29 West Thirty-ninth Street, New York. A program of the entire meeting follows:

WEDNESDAY, JAN. 26

10 a. m.

Classification committee, Accountants' Association.  
Executive committee, Claim Agents' Association.

2:30 p. m.

Classification committee, Accountants' Association.  
Executive committee, Claim Agents' Association.

THURSDAY, JAN. 27

9:30 a. m.

Executive committee, Accountants' Association.

10 a. m.

Subjects committee, American Association.  
Public relations committee, American Association.  
Interstate Commerce Commission affairs committee, American Association.

Revision of associate membership committee, American Association.

Compensation for carrying United States mail, American Association.

Classification committee, Accountants' Association.  
 Executive committee, Transportation & Traffic Association.  
 City rules committee, Transportation & Traffic Association.  
 Executive committee, Manufacturers' Association.  
 State and sectional associations.

2 p. m.

Executive committee, American Association.

FRIDAY, JAN. 28

10:30 a. m.

General conference, American Association.

2:30 p. m.

General conference, American Association.

7 p. m.

At 7 p. m. the visiting delegates will be tendered a banquet by the Manufacturers' Association at the Hotel Knickerbocker. The speakers scheduled for the banquet are:

Hon. James F. Shaw, president of the association, on "The Association."

Hon. John W. Griggs, of New Jersey, former Attorney-General of the United States, on "Electric Railways and the Public."

George A. Post, of New York, president Railway Business Association, on "Railways, Public Opinion and the Equipment Industries."

Dr. Charles W. Colby, of Toronto, professor of history, McGill University, on "Apropos of Canada."

## COMMUNICATIONS

### ONE THOUSAND SEAT MILES AS A TRAFFIC UNIT

DETROIT, MICH., Jan. 8, 1910.

To the Editors:

I want to propose a new unit to be used in connection with street railways in place of car-miles. I will put forward for discussion the "Traffic Unit," equal to 1000 seat-miles.

All who have had to do with the handling of street railways have recognized the difficulties arising from the use of the car-mile unit, which can only be useful in comparisons on one property and then becomes untrue when double-truck car-miles are compared with single-truck lines. In most cases the income per car-mile for those lines using double-truck cars will be high in comparison with the income of the single-truck cars, while the operating expense will be recorded as the same, although the power used cost more, and the platform expense is less. Another item counting against the power is the fact that some roads seem to take much pleasure in the use of enormously heavy cars, much to the detriment of the track, and adding to the cost of power.

Now the use of the "Traffic Unit" 1000 seat-miles in place of a car-mile takes into account the differences in the seating capacity of cars, and it is seating, or carrying, capacity that brings in the income. Most cars have comparatively the same ratio of seating capacity to carrying capacity; therefore, it is not necessary to use other than the known unit, seating capacity. Someone has suggested the unit ton-mile, but this would be useful only in calculating the relative cost of power. The weight or ton-mile could be compared with the seating capacity or "Traffic Unit" to determine the ratio, from time to time, of dead weight that was being dragged about.

It is when compiling statistics regarding operating income and cost that the full benefit of the use of the "Traffic Unit" is brought out. This unit would be very easily calculated on almost all roads, as schedules are more or less permanent, and the extra time taken to reduce the car-miles to seat-miles and then point off three figures, would be very small indeed.

In studying the service, the "Traffic Unit" per mile of track would give the rate of car service, and in comparisons would show the growth. This can be done with the car-mile, but if car-miles with double-truck cars are counted as equivalent to the same unit with single-truck cars the comparison is misleading; whereas, with the new unit the use of cars with different seating capacities would make no difference.

Again the "Passengers per Traffic Unit" would show the true passenger density and after a few comparisons this would show what number gave the limit of loading cars. When it was being approached, more cars could be provided.

The cost per "Traffic Unit" would take into account the difference in carrying capacity of the cars, so that all lines could be compared, whether in one city or in several. The mere fact that one set of cars was heavier than another would only change the cost per "Traffic Unit." In these days when managers find their equipment consisting of over-heavy cars, a comparison of ton-miles per "Traffic Unit" would be useful also when studying each other's statistics.

I am aware that W. B. Brockway has mentioned the seat-mile in his book on railway accounting, and doubtless others have done the same. B. J. Arnold used seating capacity in his diagrams illustrating the capacity and use of the New York Subways; and only lately Mr. Whitten, librarian of the Public Service Commission, First District, New York, in a very interesting article comparing the results of operation of the New York and Paris Subways, has used seat-miles and passenger-place-miles, the official loading capacity of the Paris cars and the capacity of the New York cars being based on the same official space per passenger. In no other way could Mr. Whitten have shown the results so closely and the only change that I could suggest in connection with his article would be to have divided the seat-mile by 1000, thus making direct use of the proposed "Traffic Unit." The New York Public Service Commissions of both districts evidently see the advantage of the seat-unit basis for comparisons, for in their standard classification of accounts they prescribe it for all companies coming under their jurisdiction. Why not ask for "Traffic Units?"

If this article will only provoke discussion I shall feel that it has fulfilled its purpose to a great extent.

HORATIO A. FOSTER.

### WELDING MOTOR CASES BY THERMIT

GOLDSCHMIDT THERMIT COMPANY

NEW YORK, Jan. 24, 1910.

To the Editors:

We note in your issue of Jan. 22 a paragraph on the cost of welding motor cases by the thermit process. This is exceedingly interesting, as it shows clearly the economy which may be effected in repairing broken motor cases in this manner.

We are inclined to believe, however, that in the majority of cases the cost would run a little higher than your figures indicate. Our experience has shown that the majority of motor case welds require nearer 40 lb. than 30 lb. of thermit, which would make the cost of thermit alone in the neighborhood of \$10 for the weld. To this amount should be added the cost of labor, molding material, depreciation on crucible and welding appliances, gasoline and compressed air for preheating, machining finished weld, etc. Were these all kept track of accurately it would probably be found that \$13 is too low an estimate for the complete cost of the weld. It is nevertheless a fact that even though the cost be higher than set forth in your paragraph the saving effected by using the process is very great.

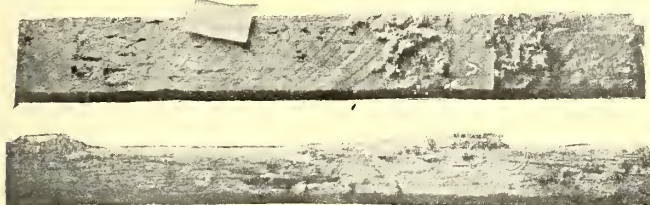
GOLDSCHMIDT THERMIT COMPANY,

per W. R. Hulbert.

Moscow, Russia, which has a population of about 1,500,000 and covers 40 sq. miles, is now equipped with a complete electric railway system. The lines have been under construction for the municipality since 1902, among the contractors being the Westinghouse Electric & Manufacturing Company, Brush Electric Company, Dick, Kerr & Company, Brown, Boveri & Company, the Allgemeine Company, and Siemens & Halske. The tramways now extend over a length of 40 miles, and embrace 300 motor-cars and 400 trailers, aside from 600 horse cars rebuilt for trailer service. The motor-cars seat 26 passengers each. The fare is 2½, 4, 5 and 7½ cents. The fare of 2½ cents carries a passenger about 1½ miles; 4 cents is charged for approximately 2½ miles, and 5 to 7 cents for longer distances.

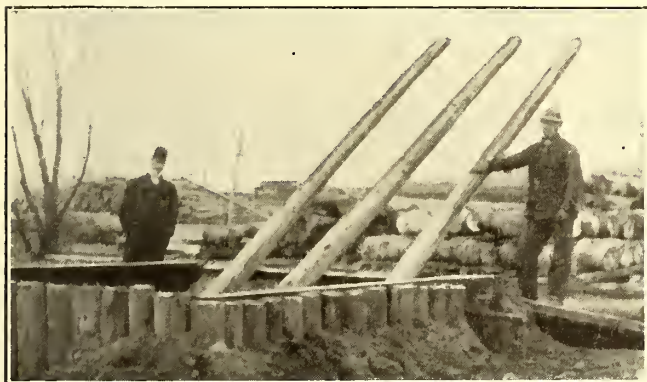
**WOOD PRESERVATION BY THE SUPERFICIAL METHOD**

Many who have heard of the superficial method of timber preservation suppose that the process means no more than a scant brush treatment. While it is true that the superficial method requires no expensive apparatus, it is essential to exercise due care, both in the selection and application of the



**Treated and Untreated Ties from Denver**

preservative to insure successful results. It may be of interest, therefore, to present some particulars of the results secured by several Western railway companies with the "C. A. Wood Preserver" as made by the C. A. Wood Preserver Company, Austin, Texas.



**Dipping the Butts of Poles**

This preservative is a germicide whose preservative action is due to the presence of antiseptic high-boiling (above 300 deg. C.) coal tar oils which remain in the timber while low-boiling oils would either evaporate or leach out. At 300 deg. C. it has a liquid coal tar residue of at least 92 per cent,



**Tie-Treating Plant in Denver**

according to the method of analysis used by the United States Forest Service. It is said to be absolutely free from petroleum residue, the presence of which might mislead the chemist on account of its influence on the specific gravity and the amount of distillate at 300 deg. C. It is possible to obtain

a lower distillate than 8 per cent, but such an oil would be unfit to use for timber preservation because it would solidify on cooling or when it reached a normal temperature.

One of the most important railways using C. A. Wood Preserver is the Denver City Tramway Company which has treated about 200,000 ties as well as a large number of poles. In September, 1904, the company laid its first ties treated according to this method. For purposes of experiment, it also installed a number of untreated ties under the same conditions. In 1909, specimens of both ties were removed by the management and presented to the preservative company for exhibition at the October convention of the American Street & Interurban Railway Association and very clearly showed the beneficial effect of the preservative.

In treating its ties, the Denver company uses a tank about 9 ft. wide, 12 ft. long and about 4 ft. deep. The preservative is kept heated at about 200 deg. F. by a slow wood fire under the tank. Yellow pine ties are permitted to remain immersed about 10 minutes, during which period they absorb about 1/3 of a gallon each. The ties are handled to and from the tank with long hooks. This tank method is the most common



**Treating Ties in Metal Tank**

method of handling pieces of timber. Poles, of course, are dipped only for a certain distance along the butt.

Among other companies which have used this treatment for eight years or longer are the Dallas (Tex.) Consolidated Electric Street Railway Company and the Austin (Tex.)



**Superficial Treatment Applied to Installed Pole**

Electric Railway Company. On both roads good results have been secured.

The cost of treatment varies according to the cost of the labor in the location where the treatment is carried on. It has been found, however, that the average long-leaf yellow

pine tie can be treated for 18 cents to 20 cents a tie. In no case has the cost exceeded 20 cents when treating standard 6 in. x 8 in. x 8 ft. ties even for quantities less than 10,000.

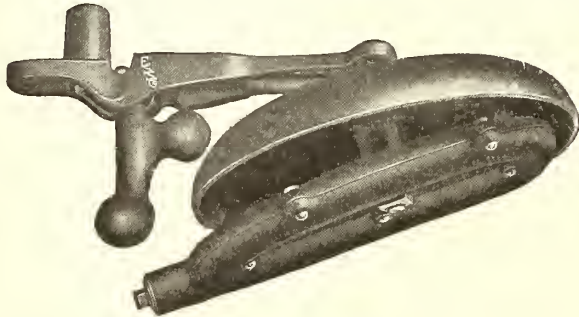
A very interesting point about this superficial treatment is that it has been found possible to arrest the decay of untreated poles which had begun to give way after several years' service. Thus in the summer of 1904, the Memphis (Tenn.) Telephone Company, finding that a number of its poles were rotting at the ground line, had the earth around the poles excavated to a depth of 18 in. and applied two coats of preservative with a brush. The manager of the telephone company is quoted as stating that this treatment would prolong the usefulness of the poles about 10 years.

The preservative is manufactured in Germany and shipments are made direct from the principal American seaports.

### NEW AIR VALVES AND BELL RINGER

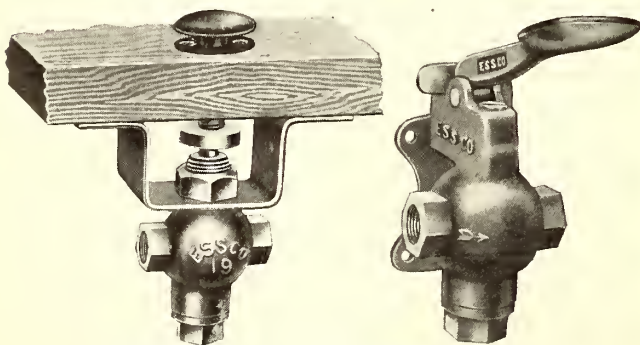
In a description published a short time ago of the 328 cars which the Chicago Railways Company is converting to prepayment service there was a short note in regard to the Keystone pneumatic bell ringer, the foot valve for operating it, and the Keystone pneumatic sander with leakless hand valves. Further particulars of these devices are now available.

The pneumatic bell ringer is made for attachment to either a 10-in., 12-in. or 14-in. standard gong shell, and when installed



Pneumatic Gong with Treadle

will not in any way affect the customary operation of the gong. It is extremely simple in construction, consisting of specially designed castings bolted together, in which a steel ball travels through a raceway impelled by air pressure. The air drives the ball forcibly through the straight portion of the raceway and causes a vacuum in the curved portion. This vacuum draws the ball back to its starting point. The movement of the ball in the raceway is continuous and can be regulated by the operator so that the gong may be given only a few taps or can be



Leakless Air Foot and Sander Valves

operated like an alarm bell, producing a clear, loud, continuous ring. The illustration shows the gong also equipped with a foot treadle.

The Keystone leakless air foot valve, also illustrated, was designed especially for the pneumatic operation of the bell ringer just described. It is placed under the platform out of the way, and is held securely in place by means of a heavy steel support, which is bolted direct to the underside of the platform.

The valve is operated by a slight pressure of the foot upon an ordinary metal foot plunger, such as is used with standard foot gongs, which acts directly upon the brass plunger, the latter opening the valve. The leakless feature is accomplished by a double valve seat—one closing when the other opens on every operation, thus preventing loss of air.

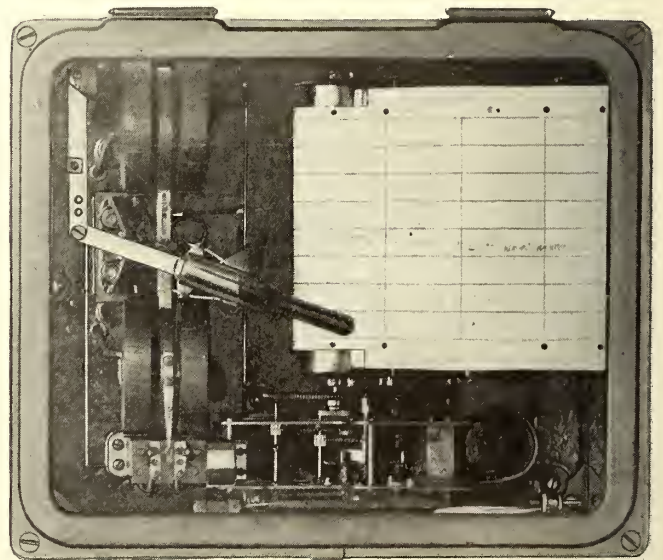
In the design of these valves the manufacturers faced a dilemma because if only a little packing around the stem was used there was considerable leakage of air, while the use of considerable packing required a powerful spring to reseal the valve against friction on the plunger stem, thus making the operation of the valve very difficult. The trouble was finally overcome by introducing an auxiliary valve on the plunger with a corresponding seat in the guide. This auxiliary valve closes when the main valve opens, thereby preventing the escape of air around the plunger. The valve can be placed wherever most convenient for the motorman.

The Keystone leakless air sander valve shown in the final illustration is of the same interior construction as the foot valve already described. In the Chicago Railways cars it is placed directly to the right of the engineer's valve. The design of the valve is such that it cannot be tampered with or operated except by means of the handle supplied with it.

All of these pneumatic devices are manufactured by the Electric Service Supplies Company, of Chicago, Philadelphia and New York.

### REDUCTION IN GENERATING EQUIPMENT MADE POSSIBLE BY GRAPHIC METER ANALYSIS OF SUB-STATION LOAD

An example of the value of the graphic recording meter for analyzing power loads was recently shown in a sub-station which supplies power to the terminal yards of a large railroad system. In this instance it was found possible to reduce the capacity of the machines operating by more than half. The sub-station referred to contains one 37½-kw and two 25-kw motor generator sets. These supply direct current at 250 volts to three turntables and one small crane. Each of the turntables is driven by a 22-hp series motor with rheostat controller, and is capable of turning a locomotive 180 deg. in one



Graphic Recording Meter

minute. The crane is about 5 tons capacity, and subject to very intermittent service, so that its operation has little effect on the total station load.

The turntables are held ready for service at all times. A locomotive to be turned goes to the nearest unoccupied table, and in this way it rarely happens that two turntables are started at once, although two or three may be in operation at the same time.

Before the study of the actual load conditions had been begun, it was customary to operate all three motor-generator sets during the rush hours. At these times the violent oscillation of the needles of indicating meters on the generating panels, striking against the stops, seemed to indicate that more generating capacity was needed. To determine this latter question definitely, a Westinghouse graphic recording meter was obtained and inserted in the main feeder. The tests covered a week's careful study, during which time the load on the station was continuously recorded. A rush-hour record shows that the average peak encountered during the starting of a turntable is 120 amp. This drops to a value of from 50 amp to 70 amp during operation, after the table has been accelerated. The maximum peak noted was about 180 amp at the time of starting two turntables simultaneously. As the full load current of the 37½-kw motor generator set alone is 150 amp, it is clear that the existing station capacity is ample to handle the present service besides a large future increase.

Since the tests it has been found necessary to operate only the one largest unit, and the former practice of running all three sets has accordingly been discontinued. The result has been improved operating economy, efficiency and load factor. This example is an instance where, in spite of a suspected insufficient station capacity, it was demonstrated that less than half the equipment already installed was needed for the existing demand. The graphic indicating meter is equally impartial in showing up overloaded apparatus, and often performs valuable service in indicating unsuspected load conditions which give rise to excessive heating and impaired regulation and efficiency, the cause of which cannot otherwise be traced.

### COMPOSITE BRASS FOR JOURNAL BEARINGS

J. Frank Lanning & Company, Pittsburgh, Pa., have brought out for electric railway journal bearings what they term the "Howard" composite brass. It is asserted that the arrangement of the special babbitt and special brass in alternate rows makes a hot box practically impossible. Even if no oil reaches the journal, there would be no damage because the babbitt will run out. If oil or grease is put into the box, the slots worn in the bearing become lubrication cups and thereby permit operation to be continued. The fact that oil ways are formed throughout the lining insures a thorough distribution of the lubricants over the entire face of the journal. The manu-



Composite Journal Bearing After a Run of 124,000 Miles

facturer states that this composite brass never touches sand in its making, so that there is no possibility of a hot box from this source.

The accompanying cut shows a journal composite bearing which is reported to have made 124,000 miles on a Peckham No. 14 B-6 double truck carrying a 20-ton, 44-passenger car of the Northampton Traction Company, Easton, Pa. The journal was cut from 3½ in. to 2 15-16-in.; the bearing surface on the front end was 1 in. and on the back end 4¼ in., leaving 2¼ in. without any bearing surface. Among the companies using this composite brass are the Lehigh Valley Transit Company, Allentown, Pa.; the Central Pennsylvania Traction Company, Harrisburg, Pa.; Interstate Railways, Philadelphia, Pa., and the Houston (Tex.) Electric Company.

### WOOD PRESERVATION

An account of the early sessions of the annual meeting of the Wood Preservers' Association, held at the Auditorium Hotel, Chicago, on Jan. 18, 19 and 20, was published last week.

In relation to the treatment of timbers with crude petroleum, C. Marshall Taylor reported that two railroads, the National Lines of Mexico and the Santa Fé, have undertaken the use of this method. This kind of treatment is radically different from all others. Heretofore it has been considered essential to have in the preservative medium an element that was either germicidal or antiseptic in its nature, but the crude oil treatment depends upon an entirely new conception of preservation and that is the elimination of air and moisture, proceeding on the theory that in order that fungi may thrive there must be present three essential conditions, moisture, air or oxygen and the proper temperature. Timbers treated with crude oil have been used in an experimental railroad track near Pelican, Tex., for over three years, and some ties taken out of that track recently for examination were found to be entirely free from all indications of decay. As yet pine has been the principal wood used in the experiments, and there is apparently no difficulty in impregnating thoroughly all the sap wood of the different species of pine. The success of the treatment depends upon the thorough impregnation of the sap wood with all the oil that it is possible to force into it.

R. L. Allardyce had a paper relating to the amounts of various antiseptics required per cubic foot to obtain good results. In the creosoting process the speaker recommended a treatment of from 12 to 15 lb. to the cubic foot for telegraph and telephone poles. For ties he advocated a 10-lb. treatment, unless protected by tie plates. Then a heavier treatment was advisable. In the zinc and oil method he suggested a solution of zinc chloride, using about a half-pound of dry salts to the cubic foot, making practically a 4 per cent solution; then an injection of from 3 to 4 lb. of oil. For the straight zinc or burnettizing process, the same amount of dry salts to the cubic foot is suggested, but in the ratio of a half-pound of dry salts to 15 lb. of water, making practically a 15-lb. treatment to the cubic foot.

"Inflammability of Treated Timber" was the subject of H. M. Rollins. He confined himself to two processes, burnettizing and creosoting. The former is a treatment with zinc chloride, and the presence of this preservative in the timber not only does not increase its inflammability, but, on the other hand, to a great extent fireproofs it; any attempt to burn timber treated with a solution of zinc chloride will demonstrate that it is less inflammable than a similar piece untreated. In relation to creosoting or treating timber with the dead oil of coal tar, there has been considerable prejudice, due to the impression that the timber so treated is very inflammable, but Mr. Rollins is quite clear that creosoted material becomes, after a short time, less inflammable than similar wood untreated. Timber freshly treated with creosote is more inflammable than untreated material, but its degree of inflammability decreases gradually as it grows older, until after a certain length of time, which is variable, it is no more inflammable than untreated material; from that time on it becomes less inflammable than untreated material, and finally reaches a point where a great deal of heat is necessary to ignite it. This is due to the gradual vaporization of the inflammable constituents of the oil. The speaker gave the result of a test on an electric light pole which had been treated with 11 lb. of oil per cubic foot four years before the test. It was compared with an untreated pole of slightly larger diameter than the one treated. Fires were kindled around the bases of two poles in exactly the same manner. The two poles ignited about the same time, and in a few minutes were blazing freely for about 5 ft. above the ground. After the poles were burning the coals around the bottoms were removed and the poles allowed to continue to burn. The creosoted pole continued to burn for about 10 minutes, when the fire ceased, and the only damage was a surface charring about ¼ in. deep, reaching as high as the fire on the

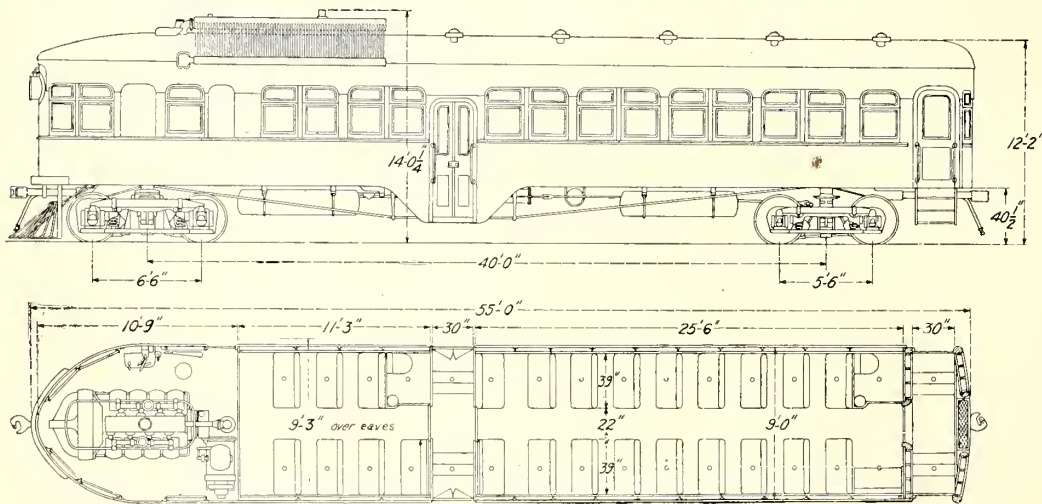
ground from the pile of kindling reached. Above that point as high as the flames reached the pitch-like coating was burned until it had the appearance of lampblack. The untreated pole continued to burn at a point near the ground, and fell after burning for  $2\frac{1}{2}$  hours, burned completely in two. This test seems to demonstrate that it would be impossible to burn a well-seasoned, creosoted pole with a grass fire, as sometimes happens with untreated poles.

The officers of the association were elected as follows: President, Walter Buehler, St. Louis; first vice-president, C. W. Berry, Laramie, Wyo.; second vice-president, David Allerton, Madison, Ill.; third vice-president, C. E. Chanute, Chicago; secretary and treasurer, F. J. Angier, Galesburg, Ill. Chicago was selected as the place of the next annual meeting.

### GASOLINE-ELECTRIC CARS FOR SOUTHERN RAILWAY

The accompanying cut shows the plan and elevation of the gas-electric motor cars recently purchased by the Southern Railway Company from the General Electric Company, and now under construction. These cars have been designed with special reference to traffic conditions in the South. The car is divided by a center entrance. The seating capacity forward of this entrance is 14 and to the rear is 38, making a total seating capacity of 52 passengers. A rear entrance is also provided, thus completely dividing the forward and rear passenger compartments.

The car body is 55 ft. long over bumpers, and of this space the engine compartment will take up 10 ft. 9 in., leaving the



Gasoline-Electric Car for the Southern Railway

balance for passengers and platforms. The car will be constructed of steel framing and sheathed with steel plates. The interior trim will be of mahogany. The truck under the engine compartment will have a wheelbase of 6 ft. 6 in. and will be equipped with M.C.B. 33-in steel wheels. On each axle of this truck will be mounted a 100-hp, 600-volt box-frame, commutating pole, railway motor, type GE-205, thus giving the car a motor capacity of 200 hp.

There will be in the engine compartment a direct-driven gas-engine generator set, the engine being of the eight-cylinder "V" type, with each cylinder 8 in. diameter by 8-in. stroke. An eight-pole, 600-volt interpole generator will be direct-coupled to this engine. This set will be mounted on a cast-iron base, and all parts will be above the floor line and readily accessible. Current from the generator will be supplied to the motors through a controller, the function of which is to place the motors progressively in series and parallel, and to vary the resistance in the shunt field of the generator by numerous steps, thereby varying the impressed voltage on the motors. The engine ignition is furnished by a low-tension magneto and magnetic spark plugs. The carburetter is of the overflow type and hot-water jacketed. Compressed air is used for starting the engine by being supplied to the several cylinders in suc-

cession through a distributing valve. The compressed air is furnished from a pump direct-driven by the main crankshaft. A small auxiliary gas engine will drive an auxiliary pump to supply compressed air to the main reservoirs when necessary. This gas engine is also direct-connected to a car-lighting generator. A radiator is placed on the roof of the car to provide means for cooling the engine on the thermo-siphon principle. During the cold weather hot water from the engine circulating system will be by-passed through the passenger compartments. Combined straight and automatic brakes will be used besides an auxiliary ratchet and hand brake.

As there is no mechanical transmission between the engine and the axle, the speed of the engine is not a function of the speed of the car; consequently the gas engine may be operated to give its maximum output irrespective of the speed of the car, a characteristic of great value in emergency or heavy work.

### NEW TELEPHONE SYSTEM FOR CHICAGO & MILWAUKEE ELECTRIC RAILROAD

The Chicago & Milwaukee Electric Railroad Company is constructing a new telephone system for handling its train dispatching and company business. Formerly the Bell telephone lines were principally used for this service. Now a 20-drop switchboard will be installed in the office of the superintendent at Highwood and will be in charge of a train dispatcher. About 500 miles of wire, the larger part of which is No. 10 B. & S. gage bare copper, are being strung for the telephone circuits.

From Highwood the circuits will extend north and south, connecting Evanston and Milwaukee, and west on the Libertyville division. A running form of transposition is used. Transpositions are spaced every 500 ft. About 50 telephone instruments will be installed at once. Five-bar generators will be used in the instruments on the line for calling the dispatchers, who will work in three tricks of eight hours each and will use a head-piece so that they can listen in on the line at all times. A standard dyna-

motor ringing outfit will be installed to furnish ringing current for the dispatcher to use in calling outlying stations. A simplified ringing code is to be adopted.

The new lines are being installed in duplicate on all branches, and each telephone will be arranged so that it may be connected to either line. It is expected that the whole system will be in operation about March 1.

According to statistics on collisions with other vehicles, as furnished to the Vereins Deutscher Strassenbahn und Kleinbahn-Verwaltungen (German Street & Interurban Railway Association) by 145 companies, there was one collision for every 24,040 car-km (14,905 car-miles) operated in 1907. In 62.5 per cent of all cases it was admitted or proved in court that the drivers of the foreign vehicle were at fault, and in only 9.4 per cent of all cases that the motorman was to blame. It is interesting to note that in 1900 the motormen were responsible in fully 15.3 per cent of all cases.

The American Consul-General at Hamburg, Germany, reports that the use of steel ties is increasing rapidly. In 1888 Germany used 123,600 tons of metal for ties, but in 1907 it used 494,500 tons for this purpose.

# News of Electric Railways

## Resolution Passed Continuing Committee of Fifty in Detroit

At the meeting of the City Council of Detroit, Mich., on Jan. 18, 1910, the following resolution, drawn by Mayor Breitmeyer, asking that the Committee of Fifty reconvene to consider the reports of the sub-committees, now in the hands of the Council, and make recommendations therefrom, was passed:

"Resolved, That the Committee of Fifty appointed by his honor the Mayor to investigate the street railway question be and is hereby requested to continue its organization and hold itself in readiness to take up for consideration any part of its report which may be disputed by the Detroit United Railway, afford the said company hearings thereon, take such evidence as may be offered on the matters under dispute and report its findings and opinions to the Common Council; and be it further

"Resolved, That the committee be and is hereby requested to adopt its report and make a recommendation."

An ordinance introduced by Alderman Koenig, as drafted by Corporation Counsel Hally, provides for a 3-minute service on the lines of the Citizens' Railway between 6:30 a. m. and 8 p. m., with the exception of 6:30 a. m. to 8 a. m. and 5 p. m. to 6:30 p. m., when it is stipulated that a 1-minute service shall be maintained south of the Warren Avenue intersection on the west and Forest Avenue on the east side. On Saturdays a 3-minute service only is outlined between 5 p. m. and 6:30 p. m. and on Sundays and holidays the company is expected to maintain sufficient cars to handle traffic expeditiously. Between 6.30 p. m. and midnight each day a 5-minute service is stipulated. The ordinance has passed second reading.

A resolution providing that a public meeting be called by the committee on franchises to consider the terms of the Codd-Hutchins settlement, which was originally drawn in 1905 and which J. C. Hutchins, president of the Detroit United Railway, says can not now be accepted, as referred to in the ELECTRIC RAILWAY JOURNAL of Jan. 22, 1910, page 161, was passed by the Council.

A resolution was also introduced that all matters touching the street railways settlement be taken from the joint committee on ways and means and franchises which now has them in hand and referred to the Council as a whole. This resolution was laid on the table without discussion.

Neyton D. Baker, city solicitor of Cleveland under Mayor Johnson, has replied as follows to an inquiry from the Committee of Fifty of Detroit regarding the question of computing unexpired franchises as part of the capitalization on which a return must be allowed:

"It seems to me that the question whether or not franchise values are to be included in the amount of investment upon which the Detroit United Railway should be allowed 6 per cent return is comparatively simple.

"To the extent that the company now has unexpired franchises at a rate of fare higher than would be necessary to pay operating expenses and interest, the privilege thus granted to the company is not only a valuable privilege, but one which must be assumed to have been granted in compensation for some burden assumed by the company. The paving obligations, for instance, which the company assumed called for an extensive capital expenditure which must be amortized at the end of the grant.

"Now the amortization fund must come from the net earnings above operating expenses, taxes and interest, and therefore from franchise value. Development expenses, the costs of experimentation, contingencies in construction, casualties, financing and such other general charges as must be met by a company constructing a property do not become a part of the permanent value of the property, but rather are in the nature of initial expense. They, too, for the most part, if not entirely, should be amortized at the end of the grant. So that the franchise value granted by a city must in theory be deemed the fund provided by the city for the amortization of these charges. If this view is sound it follows, quite naturally, that whatever unexpired franchise value the company now has should be allowed to

it in undertaking to estimate the present value of its property.

"As I have said, this is, confessedly, a moderate view, and does not state the public side as strongly as it is possible to state; for if the public preferred to wait until the expiration of a grant it would no doubt be able to force a settlement upon a basis that would not recognize the assembled value of the property, but would be just enough above its scrap value to dissuade the company from scrapping its plant. I incline to a liberal policy, recognizing the public need of continued service, and in a sense forgetting and forgiving past misconduct on the part of such companies, so that the new start can be made with a general good feeling and an assurance on the part of the public that they have been more than just to the company."

## Cleveland Traction Situation

With the approval of Judge R. W. Tayler, Warren Bicknell, receiver of the Municipal Traction Company, has decided to request authority from the City Council to continue to operate all the lines on which franchises expired on Jan. 26, 1910, at a 3-cent fare, under the conditions in force on lines of the Forest City Railway, which include the payment by passengers of 1 cent for a transfer, which sum is rebated when the transfer is taken up by the conductor. Judge Tayler deemed this the wisest course pending the vote on the general franchise on Feb. 17, 1910. The St. Clair Avenue, Superior Avenue, Payne Avenue, Scoville Avenue and Clark Avenue and the 105th Street, West Twenty-fifth Street and Ontario Street lines are affected. The franchise will become operative 10 days after the election if it is approved. If the ordinance is defeated another franchise will have to be drawn.

The operation of cars in Cleveland was seriously interfered with on Jan. 21 and Jan. 22 by a snowstorm which was accompanied by a high wind. It is said that as many as 14 cars were derailed at one time. The company employed all the men it could secure to clean the tracks, but on Jan. 23 was compelled to abandon service temporarily on the St. Clair Avenue line and on one or two others. One of the features of the work of keeping the lines open on Jan. 23 was the use of large automobiles for towing stalled cars out of drifts. Several automobiles equipped with ropes were kept in readiness, and on receiving calls would go to aid the stalled cars. It is said that they failed in only a few instances to move the cars.

The City Council at its meeting on Jan. 17, 1910, repealed the grants made to the Cleveland Underground Rapid Transit Company by the Johnson administration. W. R. Hopkins, of the company, said that the action was illegal because the company had accepted the grants. Neither of the grants has ever been completed, however. On one the count of the referendum vote was stopped by injunction and the same action was taken when the second grant, practically a duplicate of the first, was advertised. In order to test the matter, it is probable that petitions will be circulated for a referendum vote on the second grant, which now stands repealed. Should the grant be defeated, the matter would be settled. The Council repealed the grant on the ground that a better offer may be secured than the company made, and because the grants would prevent any other company from building a subway, even if the Cleveland Underground Rapid Transit Company does not make use of its grants.

## Transit Affairs in New York

The contract under which the platforms of the subway are to be lengthened has been placed before the corporation counsel by the Public Service Commission. Frank Hedley, general manager of the Interborough Rapid Transit Company, says that as soon as the contract is signed work will be started. It is estimated that the work will take one year to complete. It will increase the passenger

capacity of the subway by one-fourth. The lengthened platforms will accommodate 10-car express trains instead of 8-car trains, and the local platforms 8-car trains instead of 5-car trains as at present.

Mayor Gaynor has approved the resolution of the Board of Estimate and Apportionment fixing Feb. 4, 1910, as the date for a public hearing on the petition of the Manhattan Bridge Three-Cent Line for a franchise.

New subways built with money derived wholly or in part from assessments on property benefited by additional transportation facilities as a possible alternative to taking the funds from the city treasury were suggested by George McAneny, president of the Borough of Manhattan, in an address on Jan. 10, 1910. Mr. McAneny said: "The city has reached a point where we find a stone wall ahead of us in the new constitutional debt limit. Many betterments needed have been proposed, but at an expense of millions of dollars, which the city has not in hand and cannot borrow. We cannot produce ideal conditions. I ask tolerance in viewing what we are about to try to accomplish."

The Public Service Commission has sent to the Tax Department a statement showing that the present subway, with its extensions to Brooklyn and Van Cortlandt Park, had cost up to Dec. 31, 1909, \$52,254,468. In addition, the Manhattan portion of the so-called Brooklyn loop lines, connecting the three downtown bridges, cost up to date \$6,931,954, making a total for all subways thus far constructed of \$59,206,423.

It was announced recently that the Public Service Commission had communicated with the city authorities, asking for definite information regarding the city's rights in those streets in which it is proposed to construct subways. Under a recent decision of the Court of Appeals the city apparently does not own the fee in many Brooklyn streets and will have to pay damages to property owners for the easements taken in subway building. Work is to be begun at once by the Tide Water Building Company on the Fifth section of the Fourth Avenue subway.

#### Southern Pacific Railroad Electrification

The Southern Pacific Railroad has announced that it is proposed to operate cars by electricity between San José, Meridian Corners, Monte Vista, Los Altos, Mayfield and Palo Alto. The line from Mayfield to Los Gatos will be affected, as steam trains will hereafter use only the east track of the double-track line between Mayfield and Congress Junction, the west track being turned over to the Peninsula Railways, which is now equipping the line for operation by electricity to Monte Vista, where the tracks connect with those of the Cupertino line to San José. Five multiple-unit cars for the new service have already been received from the St. Louis Car Company. The construction of the substation and power house at Los Altos and the installation of the machinery remain to be completed.

J. Kruttschnitt, vice-president and director of maintenance and operation of the Southern Pacific Railroad, who in August, 1907, announced the appointment of Frank J. Sprague and Allen H. Babcock, electrical engineer of the company, to study the question of electrifying the Sacramento division of the Southern Pacific Railroad from Rocklin to Sparks, a distance of 83 miles, is quoted by the *Wall Street Journal* as follows: "Eastern critics may be inclined to the opinion that we are dallying with this matter. We have found that it pays well to make haste slowly with regard to innovations. No road other than the Great Northern has done much with electrification as a solution of the mountain problem. The Great Northern Railroad's only important piece of electrification so far is through the 14,000-ft. Cascade tunnel, 100 miles east of Seattle, where the grade is only 1.7 per cent. Over the Sierras the Central Pacific Railroad must conquer a grade of 7000 ft. either way in a total distance of 110 miles, or a grade of almost 2.5 per cent. Electrification for mountain traffic does not carry the same appeal that it did two years ago. Oil-burning locomotives are solving the problem very satisfactorily. So well pleased were we with the behavior of the two compound consolidation Mallets mentioned in the last annual report of the Southern Pacific Railroad that we ordered 16 more, the last of which are being delivered. Each of these locomotives, having in excess of 3000 hp, hauls as great a load as two of

former types, burns 10 per cent less fuel and consumes 50 per cent less water."

**Pacific Claim Agents' Association.**—The meeting of the Pacific Claim Agents' Association has been postponed to May 20 and 21, 1910, at San Francisco, Cal.

**London & Port Stanley Railway to Consider Electrification.**—The directors of the London & Port Stanley Railway, London, Ont., Can., have decided to appoint a committee to report on the advisability of electrifying the line as a means of competing with the Southwestern Traction Company, which operates from London to St. Thomas and Port Stanley, a distance of 30 miles.

**Public Utilities Tribunal Recommended for San Francisco.**—The committee appointed by Mayor Taylor of San Francisco in October, 1908, "to investigate and report on the causes of municipal corruption in San Francisco, as disclosed by the investigation of the Oliver Grand Jury, and the prosecution of certain persons for bribery and other offenses against the State," has reported in favor of a judicial tribunal for the determination of charges for public utilities.

**Railroads Object to Excessive Proportionate Cost of Grade Elimination in Wilkes-Barre.**—The four steam roads entering Wilkes-Barre, Pa., and the Wilkes-Barre & Wyoming Valley Traction Company, Wilkes-Barre & Hazleton Railway and the Lackawanna & Wyoming Valley Traction Company have informed the city of Wilkes-Barre that they cannot agree to the city's proposition that they bear 85 per cent of the estimated cost of \$7,000,000 for eliminating all grade crossings within the city limits. They contend that the city should bear more than 15 per cent of this cost.

**Employees' Entertainment in Brooklyn.**—The annual entertainment of the Brooklyn Rapid Transit Employees' Benefit Association was held in the main building of the association on Jamaica Avenue, Brooklyn, N. Y., from Jan. 17 to Jan. 22, 1910, inclusive, in the afternoons and evenings. The program of events included selections by the band composed of the employees of the company and a vaudeville bill of 14 numbers which embraced songs, comedy sketches and acrobatic feats. As usual, the time for the attendance of the employees of the different divisions of the company was designated in advance and tickets to the entertainment, which included transportation to and from the club rooms, were distributed by the heads of the departments to the employees and their families. George W. Edwards, secretary of the association, reports that approximately 10,000 people attended the 12 performances, and that at each performance officers from the various departments of the company were present. A feature of the program, which elicited many favorable comments, was the excellent performance of the band composed of the employees.

**Resignation of Bernard Corrigan.**—In an editorial in the *Kansas City Journal* recently, the following tribute was paid to Bernard Corrigan, whose resignation as president of the Kansas City Railway & Light Company, Kansas City, Mo., was announced in the *ELECTRIC RAILWAY JOURNAL* of Jan. 22, 1910: "The retirement of Bernard Corrigan from the presidency of the Metropolitan Street Railway is an announcement that will cause universal regret in Kansas City. Always active in all of the city's affairs, Mr. Corrigan has been one of the most pronounced factors in the city's development. During all the years of his life here his personal and business reputation has been irreproachable. Even those who held interests antagonistic to him acknowledged Mr. Corrigan's fairness and justice in all things. His loyalty to the city has been demonstrated in a hundred ways. Mr. Corrigan retires to devote more time to his private interests and the estate of his brother. The people of Kansas City, without regard of politics, race or color, will unite in wishing him many years of well-earned ease in the full knowledge that he occupies a high eminence in the respect, the confidence and the affection of his fellow citizens."

#### LEGISLATION AFFECTING ELECTRIC RAILWAYS

**Massachusetts.**—A bill has been introduced in the House to provide for half fares on street and elevated railways to pupils of normal schools and business colleges. A bill introduced by Mr. Henebery, of Worcester, foreshadows a struggle between municipalities and electric railways in con-



nection with the granting of franchises to allow street railways to carry freight. Under the existing law all electric railway freight and express franchises are of an unlimited character, and in a recent appeal before the Railroad Commission in connection with a franchise desired by the Old Colony Street Railway in Weymouth, the commission expressed doubt about its authority to approve the grant of a limited franchise as desired by the Selectmen. The companies do not feel like making the investment necessitated to establish an express service unless some assurance can be had of permanency. A bill to allow the New York, New Haven & Hartford Railroad to acquire the Berkshire Street Railway brings up again the questions of steam railroad control of electric railways. The measure also permits the New York, New Haven & Hartford Railroad to acquire or construct electric railways west of the Connecticut River in Massachusetts. If authority is granted the New York, New Haven & Hartford Railroad to acquire the Berkshire Street Railway, the stockholders of the Berkshire Street Railway who desire to sell their holdings are to be granted the right to ask the commission to appraise their holdings, and the New York, New Haven & Hartford Railroad is to be required to purchase the stock at the valuation fixed by the commission. The New York, New Haven & Hartford Railroad is pledged to expend \$2,000,000 in constructing new lines and extending those already operated by the Berkshire Street Railway, subject to the approval of the commission. In 1909 the question of the control of the Berkshire Street Railway by the New York, New Haven & Hartford Railroad was referred to the 1910 session, in order to avoid complicating the problem of the merger of the Boston & Maine Railroad and the New York, New Haven & Hartford Railroad in the Boston Railroad Holding Company. This merger has since been accomplished. Former Representative Kiley has filed a bill to abolish the present Boston Transit Commission, Massachusetts Railroad Commission and Massachusetts Gas & Electric Light Commission, and create two public service commissions, one to include Boston and the metropolitan district, and the other the balance of the State. The salary of each commissioner would be \$8,000. Bills have been introduced on behalf of the Selectmen of Hyde Park and Dedham to authorize the granting of locations to the Boston Elevated Railway in these towns, and to lease to the Boston Elevated Railway or the West End Street Railway the lines of the Old Colony Street Railway within these municipalities; to permit the Springfield Street Railway to purchase the Suffield Street Railway; to authorize steam railroads to electrify their systems within the Boston metropolitan district.

**Ohio.**—The public utilities bill prepared by Representative Frank W. Woods for introduction in the House on Jan. 24, 1910, provides for a commission of three members at a salary of \$5,000 per year each, only two of which may belong to the same political party. The appointments to the commission are to be made by the Governor and are to be confirmed by the Senate. This body will be known as the Public Utility Commission of Ohio. It will have jurisdiction over steam and electric railroads, express, telegraph, telephone, sleeping car, freight line, electric light, gas, natural gas, pipe line, waterworks, messenger signal, union depot, water transportation, heating and cooling companies, but it cannot take away from a municipality any of the franchise rights or powers with which a city is vested by other laws. The commission is given authority to decide the question of the reasonableness of charges for service furnished by companies under the jurisdiction of the commission. All public utilities are required to file with the commission a complete schedule of its charges for service, but the right is reserved to the companies to appeal to the Common Pleas Court from the finding of the commission within 30 days after an order has been issued by the commission. The burden of proof rests with the plaintiff in all actions of this kind. Special rates, rebates and the issuance of passes are prohibited. All public utilities are required to report to the commission, and the commission is authorized to appraise the properties of the companies. The stock of all public utility companies are to be sold at par and bonds are not to be sold for less than 75 per cent of their face value.

# Financial and Corporate

## New York Stock and Money Market

January 25, 1910.

Since the collapse of the Columbus & Hocking pool stocks have been weak and lower, although the trading has been active. To-day the market declined from 1 to 5 points, due primarily to alarm over the threats of corporate prosecutions and restrictive legislation. The traction stocks have shared in the general depression. Interborough-Metropolitan, in very active trading, has sold off several points, while Brooklyn Rapid Transit and Third Avenue are both much lower.

The money market continues to be fairly easy, with rates surprisingly low for the market condition. Quotations to-day were: Call, 3 to 3½ per cent; 90 days, 3¾ to 4 per cent.

### Other Markets

In rather active trading in Philadelphia the shares of the Electric Storage Battery Company declined from 62 to 56 and closed to-day at 57¾. Traction stocks have been dull with insignificant price changes.

In the Chicago market, tractions have been almost entirely out of the trading. Series 1 and 2 of the Chicago Railways Company, which were active a fortnight ago, share in this stagnation.

In the Boston market, Massachusetts Electric continues to be active, but prices are practically unchanged. Boston Elevated and Boston Suburban have both been in the market in a small way.

There is no trading in traction securities in Baltimore, except in the bonds of the United Railways which are active, although there is no material change in prices.

Quotations of various traction securities as compared with last week follow:

	Jan. 18.	Jan. 25.
American Railways Company.....	a49	a47½
Aurora, Elgin & Chicago Railroad (common).....	a62	*62
Aurora, Elgin & Chicago Railroad (preferred).....	a93	*93
Boston Elevated Railway.....	133½	132½
Boston & Suburban Electric Companies.....	a16	*16
Boston & Suburban Electric Companies (preferred).....	a76	*76
Boston & Worcester Electric Companies (common).....	a11½	a11
Boston & Worcester Electric Companies (preferred).....	46	45
Brooklyn Rapid Transit Company.....	75¾	71½
Brooklyn Rapid Transit Company, 1st pref., conv. 4s.....	84¾	83
Capital Traction Company, Washington.....	134	a135
Chicago City Railway.....	185	185
Chicago & Oak Park Elevated Railroad (common).....	*2	*2
Chicago & Oak Park Elevated Railroad (preferred).....	*10	*10
Chicago Railways, ptcptg., ctf. 1.....	*108	a105
Chicago Railways, ptcptg., ctf. 2.....	31	a30
Chicago Railways, ptcptg., ctf. 3.....	*17	a17
Chicago Railways, ptcptg., ctf. 4s.....	*9½	*9½
Cleveland Railways.....	*91½	*91½
Consolidated Traction of New Jersey.....	*77	a77
Consolidated Traction of New Jersey, 5 per cent bonds.....	*106	a106
Detroit United Railway.....	*63	*63
General Electric Company.....	154½	150½
Georgia Railway & Electric Company (common).....	a105½	105½
Georgia Railway & Electric Company (preferred).....	a88	a88
Interborough-Metropolitan Company (common).....	23½	20¾
Interborough-Metropolitan Company (preferred).....	60½	55
Interborough-Metropolitan Company (4½s).....	82½	80½
Kansas City Railway & Light Company (common).....	*36	*36
Kansas City Railway & Light Company (preferred).....	*70½	*70½
Manhattan Railway.....	137¾	136¾
Massachusetts Electric Companies (common).....	a18½	a18
Massachusetts Electric Companies (preferred).....	80	a81
Metropolitan West Side, Chicago (common).....	*17½	a17
Metropolitan West Side, Chicago (preferred).....	53	a54
Metropolitan Street Railway.....	21	*21
Milwaukee Electric Railway & Light (preferred).....	*110	*110
North American Company.....	79½	76¾
Northwestern Elevated Railroad (common).....	*17½	a18
Northwestern Elevated Railroad (preferred).....	*70	a68
Philadelphia Company, Pittsburg (common).....	a51	a50½
Philadelphia Company, Pittsburg (preferred).....	a45½	a45¾
Philadelphia Rapid Transit Company.....	a25½	a25½
Philadelphia Traction Company.....	a88½	a88
Public Service Corporation, 5 per cent col. notes.....	*100½	*100½
Public Service Corporation, cfs.....	a106½	a106
Seattle Electric Company (common).....	a115	*115
Seattle Electric Company (preferred).....	a104½	*104½
South Side Elevated Railroad (Chicago).....	55	a54
Third Avenue Railroad, New York.....	16½	15½
Toledo Railways & Light Company.....	13½	11
Twin City Rapid Transit, Minneapolis (common).....	113¼	111
Union Traction Company, Philadelphia.....	a51	50½
United Rys. & Electric Company, Baltimore.....	a14	a13½
United Rys. Inv. Co. (common).....	39¾	a33
United Rys. Inv. Co. (preferred).....	*71½	a56½
Washington Ry. & Electric Company (common).....	a42½	a40
Washington Ry. & Electric Company (preferred).....	a90½	a88½
West End Street Railway, Boston (common).....	a91½	a95
West End Street Railway, Boston (preferred).....	*106	*106
Westinghouse Elec. & Mfg. Company.....	73¾	71
Westinghouse Elec. & Mfg. Company (1st pref.).....	*130	120

a Asked.

\* Last Sale.

### Report of Interborough-Metropolitan Company

A statement of the earnings of the Interborough-Metropolitan Company, New York, N. Y., for the calendar year ending Dec. 31, 1909, was presented to the stockholders of the company at the annual meeting on Jan. 18, 1910. The surplus balance of income account on Dec. 31, 1908, as given in the report, was \$767,943. The total receipts for the year ending Dec. 31, 1909, were \$4,110,524 and the total disbursements were \$3,372,216, leaving a surplus income of \$738,308. The assets as given in the balance sheet as of Dec. 31, 1909, were \$211,102,105, and the liabilities \$211,102,105. The report as presented to the stockholders follows:

RECEIPTS.	
Dividend of 2½ per cent on 339,128 shares of Interborough Rapid Transit Company capital stock—	
For the quarter ended March 31, 1909.....	\$763,038
For the quarter ended June 30, 1909.....	763,038
For the quarter ended Sept. 30, 1909.....	763,038
For the quarter ended Dec. 31, 1909.....	763,038
	\$3,052,152
Interest on bank balances, loans, etc.....	290,429
	\$3,342,581
Surplus balance of income account, Dec. 31, 1908.....	767,943
Total .....	\$4,110,524

DISBURSEMENTS.	
Interest on \$67,825,000 Inter-Met. 4½ per cent collateral trust bonds for 9 months ended Sept. 30, 1909.....	\$2,289,094
Accrued interest thereon for 3 months from Oct. 1 to Dec. 31, 1909.....	763,031
Administration and general expense account.....	\$215,839
Taxes .....	104,252
	320,091
	\$3,372,216
Surplus income.....	\$738,308

The general balance sheet of the company as of Dec. 31, 1909, follows:

ASSETS.	
Interborough Rapid Transit Company capital stock, at cost in securities of this company.....	\$104,563,042
Metropolitan Street Railway capital stock, at cost in securities of this company.....	68,684,455
Metropolitan Securities Company capital stock, at cost in securities of this company.....	28,329,695
Metropolitan Securities Company, loans secured by three-year 5 per cent improvement notes and stocks and bonds of subsidiary companies as collateral.....	8,281,204
Office furniture and fixtures.....	6,902
Engineering, in suspense (additional subways).....	100,152
Metropolitan Securities Company stock, full paid.....	36,773
Cash and accounts receivable.....	1,099,882
Total .....	\$211,102,105

LIABILITIES.	
Capital stock—common .....	\$100,000,000
Reserved against outstanding stocks not acquired.....	6,737,808
	\$93,262,192
Capital stock—preferred.....	\$55,000,000
Reserved against outstanding stocks not acquired.....	9,260,000
	45,740,000
Collateral trust 4½ per cent bonds.....	\$70,000,000
Reserved against outstanding stock not acquired.....	2,175,000
	67,825,000
Notes payable.....	2,749,400
Accrued interest for three months to Jan. 1, 1910, on Interborough-Metropolitan 4½ per cent bonds (covered by dividend of Interborough Rapid Transit Company, paid Dec. 31, 1909).....	763,031
Accounts payable .....	24,174
Income Account, surplus.....	738,308
Total .....	\$211,102,105

In presenting the report to the stockholders, Theodore P. Shonts, president of the company, said:

"As an evidence of the rapid growth in value of your equity in the property of the Interborough Rapid Transit Company, represented by the surplus earnings of that company, your attention is called to the following results from operations for the last fiscal and calendar years.

"The surplus earnings of the Interborough Rapid Transit Company, after the payment of the regular 9 per cent dividend, for the fiscal year ended June 30, 1909, were \$1,439,823, an increase over the previous fiscal year of \$889,163. For the calendar year ended Dec. 31, 1909 the surplus earnings were \$2,630,641, an increase over the previous calendar year of \$2,092,194, which is being more than maintained.

"The Metropolitan Street Railway System is still being operated by the receivers.

"The administration expenses of your company for the year ended Dec. 31, 1908, were \$190,641.48, and for the year ended Dec. 31, 1909, \$104,803.08, a reduction of \$85,838.40."

**American Railways, Philadelphia, Pa.**—R. D. Apperson, president and general manager of the Lynchburg Traction & Light Company, Lynchburg, Va., and president of the Roanoke Railway & Electric Company, Roanoke, Va., has been elected a director of the American Railways to fill a vacancy. The purchase of a controlling interest in the Lynchburg Traction & Light Company and the Roanoke Railway & Electric Company by the American Railways was noted in the *ELECTRIC RAILWAY JOURNAL* of Jan. 15, 1910, page 126.

**Burlington County Railway, Mt. Holly, N. J.**—Suit was filed in the Chancery Court at Trenton, N. J., on Jan. 19, 1910, by the Mt. Holly Safe Deposit & Trust Company to foreclose the first mortgage of the Burlington County Railway dated 1904. The complaint states that holders of \$260,500 of first mortgage bonds of 1904 have deposited them with the Burlington County Safe Deposit & Trust Company under a bondholders' agreement and have created I. Snowden Haines, Burlington; S. A. Atkinson, Mount Holly, and William A. Stokes a committee to take steps to protect the interests of the bondholders, and that the holders of \$213,000 of the bonds have deposited them with the West End Trust Company, Philadelphia, Pa., as depository for the Taylor committee.

**Chicago (Ill.) Consolidated Traction Company.**—As a step in the reorganization of the Chicago Consolidated Traction Company, the Chicago United Railway Company has been incorporated with a nominal capital stock of \$2,500, by Charles G. Dawes, E. K. Boisot, George P. Hoover and Andrew Cooke, to succeed the Chicago Consolidated Traction Company in accordance with the terms given in the *ELECTRIC RAILWAY JOURNAL* of Jan. 22, 1910, page 164.

**Chicago (Ill.) City Railway.**—Clarence H. Venner, New York, N. Y., has brought suit in the Circuit Court at Chicago to enjoin the merger of the Chicago City Railway, Southern Street Railway, Calumet & South Chicago Railway and the Hammond, Whiting & East Chicago Electric Railway as the Chicago City & Connecting Railway. Mr. Venner holds 200 shares of stock of the Chicago City Railway.

**Columbus, Delaware & Marion Railway, Columbus, Ohio.**—Eli M. West, receiver of the Columbus, Delaware & Marion Railway, will pay on Feb. 1, 1910, interest due on the \$915,000 of consolidated mortgage bonds of the company, the coupons of which were defaulted Aug. 1, 1909.

**Gettysburg (Pa.) Railway.**—The exceptions to the sale under foreclosure of the property of the Gettysburg Transit Company have been disallowed by the Adams County Court. The Gettysburg Transit Company has been succeeded by the Gettysburg Railway.

**Hudson Companies, New York, N. Y.**—Arthur B. Westervelt and P. G. Bartlett have been elected directors of the Hudson Companies to succeed the late Dumont Clarke and to fill a vacancy.

**Interborough-Metropolitan Company, New York, N. Y.**—At the annual meeting of the Interborough-Metropolitan Company on Jan. 18, 1910, E. E. Starbord, who is connected with the office of Theodore P. Shonts, president of the company, was elected a director to succeed John B. McDonald.

**Interstate Railways, Philadelphia, Pa.**—At a meeting of the reorganization committee of the Interstate Railways, of which George H. Earle is chairman, on Jan. 21, 1910, arrangements were made to urge bondholders by letter to pay the reorganization charges on their bonds in order to avoid foreclosure. It was stated at the meeting that the question of whether the semi-annual interest due on Feb. 1, 1910, would be paid or be deferred would be decided by the directors of the company at a meeting on Jan. 27. It is said that negotiations are under way for leasing to the duPont interests the property now controlled by the Interstate Railways in Wilmington at a minimum annual rental of \$125,000.

**Johnstown (Pa.) Passenger Railway.**—New directors have been elected for the Johnstown Passenger Railway as follows: J. J. Sullivan, H. H. Weaver, W. R. Thomas, W. F. Harrity, W. H. Shelmerdine, H. J. Crowley and C. L. S. Tingley. Control of the company passed recently to the American Railways.

**Metropolitan Street Railway, New York, N. Y.**—The sale of the property of the Metropolitan Street Railway under foreclosure, which was set for Jan. 22, 1910, has been postponed indefinitely pending the discussion of Judges Ward, Holt and Hough of the United States Circuit Court of Appeals who have before them the appeal of the Guaranty Trust Company, New York, N. Y., from the order of Judge Lacombe of the United States Circuit Court that the claims of the receivers of the Metropolitan Street Railway and the New York City Railway be made a first lien upon the proceeds of the sale. The Guaranty Trust Company claims that the mortgage should be recognized as a first claim upon the proceeds. The hearing on the motion before Judge Lacombe for the segregation of the Fourth, Seventh, Eighth and Ninth Avenue lines of the Metropolitan Street Railway was postponed until Jan. 28, 1910. The receivers of the company have asked Judge Lacombe for instructions in regard to the payment of special franchise and other taxes levied against the company since 1901. They state that the taxes with interest to Dec. 31, 1909, amount to \$5,234,972, and they claim that if payment can be made now and the amount deducted from gross earnings in order to ascertain net earnings, a large amount will be saved to the company. The suit of W. W. Ladd, receiver of the New York City Railway, instituted against the Metropolitan Securities Company and the directors of the company charging a conspiracy to defraud the New York City Railway out of \$2,797,200 for the benefit of the Metropolitan Securities Company and seeking the recovery of that amount came up for final argument before Judge Ray of the United States Circuit Court on Jan. 24, 1910.

**New Hampshire Electric Railways, Haverhill, Mass.**—David A. Belden, president of the New Hampshire Electric Railways, has been appointed receiver of the Portsmouth & Exeter Street Railway on application of the New York Trust Company, trustee under the mortgage of the Portsmouth & Exeter Street Railway. The New Hampshire Electric Railways is said to own most of the \$185,000 stock of the Portsmouth & Exeter Street Railway and the \$145,000 first mortgage 5 per cent bonds of the company.

**New York, Westchester & Boston Railway, New York, N. Y.**—The agreement of consolidation of the New York & Port Chester Railroad with the New York, Westchester & Boston Railway with \$5,000,000 stock, was filed on Jan. 18, 1910, in the office of the Secretary of State at Albany, N. Y. The officers and directors are: Leverett S. Miller, New York, president; Thomas D. Rhodes, East Orange, N. J., vice-president; Augustus S. May, Bridgeport, Conn., treasurer; John G. Parker, New Haven, Conn., secretary; Leverett S. Miller, George M. Miller, J. Pierpont Morgan, Lewis Cass Ledyard, William Rockefeller, New York, N. Y.; Thomas D. Rhodes, East Orange, N. J.; Charles F. Brooker, Ansonia, Conn.; Charles S. Mellen, James S. Hemingway, A. Heaton Robertson, New Haven, Conn.; John H. Whittemore, Naugatuck, Conn.; Edwin Milner, Moosup, Conn., and Robert T. Taft, Providence, R. I., directors.

**Northern Electric Street Railway, Scranton, Pa.**—It is stated that interests identified with the Northern Electric Street Railway propose to organize a company to be known as the Scranton & Binghamton Traction Company to take over the Northern Electric Street Railway and extend the lines of that company from Factoryville to Binghamton, N. Y., a distance of more than 45 miles. According to preliminary plans the Scranton & Binghamton Traction Company will be incorporated by T. J. Foster, president of the International Correspondence Schools; W. L. Connell, who has recently been elected secretary and treasurer of the Northern Electric Street Railway; F. W. Wollerton, T. A. James and C. P. Hagenlacher.

**Toledo & Indiana Railway, Toledo, Ohio.**—At the second sale of the property of the Toledo & Indiana Railway under foreclosure in Toledo, Ohio, on Jan. 18, 1910, S. C. Schenk, formerly president of the company, bid in the property for \$1,058,500 in the interest of the bondholders. He outbid G. J. Cable, who acted in the interest of the Ohio Electric Railway and who at the sale of the property on Nov. 27, 1909, which was set aside, bid \$1,004,500. Mr. Schenk's bid was \$138,500 in excess of the appraised value of the property.

## Traffic and Transportation

### Order for Increase in Service Considered Unreasonable

Adrian H. Joline and Douglas Robinson, receivers of the Metropolitan Street Railway, New York, N. Y., have replied as follows to the Public Service Commission of the First District of New York regarding the order from the commission directing the company to increase service on its 116th Street crosstown line, mention of which was made in the *ELECTRIC RAILWAY JOURNAL* of Jan. 15, 1910, page 128:

"We desire to acknowledge the receipt of your letter of Jan. 7, 1910, transmitting a certified copy of final order issued in Case No. 1194, also a copy of the opinion which you state was rendered upon the adoption of the final order to which reference is made above, and which relates to the service on the 116th Street crosstown line.

"Before you adopted this final order you were in possession of the information which we transmitted in our letter of Dec. 27, 1909, and you are therefore fully aware of the probable consequences of your order with reference to the distribution of cars and the diminution of service on other lines from which the cars must be withdrawn to meet the requirements laid down by you with regard to the service on 116th Street.

"We shall endeavor to comply with the requirements of the final order in Case No. 1194, and, as we advised you in our letter of Dec. 27, 1909, the equipment necessary for increasing the service on 116th Street will be withdrawn from the lines not already covered by your service orders.

"We have received letters of inquiry from you regarding the service on various lines not as yet covered by your orders. It must be clearly manifest to you what the outcome will be if you persist in pursuing, with reference to other lines in the system, the same policy that you have followed with regard to the service on 116th Street.

"We are not seeking to raise another issue with you, but it is apparently your policy to force the situation. For that reason we desire to place on record our protest as to the unreasonable requirements of the provisions of Order No. 1194, and to state that our action in agreeing to attempt to operate the 116th Street crosstown line in accordance with the provisions of Order No. 1194 is taken without prejudice to our right subsequently to raise the questions as to the reasonableness, necessity or propriety of the order in question.

"We are advised by our operating department that it is impracticable to make a timetable which will provide for the operation of the same number of cars in the morning as in the evening, without involving the payment of a large sum of money to men whose services will be required on the cars for only about 20 per cent of the time for which they must be paid, and who will spend the remaining 80 per cent of their working day on the waiting list.

"The application of such a principle of operation to the entire Metropolitan system would mean an expenditure of between \$125,000 and \$175,000 per year to men whose services on the cars would actually be required for only one-fifth of the time for which they were paid. The expense, of course, would be even greater in the event that the men were assigned to cars and sent out on the road during the four-fifths of the working day for which their services would not be needed. It is estimated that this expensive and unnecessary service outside of the rush hours would involve an annual expenditure of nearly \$400,000.

"In the last analysis the situation resolves itself into a question as to the ultimate interests of the public. At the present time the issue is whether the public interests are better subserved by the standing, during the morning rush hours, of a comparatively small number of persons for a relatively short time, or whether, in order to do away with this situation and save a few persons from standing for a short distance, it is better to place this heavy increased operating expense on this property.

"We cannot see how the application of the latter course can fail to produce results most detrimental to the public interests, and out of proportion to the relatively small advantage to be secured.

"We are advised that there is no large city transportation surface system in this country where standing passengers are not carried on the cars, and in the present financial condition of the Metropolitan Street Railway any attempt to operate its lines in such a manner as has been suggested would serve only to produce a further disintegration of the system, with the consequent curtailment of the transfer privilege, at the same time rendering much more difficult the improvement of the property, for which purpose nearly \$9,000,000 has been expended by us since our appointment. A large part of this money has been paid from earnings, and much more money must be expended to complete the work of rehabilitation.

"Therefore, viewed in the light of public interest, it would seem to be a most inopportune time now to undertake to make what is at best a costly experiment of doubtful value, when such a course would prevent the expending of money for the improvement of the property and the placing of it in a condition to render service which the public is reasonably entitled to receive."

**No-Seat-No-Fare Ordinance in Trenton, N. J.**—The City Council of Trenton, N. J., has passed and is attempting to enforce an ordinance requiring the New Jersey & Pennsylvania Traction Company and the Trenton Street Railway to carry passengers free who are not provided with seats.

**Inquiry Into Subway Service.**—The Public Service Commission of the First District of New York ordered the Interborough Rapid Transit Company to show cause, at a hearing on Jan. 27, 1910, before Commissioner Eustis, why an order should not be entered requiring it to increase service in the subway.

**First Pensioner in Philadelphia.**—The Philadelphia (Pa.) Rapid Transit Company will retire its first employee on Feb. 1, 1910, under the pension system announced on Jan. 1, 1910. The man who will be retired is 67 years old and has served the company and its predecessors for 55 years. He will receive \$20 a month.

**Abandonment of Portion of Route Authorized.**—The Public Service Commission of the Second District of New York has given its consent to the Bennington & North Adams Street Railway, Hoosic Falls, N. Y., to abandon a portion of its route in Hoosic Falls. The proposed abandonment was contested by residents of the locality affected at the outset, but an amicable agreement has since been arranged, so that the service which the company will now give after the abandonment of the line in question will be satisfactory generally to the residents of Hoosic Falls.

**Service Out of Portland, Ore.**—The Railroad Commission of Oregon has issued an order requiring the Portland Railway, Light & Power Company, Portland, Ore., to operate at least 18 passenger trains a day between Portland and Canemah during daylight hours from April 1 to Oct. 1 each year, and at least 14 trains during the same hours of each day the remainder of the year. The commission has also ordered that all other passenger trains between Portland and Oregon City shall be operated as far south as Canemah Park. The company is given 45 days in which to comply with the order.

**Service in Jeffersonville, Ind.**—At a public meeting in Jeffersonville, Ind., recently, at which the question of taking steps to compel the Louisville & Northern Railway & Lighting Company, New Albany, Ind., to issue transfers good on city lines in Jeffersonville was considered, M. J. Insull, general manager of the company, stated that the company could not afford to do this, as it took the earnings for five months of the year to pay the bridge tolls and other charges made by the Louisville Railway for power on the Kentucky side of the river. Out of the earnings of the other seven months all other fixed charges must be paid. He also stated that the lines in Jeffersonville have not paid for the last two years.

**From San Francisco to Stockton and Lodi.**—The Central California Traction Company, Stockton, Cal., and the California Navigation & Improvement Company have issued a circular entitled "By Sail and Rail," in which attention is called to the convenience and economy of the combined service of the companies between San Francisco, Stockton and Lodi. Illustrations are presented of the steamers used

in the service and of scenes along the electric railway. The time of the departure of boats from both San Francisco and Stockton is given, also the time of the arrival of the boats and the schedule on the Stockton-Lodi division of the Central California Traction Company. There is also a table of one-way, round-trip, commutation and school fares.

**Proposed Traffic Association for New York, Pennsylvania and Ohio.**—A meeting of officials of a number of electric railways in the territory between Ohio points, Meadville, Jamestown and Buffalo, was held in Erie, Pa., on Jan. 11, 1910, for the purpose of taking steps to organize a traffic association to promote, regulate and systematize interline traffic. The meeting resulted in the adoption of certain resolutions embodying the sentiment of those present and the secretary of the meeting was directed to send copies of the resolution to a designated officer of each company which would be affected by the association, asking for his approval of the movement. As soon as replies to these letters are received a meeting will be called at which each company will be requested to have an accredited representative in attendance for the purpose of forming a permanent organization for which the name has been suggested New York, Pennsylvania and Ohio Traffic Association.

**Order Regarding Signs in the New York Subway.**—The Public Service Commission of the First District of New York has issued an order directing the Interborough Rapid Transit Company not later than Feb. 1, 1910, to maintain on every subway car two destination signs, similar to those now in use, one to be placed at each end and on opposite sides of the cars. This will enable persons on island platforms as well as on side platforms to see a destination sign on the forward end of each car as it approaches. The order further requires that the new style of signs, with large black letters on a white ground, is to be installed at all stations not later than April 1, 1910. The express stations will be equipped with several additional signs, and local stations will be equipped after the manner of Spring Street, where large signs indicate the station before it is reached. The order further requires that a map of the subway system, indicating the streets near every station, shall be displayed near the ticket window at all stations.

**Instructing Student Trainmen.**—Under date of Jan. 12, 1910, J. F. Roach, chief dispatcher of the Oregon Water Power Division of the Portland Railway, Light & Power Company, Portland, Ore., addressed the following communication to the employees: "When students are assigned to you it is only fair to assume that you will fully realize that they may be entirely unfamiliar with local conditions, even though they are experienced men from other cities. A man may on account of his experience be able to handle a car or train to perfection, but if he is not acquainted with all of the operating features and details of the particular line on which he is to work, he is far from being a competent man. It is very necessary that you go fully into details with your students, and assure yourselves that they thoroughly understand the information you have imparted to them, before endorsing them as fit to operate alone. Remember that these men may be called at any time to operate with you, and your safety and that of passengers and equipment depend largely on their competency; therefore, you should beware of signing their certificates prematurely."

**Letter to Philadelphia Employees on Department.**—On Jan. 7, 1910, C. O. Kruger, president of the Philadelphia Rapid Transit Company, addressed the following communication to the employees: "We want your co-operation in the more effective enforcement of our rules against the use of intoxicants by motormen and conductors. A man who works on a street car should never, on duty or off duty, be even slightly under the influence of liquor. A motorman who has been drinking, even if he reports in an apparently sober condition, may endanger the lives of hundreds of passengers. Heretofore we have permitted drinking men to sign a pledge; we have given them 'another chance.' Many of these men prove to be backsliders, and it may be necessary to make a first offense of this kind cause for dismissal. There is also a rule against drinking in uniform. This rule must be more strictly regarded; it will be rigidly enforced against all offenders. Many 'grievances' come to us from or on behalf of men who have been dismissed for

intoxication. This is one reason why this communication is issued. Such men will not be reinstated. Instead of pleas for drinking men we should have the support of the whole body of employees in our efforts to rid the system of such men. We also expect from all men who have the safety of passengers in their charge not only strict adherence to rules, but the practice of good habits at all times and under all conditions."

#### NEW PUBLICATION

**Report of the London Traffic Journal of the Board of Trade.** Published by Eyre & Spottiswoode, London. 192 pages. Price, 2s. 1d.

This report was submitted to Parliament through the secretary of the Board of Trade by Sir Herbert Jekyll, Oct. 30, 1909, and is just available in printed form. It represents the researches during the past year of the London traffic branch of the Board of Trade, which is a standing commission established to carry out the work initiated by the Royal Commission on London Traffic. The report contains a great many interesting statistics in regard to local traffic in London. Thus in the section devoted to the omnibus service, it gives the rise and variations in the number of motor buses in London which increased rapidly through 1906, fluctuated in 1907, reached its highest point (1097) in October, 1908; fell to 926 in March, 1909; almost attained the previous maximum in July, 1909, and fell to 960 in October, 1909. The early history of the motor bus service was unfortunate, but the amalgamation of various omnibus companies has been beneficial, both to the proprietors and the public. The opinion is expressed that motor omnibuses are likely to become more formidable as rivals to the tramways than they have heretofore been, as the mechanical efficiency of the motor bus has been increased.

Sir Herbert Jekyll says that, as an instrument of locomotion, the omnibus is in its infancy, whereas the tramway has reached its maturity. The statistics of the tramway service in London are elaborate and show a constant increase in passengers carried. The ordinary fares on these lines vary from one half-penny to fourpence; the average distance covered by the 1 penny fare, which is by far the most common, varies from 1.16 to 2.18 miles. Considerable space is given in the report to the suburban service conducted by the steam railroads, which have been losing traffic through the tramway and motor-bus competition. The underground railway lines as a whole are increasing their traffic. Steam railroads are awaiting with great interest the experiments of the electrical equipment of the South London line of the London, Brighton & South Coast Railway. The report concludes with an interesting comparison by W. H. Dawson of the traffic facilities of London and Paris. Valuable statistics on the tramways and railways of both cities are contained in the appendix.

Andrew Nance, general manager of the Belfast City Tramways, has issued a report to the members of the corporation giving details of 10 new tramways and tramways extensions at a total estimated cost of nearly £500,000. The most important of these proposals is the Cavehill and McArt's Fort line, which involves an estimated outlay of £111,550. Ben Madighan, now called the Cavehill, 1188 ft. above sea level, is the most prominent of the range of hills surrounding the city, and at its summit is situated the fort of McArt, which is a popular tourist resort. It is proposed to make a roadway at the expense of the tramways, from the point where the Cavehill and Antrim Roads meet to McArt's Fort. This roadway will be more than 3 miles in length, and will be 120 ft. wide for the greater portion of the way. The width will include a footpath on each side 15 ft. wide; next to each footpath a 20-ft. strip of grass, with trees planted at regular intervals along the whole length of 3 miles; and in the center a macadam roadway 50 ft. wide, with a paved double line of tramway. The gradient of the tramway will be about 1 in 16 for about 1½ miles outward from Cavehill Bridge to McArt's Fort. It is also proposed to construct a promenade at the Fort tramway terminus 1½ miles in length. The cost includes the following items: Construction, £56,400; equipment, £20,300; machinery, £5,150; and road-making, £29,700—a total of £111,550.

## Personal Mention

**Mr. E. W. Winter**, president of the Brooklyn (N. Y.) Rapid Transit Company, will sail on Feb. 2, 1910, for a trip to the Mediterranean. He expects to be gone about three months.

**Mr. Lyman Beecher Stowe** has been appointed secretary to Mr. William McCarroll of the Public Service Commission of the First District of New York. Mr. Stowe was graduated from Harvard in 1904, and has recently been engaged in newspaper work in New York.

**Mr. Charles Sigler** has resigned as electrical engineer and master mechanic of the Winona Interurban Railway, Warsaw, Ind., and on March 1, 1910, will assume the duties of superintendent of motive power of the Salt Lake & Ogden Railway, Salt Lake City, Utah, a 55-mile steam railroad which has been equipped with electricity as described in the *ELECTRIC RAILWAY JOURNAL* of Oct. 2, 1909, page 523.

**Mr. J. F. Reardon** has resigned as general superintendent of the Lehigh Valley Transit Company, Allentown, Pa. Mr. Reardon became connected with the Lehigh Valley Transit Company in the fall of 1907. He was born in Northern Michigan about 37 years ago and entered street railway work about 20 years ago with the Twin City Rapid Transit Company, Minneapolis, Minn., and remained with the company for 10 years. After leaving Minneapolis, Mr. Reardon became master mechanic of the Everett Railway, Light & Water Company, Everett, Wash., and later was made superintendent of that company. He resigned from the Everett Railway, Light & Water Company to accept the position of superintendent of the Lehigh Valley Transit Company.

**Mr. John F. Collins** has resigned as general manager and superintendent of the Saginaw & Bay City Railway & Light Company and as general manager of the Saginaw Valley Traction Company, Saginaw, Mich., to become assistant general manager of the Toledo Railways & Light Company, Toledo, Ohio, of which company he was formerly superintendent. Mr. Collins began his railway career with the Indianapolis Street Railway when 18 years of age and was advanced until he became assistant superintendent of the company. In 1890 Mr. Collins was appointed superintendent of the Toledo Traction Company, and a year later, when the Everett-Moore syndicate obtained control of the Toledo Traction Company, he was promoted to the position of superintendent of railways. In July, 1907, Mr. Collins was made manager of railways of the Toledo Railways & Light Company, with authority over the city lines and those of the Maumee Valley Railways & Light Company. He was also made vice-president and manager of the Toledo, Ottawa Beach & Northern Railway, and during his connection with the properties at Saginaw he has continued as vice-president of the Toledo, Ottawa Beach & Northern Railway. Mr. Collins expects to assume his duties at Toledo on April 1, 1910.

**Mr. G. E. Miller**, whose resignation as superintendent of the railway department of the Chattanooga Railway & Light Company, Chattanooga, Tenn., was announced in the *ELECTRIC RAILWAY JOURNAL* of Jan. 15, 1910, has been appointed superintendent of the Lehigh Valley Transit Company, Allentown, Pa., to succeed Mr. J. F. Reardon, whose resignation is announced elsewhere in this column. Mr. Miller was born in Pottsville, Pa., in 1869, and has had more than 20 years' experience in electric and steam railroading in various parts of the country. For eight years he was superintendent of the yards of the Philadelphia & Reading Railroad at St. Clair, and subsequently was in the electric light business at Port Carbon, Pa., for five years. After leaving Port Carbon he became superintendent and master mechanic of the Chattanooga (Tenn.) Traction Company, with which company he remained for two years. He then became general superintendent of the Dubuque Light & Traction Company, Dubuque, Ia., where he remained for five years. After resigning from the Dubuque Light & Traction Company, Mr. Miller accepted the position of superintendent of the Chattanooga (Tenn.) Railway, and when this company was consolidated with the lighting properties at Chattanooga as the Chattanooga Railway &

Light Company, Mr. Miller was made general superintendent of the railway department of the new company.

**Mr. Gordon Campbell**, who, as announced in the *ELECTRIC RAILWAY JOURNAL* of Jan. 22, 1910, has been elected president and general manager of the York (Pa.) Railways and the Edison Electric Light Company, York, Pa., to succeed Mr. W. F. Bay Stewart, resigned, is a native of New York State and comes of Scotch ancestry. His grandfather, Mr. Archibald Campbell, came to this country in 1798 and settled at Albany, N. Y., and Mrs. Mary Campbell, Mr. Archibald Campbell's wife, came from Glen Lyon, Scotland. Of Mr. Archibald Campbell's seven sons, three were prominent civil engineers, pioneers in American railroad construction. Mr. John Campbell, the father of Mr. Gordon Campbell, entered the army and served with distinction through the Mexican and Civil Wars and became brigadier-general. Mr. Gordon Campbell was the second of six sons and was graduated as a mechanical engineer in 1886 from Stevens Institute, Hoboken, N. J. He then entered the service of the Union Pacific Railway as a draftsman at the Denver shops, and subsequently acted as superintendent of the Colfax Electric Railway, Denver, Col.; purchasing agent and master mechanic of the North Jersey Street Railway, Newark, N. J.; general superintendent of the railways in Providence, R. I., now operated by the Rhode Island Company, and purchasing agent of the Washington Railway & Electric Company, Washington, D. C., and vice-president and general manager of the York (Pa.) Railways. Since becoming connected with the York Railways, Mr. Campbell has done much towards improving and systematizing the railway and lighting departments of the company. He has decided recently to do away with the parcel system in the freight department and introduce a classified weight system.

**Mr. Clement C. Smith** was elected president of the Wisconsin Electrical Association on Jan. 27, 1910, at a meeting of the association in Milwaukee. Mr. Smith was largely instrumental in forming the Wisconsin Electrical Association, which is a consolidation

of the Wisconsin Electric & Interurban Railway Association and the Northern Electrical Association. Mr. Smith was born in Cleveland, Ohio, in 1867, and began railroad work as assistant engineer of construction of the Great Northern Railroad in 1887. In 1890 he became connected with the Minneapolis (Minn.) Street Railway as assistant engineer, and later was appointed chief engineer of the company. In 1891 Mr. Smith was appointed chief assistant engineer of the Milwaukee (Wis.) Street Railway in charge of construction. In 1893 he was appointed chief engineer in charge of the construction of the La Crosse (Wis.) City Railway and in 1894 acted as chief engineer of the Milwaukee (Wis.) Street Railway. Entering the employ of the Chicago (Ill.) City Railway in 1895, he served that company in 1895 and 1896 as chief engineer. From 1896 to 1901 Mr. Smith was connected with the Falk Company, Milwaukee, Wis., first as general superintendent and later as first vice-president. In 1901 he organized and was elected president of the Columbia Construction Company, Milwaukee, Wis., which was engaged in constructing and operating electric railway, lighting and gas properties. At the present time Mr. Smith is president of the Eastern Wisconsin Railway & Light Company, Fond du Lac, Wis., president of the Wisconsin Electric Railway, Oshkosh, Wis.; president of the Citizens' Gas Company, Kankakee, Ill.; vice-president of the Lee County Lighting Company, Dixon, Ill.; vice-president of the Sterling, Dixon & Eastern Electric Railway, Sterling, Ill.; president of the Columbia Construction Company, and vice-president of the Fidelity Trust Company, Milwaukee, Wis. The headquarters of all of the public service companies mentioned are located in the Stephenson Building, Milwaukee, Wis.



C. C. Smith

**Mr. W. F. Bay Stewart**, whose resignation as president of the York (Pa.) Railways, was announced in the *ELECTRIC RAILWAY JOURNAL* of Jan. 22, 1910, was born in Chanceford Township, York County, Pa., on Feb. 25, 1849, of Scotch-Irish parents. Mr. Stewart attended the public schools until he was 17 years old and then entered Pleasant Grove Academy, Lower Chanceford. Subsequently he attended York County Academy in Erie, Pa. After teaching in the public schools for two years and at York Academy, Mr. Stewart began the study of law with Colonel Levi Maish, member of Congress from the York, Adams and Cumberland district, and was admitted to the bar on Nov. 3, 1873. Two years later he formed a partnership with Mr. John Blackford, district attorney of the county, which was continued until Mr. Blackford's death in 1884. On Oct. 1, 1884, Mr. Stewart, Mr. H. C. Niles and Mr. George E. Neff formed a partnership which was continued uninterruptedly until Mr. Stewart was elevated to the bench in 1895. He was judge of the courts of York County for 10 years. Mr. Stewart is president of the Security, Title & Trust Company, was formerly a member of Baugher, Kurtz & Stewart, is president of the York Card & Paper Company; president of the York Knitting Mills Company, organized and was president of the Norway Iron & Steel Company, was one of the organizers and was vice-president of the York Haven Water & Power Company, is a member of the York Haven Paper Company, and is president of the Valdez-Yukon Railway in Alaska. Mr. Stewart became president of the York Railways on April 1, 1906. Perhaps the most important work carried out during his service with the company was the construction of the single-phase line of the York Railways between Center Square, York, and Center Square, Hanover, at a cost of about \$650,000. This installation was described in the *STREET RAILWAY JOURNAL* of April 25, 1908, page 683. Mr. Stewart has had the degree of master of arts conferred upon him by Ursinus College.

#### OBITUARY

**John Farson**, of Farson, Son & Company, Chicago and New York, who died in Chicago on Jan. 18, 1910, was interested in many public service corporations, among the electric railways being the South Chicago Electric Street Railway and the Rockford & Interurban Railway. Mr. Farson was born in Union County, Ind., in 1855, and began work as an apprentice to a tailor in 1877. Later he became a bank messenger and studied law. In 1881 he was admitted to the bar. Soon thereafter he was appointed manager of the bond department of Preston, Kean & Company. After this firm was dissolved Mr. Farson entered into partnership with Mr. S. A. Kean. Subsequently he established the firm of Farson, Leach & Company. In 1906 he organized Farson, Son & Company.

**Edward Payson Bryan**, formerly president of the Interborough Rapid Transit Company, New York, N. Y., who was spending the winter with his son in Porto Rico, died of apoplexy at San Juan on Jan. 23, 1910. Mr. Bryan was born at Windsor, Ohio, on July 2, 1850, and was educated in the public schools at Granville, Ohio, and at Denison University. He studied telegraphy at the age of 16 and took a position with the Louisville & Nashville Railroad at Lebanon, Ky., where he remained until December, 1895. During his connection with the Louisville & Nashville Railroad, Mr. Bryan occupied various positions from telegraph operator to superintendent. Upon severing his connections with the Louisville & Nashville Railroad, Mr. Bryan accepted the position of vice-president and general manager of the Terminal Railroad Association of St. Louis and retained this position from Dec. 1, 1895, until May 1, 1902, when he was elected vice-president of the Interborough Rapid Transit Company. He was later elected vice-president of the Subway Construction Company. As vice-president of the Interborough Rapid Transit Company, Mr. Bryan organized the operating force and placed on a working basis the entire engineering force which equipped the lines of the company, including the power house, cars, interlocking block signal system, etc. Mr. Bryan was elected president of the Interborough Rapid Transit Company in 1907. He also served as a member of the board of directors of the New York & Long Island Railroad and the New York & Queens County Railway.

## Construction News

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

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

### RECENT INCORPORATIONS

**\*Link Belt Railway, San Francisco, Cal.**—Incorporated in California to construct a broad-gage railway in Placer County. Nominal capital stock, \$1,000. Incorporators: L. T. Kitt, E. D. Kitt and W. S. Fox.

**\*Decatur Southern Traction Railway, Decatur, Ill.**—Chartered in Illinois to build an electric railway to connect Decatur and Pana. Capital stock, \$25,000. Incorporators: William S. Carter, George H. Winsor and Henry B. Davis.

**\*Big Blackfoot Railway, Missoula, Mont.**—Incorporated in Montana to build an interurban electric railway to start in Missoula County and terminate at the north line of Powell County. Capital stock, \$250,000. Directors: John Gillie, C. F. Kelley and L. O. Evans, Butte, and John R. Toole and Kenneth Ross, Missoula.

**\*Oklahoma City & Fort Smith Traction Company, Oklahoma City, Okla.**—Chartered in Oklahoma to build an electric railway to connect Oklahoma City to Fort Smith, Ark., a distance of about 200 miles. Capital stock, \$100,000. Directors: V. S. Bath, P. M. Mowry, G. L. Wood and A. M. Gaston, all of Oklahoma City.

**\*West Pittston Street Railway, Wilkes-Barre, Pa.**—Application will be made to the Governor on Feb. 1 by Joseph L. Dunn, Thomas J. Connelly and Edward J. Loughran for a charter for a street railway, 2 miles long, in West Pittston Borough.

**\*Scranton & Lake Shore Railway, Scranton, Pa.**—Chartered in Pennsylvania to build a 3-mile electric railway in Scranton. Capital stock, \$18,000. Incorporators: W. F. McGee, R. F. Foote, Meredith Jones, P. J. Regan and W. S. Hasler, all of Scranton.

**\*Gulf Coast & Provident City Railway, Houston, Tex.**—Incorporated in Texas to build an interurban railway about 35 miles in length to connect Pierce and Provident City. Principal office, Houston. Capital stock, \$50,000. Incorporators: Louis H. Schurlock, Emil Reinhold and T. J. Coughtin, Kansas City, Mo.; Carey Shaw, James T. Reaves, Houston.

### FRANCHISES

**\*Griffin, Ga.**—H. H. Bass and J. P. Nichols, Griffin, and C. M. Preston and D. A. Aiken, Macon, have applied to the Council for a franchise for an electric railway in Griffin. This is part of a plan to build a railway from Griffin to Macon.

**Danville, Ind.**—The Town Council has granted the Capital Circuit Traction Company, Indianapolis, an extension of its franchise to 1913. This company proposes to construct a railway 146 miles long, belting Indianapolis, passing through seven counties and fourteen incorporated towns. [E. R. J., Jan. 15, '10.]

**Nicholasville, Ky.**—The Central Kentucky Traction Company, Frankfort, Ky., has been granted an extension of 90 days on its original franchise in which to complete the projected railway from Lexington to Nicholasville, 12 miles. John B. MacAfee, president. [E. R. J., June 26, '09.]

**\*North Adams, Mass.**—The Taconic Street Railway will soon ask the City Council for a franchise to build an electric railway which is to connect North Adams, Braytonville, Williamstown, Greylock, South Williamstown, Pittsfield, Hoosick Falls, and eventually continuing on to Troy, there to connect with extensive systems in that section. The names of the backers of this project have not been disclosed.

**\*Pittsfield, Mass.**—The Berkshire Street Railway has petitioned the Aldermen for four franchises for extensions of its lines within the city limits.

**Laurel, Mont.**—The City Council has granted a 50-year franchise to the Eastern Montana Electric Railway, Billings, to build a street railway over certain streets of Laurel.

The franchise was later submitted to the people of Laurel at a special election called for that purpose and passed. The railway, as projected, will extend from Laurel to Billings, and west from Laurel to Red Lodge, thence to Bear Creek, returning to Laurel by a loop that will cover the entire Clark Fork Valley. Daniel D. Gile, 27 William Street, New York, N. Y., vice-president. [E. R. J., Nov. 27, '09.]

**Clairton, Pa.**—The Peters Creek Street Railway, which is to connect Glassport, Coal Valley, Wilson, Blair and Clairton has petitioned the County Commissioners for a perpetual franchise over the county road in Jefferson Township between Wilson and Clairton Boroughs. W. G. Wilson, Dravosburg, president. [E. R. J., May 1, '09.]

**\*Tarentum, Pa.**—The Tarentum, Brackenridge & Freeport Street Railway has been granted a perpetual franchise by the Borough Council to build an interurban electric railway in Allegheny County.

**Chattanooga, Tenn.**—The Rhea County Court has granted D. J. Duncan a franchise for a trackless trolley line over the main valley road from Hamilton County line to Rhea Springs. The Hamilton County Court also granted Mr. Duncan an extension of time on his former franchise, and the Council of Dayton recently granted him a right-of-way through the corporate limits of that town. [E. R. J., Nov. 6, '09.]

**\*Dallas, Tex.**—E. L. Lancaster and associates are reported to be interested in a plan to build an electric railway from Dallas to the Mt. Auburn addition, a distance of 2 miles.

**\*Orange, Tex.**—The Orange Electric Railway has applied to the City Council for a franchise for an electric street railway in Orange. James E. Smith is interested.

**San Angelo, Tex.**—The City Council has granted a 35-year franchise to the Angelo Power & Traction Company for an extension of its lines on the principal streets of the city. Material is on hand for the construction of the first section to East San Angelo.

**Bellingham, Wash.**—It is stated that the Nooksack Valley Traction Company will ask the City Council for an extension of the franchise to use certain streets in the city for railway purposes. [E. R. J., Oct. 9, '09.]

**Chehalis, Wash.**—The City Council has granted the Twin City Light & Power Company an extension of time until July 10, in which time the company must have cars running and operating or else the company forfeits its rights to any of the streets in the city. [E. R. J., Jan. 1, '10.]

**Piedmont, W. Va.**—The Council has extended the franchise of the Potomac Valley Street Railway for thirty days in which to begin work on its line in Piedmont. J. Benter, Edgewood, president. [E. R. J., Nov. 20, '09.]

### TRACK AND ROADWAY

**Pacific Electric Railway, Los Angeles, Cal.**—This company has begun the work of installing a four-track system on its northern division from the Indiana Village junction near the city limits to El Molino station, on the Monrovia line. On the Long Beach division preparations are also being made for the installation of a four-track service. Rights of way have been secured between Pomona, Claremont and Upland. It is expected that this local system will connect with the main system before April 1.

**Norwich, Colchester & Hartford Traction Company, Norwich, Conn.**—This company announces that plans have been perfected for construction of its proposed railway which is to extend from Norwich and connect the Connecticut Company lines in Glastonbury. The directors have voted to issue \$400,000 preferred stock, and it is said that over half the amount has been sold. [E. R. J., Aug. 14, '09.]

**\*St. Petersburg, Fla.**—It is stated that the Bayboro Investment Company is considering plans for the construction of a street railway from Central Avenue to Bayboro.

**Rock River Traction Company, Geneseo, Ill.**—At the annual meeting of the company it was announced that active construction work will be commenced this month between Sterling and Prophetstown. The following officers were

ected: Hugh W. Cole, president and general manager; J. H. O'Brien, first vice-president; W. E. Tuller, second vice-president; Fred W. Cole, Prophetstown, secretary; C. F. Luther, Geneseo, treasurer. [E. R. J., Jan. 22, '10.]

**Indiana & Northern Traction Company, Lafayette, Ind.**—G. A. H. Shiedler, president of this company, announces that bids will be received early in the spring for the construction of an electric railway from Monticello to Rensselaer. [E. R. J., Nov. 20, '09.]

**\*Cynthiana & Paris Railway, Cynthiana, Ky.**—Official announcement is made that this company is preparing to begin work in the early spring on its projected 15-mile railway from Cynthiana to Lexington, via Paris. A 20-year franchise has been granted to the company in Paris. It has not been definitely decided whether to operate electric or gasoline motor cars. Robert H. Reed, Cynthiana, is the engineer in charge of all preliminary matters. Wade H. Lail, acting secretary. Other officers have not yet been elected. Capital stock, authorized, \$500,000.

**Louisville, Lincoln Farm & Mammoth Cave Traction Company, Glasgow, Ky.**—Charles Van den Burgh, Glasgow, Ky., promoter of this railway, is quoted as saying that a company has not yet been incorporated, but it is proposed to build a line of about 60 miles from Glasgow via Buffalo and Lincoln Farm to Hodgenville, Ky. Two bridges will be necessary, one over Beaver Creek, with about 50 ft. span, and another with about 60 ft. span over Green River. Connection will be made at Hodgenville with the Illinois Central Railroad and at Glasgow with the Louisville & Nashville Railroad. [E. R. J., Dec. 25, '09.]

**\*Eastern Traction Company, Bangor, Maine.**—W. H. Waterhouse, Old Town, one of the directors of this company, advises that the project of building its railway is still in a promotion stage. The Railroad Commissioners have taken under advisement the petition of the company for an extension of its charter. The route of the proposed railway is from Bangor to Dexter, Stetson, Exeter, Garland, Herman and Levant. Capital stock, authorized, \$500,000. Officers: H. F. Bailey, Old Town, president; F. J. Dow, Bangor, vice-president; F. J. Martin, Bangor, secretary; E. B. Weeks, Old Town, treasurer.

**Worcester & Providence Street Railway, Worcester, Mass.**—William E. Horne, a director of this company, states that work on the construction of this projected railway will be undertaken as soon as the weather permits. The route of the line follows practically the Douglas pike through North Providence, Smithfield, North Smithfield and Burrillville into Massachusetts. The Bay State section of the line will connect Douglas, Sutton, Millbury and Worcester. [E. R. J., May 15, '09.]

**\*Caldwell, N. J.**—Preliminary steps have been taken by John Ottenheimer for the formation of a company to construct a street railway to the suburbs of Caldwell, which at present have no transportation facilities. It is the intention of the promoters to equip the line with Edison storage battery cars.

**South Shore Traction Company, Patchogue, N. Y.**—This company has filed its bond for \$10,000 with the Board of Trustees of Rockville Centre, as a guarantee of its intention to construct the line. Work will be begun in Rockville Centre as soon as weather conditions permit. The company has recently placed an order with the Pennsylvania Steel Company for 500 tons of steel rails.

**Brooklyn, N. Y.**—Work on the fifth section of the Fourth Avenue subway will be begun this week by the Tidewater Building Company, the section being from Tenth Street to Twenty-seventh Street. The Public Service Commission has directed the company to proceed with construction from Tenth Street to Eighteenth Street. The contract calls for completion of the work within two years from the date of the signing of the contract, Nov. 9, 1909. [E. R. J., Dec. 18, '09.]

**\*Wolcott, N. Y.**—It is stated that George Tater, Wolcott, is securing rights-of-way for an electric railway from Red Creek to Wolcott to connect at Wallington with the New York State Railways. Rights-of-way are also being secured from Port Byron to Red Creek, the railway to run from Port Byron to Wallington via Plainville, Meridan,

Cato, Victory, Westbury, Red Creek, Wolcott, North Rose and Alton. The Beebe interests are said to be back of this proposed railway.

**Piedmont Traction Company, Gastonia, N. C.**—This company has surveyed the route for the 13-mile railway which is to connect Mount Holly and Gastonia besides traversing the streets of these towns. Rights of way have been secured except one stretch in Mount Holly. A contract for the construction of about 1½ miles of track has been awarded to P. R. Huffstetler, Gastonia. T. C. Lee is engineer in charge of entire enterprise. A steel bridge, 35 ft. long, will be constructed across South Fork, half a mile above McAdenville. [E. R. J., Jan. 22, '10.]

**\*Whiteville Light & Power Company, Whiteville, N. C.**—This company has been organized to build a street railway and power plant in Whiteville. Right of way has been secured and work is expected to be begun by April 1. Among those interested are W. T. Carrington, J. R. Williamson and P. J. Hufford, Vineland, N. C., to whom all communications should be addressed.

**Shawnee (Okla.) Electric Railway.**—This company has recently increased its capital stock from \$100,000 to \$1,300,000. The company proposes to build an electric railway to connect Shawnee, Prague, Okmulgee, Muskogee, Dale, McLoud, Harrah, Choctaw City, Spencer and Oklahoma City. C. T. Edwards, president. [E. R. J., Dec. 25, '09.]

**\*Ashtabula (Ohio) Street Railway.**—This company is said to have awarded a contract to the New York Construction Company for the building of its proposed street railway in Ashtabula. The contract specifies that work should be started within 60 days. The route of the new line extends from the south end of the city to the harbor. Ties and rails have already been contracted for by the company. The cost of the railway, it is estimated, will be \$200,000. It is proposed to operate six cars. Charles E. Wallin, president.

**\*El Reno, Okla.**—Press reports state that the Commercial Club has accepted the proposal of the Leads Construction Company to build an interurban railway from El Reno to Anadarko and Chickasha, the city to furnish right of way for 10 miles and subscribe \$40,000 bonus. It is reported from Chickasha that an equal amount has been subscribed there to the Caddo Development Company to build the line, which is being promoted by farmers.

**\*Muskogee, Okla.**—R. N. Eggleston, H. B. Spaulding, C. W. Turner, A. C. Trumbo and Will Robertson, all of Muskogee, are said to be promoting a plan to build an electric railroad from Muskogee to Tulsa and Glen Pool. The line will be 66 miles in length. Two bridges will be required, one over the Arkansas River and the other over the Verdigris River.

**Oregon Coast Railway, Astoria, Ore.**—This company announces that work will be begun during the year on an electric railway from Astoria which will connect Warrenton, Columbia Beach, Gearhart Park, Seaside and around Tillamock Head to Tillamock. This summer, it is expected to complete the road to Columbia Beach, 8 miles, by July 1, and to Seaside by Sept. 1. The Kelly Lumber Company, Warrenton, it is stated, has secured a contract for 2,000,000 ties. [E. R. J., June 17, '09.]

**Indiana County Street Railway, Indiana, Pa.**—This company has completed its line between Blacklick, Josephine and Blairsville. Through service will now be given from Indiana to Blairsville, 75 miles.

**Phoenixville, Valley Forge & Stafford Street Railway, Phoenixville, Pa.**—This company has increased its capital stock from \$60,000 to \$350,000, and will also issue bonds to the amount of \$600,000 for the purpose of building the chartered route and the Bridgeport-Norristown extensions. An ordinance granting franchises will be asked for at the next Council meeting of the Boroughs of Phoenixville and Bridgeport. Thomas E. O'Connell, West Chester, president. [E. R. J., Dec. 25, '09.]

**\*San Benito (Tex.) Interurban Railway.**—S. A. Robertson, San Benito, Tex., is said to be at the head of a plan to build an interurban railroad from San Benito to the Rio Grande. Preliminary surveys have been made and con-



struction is to begin when all bonus contracts are signed. It will connect with the St. Louis, Brownsville & Mexico Railway. Gasoline motor cars will be operated.

**Richmond & Henrico Railway, Richmond, Va.**—This company announces that construction work will begin on its line during the next few weeks. The Pennsylvania Steel Company has been awarded the contracts for 8 miles of track. The contract for ties has been awarded to the Burton Construction Company. [E. R. J., Dec. 25, '09.]

**\*Valley Railroad & Power Company, Seattle, Wash.**—This company states that surveyors are now going over the route of the proposed electric railway between Kent, Orillia, O'Brien and Renton. Capital stock will be probably \$300,000. Officers: H. B. Madison, Kent, president; Robert Bridges, O'Brien, vice-president; Isaac Calhoun, Kent, secretary; Lee Monohan, Renton, auditor; A. T. West, Seattle, general manager.

**Milwaukee Western Electric Railway, Milwaukee, Wis.**—The capital stock of this company, which is projecting an interurban line from Milwaukee to Green Lake, has been increased from \$200,000 to \$1,000,000. An amendment also has been made to the articles of incorporation to cover an extension of the line from Beaver Dam to Green Lake, 25 miles. The railway will be 81 miles, including this extension. W. E. Elliott, general manager. [E. R. J., Dec. 25, '09.]

#### SHOPS AND BUILDINGS

**Albia (Ia.) Interurban Railway.**—Contracts will be placed by this company during the next 10 weeks for the erection of a car house and repair shop. W. E. Gant, general manager.

**Terre Haute, Indianapolis & Eastern Traction Company, Terre Haute, Ind.**—This company is said to be considering the moving of its repair shops from Richmond to Greenfield which is nearer the middle of the division and where the car houses are located. [E. R. J., Jan. 1, '10.]

**Springfield (Mass.) Street Railway.**—Two new storage car houses, located in Westfield Street, were recently completed for this company by F. T. Ley & Company. Each car house has a capacity of 20 double-truck cars.

**Saginaw Valley Traction Company, Saginaw, Mich.**—This company plans to erect a new passenger station and freight depot at Franklin Street and Germania Street, Saginaw.

#### POWER HOUSES AND SUBSTATIONS

**Los Angeles (Cal.) Railway.**—This company is preparing plans for a substation to be located on De Soto Street, Boyle Heights. The structure will be one-story high and will cost \$7,500.

**Oskaloosa Traction & Light Company, Oskaloosa, Ia.**—This company will purchase a 250-hp boiler next summer. H. W. Garner, purchasing agent.

**Wichita Railroad & Light Company, Wichita, Kan.**—This company is said to be considering plans for the erection of a power station in Wichita. The plant is to be located near Second Street and Riverview Street, and it will be 140 ft. x 125 ft. It will have a capacity of 4000 hp. and is estimated to cost \$300,000.

**Worcester (Mass.) Consolidated Street Railway.**—In reply to a letter asking for such details as might be available regarding the new power plant for the Worcester Consolidated Street Railway, of which mention was made in the *ELECTRIC RAILWAY JOURNAL* of Jan. 22, 1910, the company says: "Our present plans are not far enough along to give out any information as to what we will do in the way of building a power plant in Worcester."

**Holmesburg, Tacony & Frankford Electric Railway, Tacony, Pa.**—This company will begin work in April on an addition to its boiler house. It is the intention to purchase and install one 500-hp water-tube boiler and two boiler-feed plunger pumps. Henry Glazier, general superintendent.

**Chippewa Valley Railway, Light & Power Company, Eau Claire, Wis.**—This company expects to build a power plant and a 50-ft. concrete dam on the Red Cedar River at Cedar Falls. The plant will be equipped with four 2000-kw generators.

## Manufactures & Supplies

#### ROLLING STOCK

**Niagara Gorge Railroad, Niagara Falls, N. Y.**, expects to buy eight cars.

**Pittsburgh (Pa.) Railways** is reported to plan to purchase 100 cars for early delivery.

**Public Service Railway, Newark, N. J.**, it is reported, will build six or eight freight cars in its shops.

**Boston & Northern Street Railway, Boston, Mass.**, has placed an order with the John Stephenson Company for 40 cars.

**Hamilton (Ont.) Radial Railway** has ordered nine pay-as-you-enter cars from the Ottawa Car Company for spring delivery.

**Winona Interurban Railway, Warsaw, Ind.**, will be in the market for passenger and express cars during the next four weeks.

**Worcester (Mass.) Consolidated Street Railway** is in the market for 10 12-bench, open cars complete with trucks and motors.

**Beaver Valley Traction Company, New Brighton, Pa.**, has placed an order with Allis-Chalmers Company for six sets of air brakes.

**Minneapolis, St. Paul, Rochester & Dubuque Electric Traction Company, Minneapolis, Minn.**, a proposed railway, will purchase 14 steel cars.

**Georgia Railway & Electric Company, Atlanta, Ga.**, will build 12 single-truck closed cars and six double-truck closed cars in its shops during 1910.

**Emigration Canyon Railroad, Salt Lake City, Utah**, will order a double-truck motor car, a trail car and 10 gondola freight cars within the next six weeks.

**Los Angeles (Cal.) Railway**, is remodeling 26 cars in its shops for pay-as-you-enter service, and, it is reported, will be in the market for a number of cars in the near future.

**British Columbia Electric Railway, Vancouver, B. C.**, it is reported, will build 100 freight cars, about 200 passenger cars and five electric locomotives in its New Westminster shops during 1910.

**Cincinnati (Ohio) Traction Company** is having the 50 new cars recently ordered from the Cincinnati Car Company, built for pay-as-you-enter operation under license of the Pay-As-You-Enter Car Corporation.

**Terre Haute, Indianapolis & Eastern Traction Company, Terre Haute, Ind.**, has purchased six sets of trucks from the Standard Motor Truck Company for use under interurban cars which are being built at the company's shops.

**Columbus, Delaware & Marion Railway, Columbus, Ohio**, mentioned in a recent issue of the *ELECTRIC RAILWAY JOURNAL* as contemplating the purchase of five cars, has ordered these cars. They will be mounted on Curtis trucks.

**Faulkenau Electrical Construction Company, Chicago, Ill.**, is reported to be drawing specifications for several new cars. It is not yet announced where these cars are to be used, but it is understood they are to be purchased for use on a line which will be electrified.

**Albany (N. Y.) Southern Railroad**, reported in the *ELECTRIC RAILWAY JOURNAL* of Dec. 11, 1909, as contemplating the purchase of two cars, has decided to buy two double-truck cars 54 ft. long, some time this spring. J. G. White & Company, New York, N. Y., will place the order.

**Oregon Electric Railway, Portland, Ore.**, reported in the *ELECTRIC RAILWAY JOURNAL* of Jan. 15, 1910, as having ordered two observation trail cars from the Niles Car & Manufacturing Company, through W. S. Barstow & Company, New York, N. Y., advises that the cars will be motor cars, 61 ft. 2 in. long. Barstow & Company have since placed an order with the Niles Car & Manufacturing Company for the three combination baggage and passenger cars whose contemplated purchase was mentioned previously in these columns. The combination cars will be 57 ft. 8 in. long over buffers. The cars will all be equipped with GE-73 motors and Westinghouse air brakes and Baldwin trucks.

The electric locomotive has not yet been ordered. Three trail cars of the company will be equipped with G. E. motors.

#### TRADE NOTES

**World Signal Company, New York, N. Y.**, has opened an office at 170 Broadway, in charge of J. H. Wisner.

**American Bridge Company, New York, N. Y.**, lost its Milwaukee plant by fire on Jan. 3, 1910. The damage is estimated at \$200,000.

**C. Drucklieb, New York, N. Y.**, has moved his office from 132 Reade Street to 178 Washington Street, where he will continue to sell his sand-blast device.

**Pressed Steel Car Company, Pittsburgh, Pa.**, has elected O. C. Gayley vice-president in charge of the sales department to succeed J. W. Friend, deceased.

**Beach Manufacturing Company, Grand Forks, N. D.**, has been incorporated with a capital of \$50,000 to make steel culverts, bridges and road-working machinery.

**Wagner Electric Manufacturing Company, St. Louis, Mo.**, announce the opening of a district office in the Union Trust Building, Detroit, Mich., in charge of A. B. Hoffman.

**Lynch Railway Automatic Brake Company, Kansas City, Mo.**, has been incorporated in Missouri by James Lynch, G. A. Dehaven and W. H. England, with a capital of \$100,000.

**Modoc Company, Philadelphia, Pa.**, has opened an office at 109 Chestnut Street, Philadelphia, and installed several new machines at Fernwood for the manufacture of car cleaner and soap powder.

**Crocker-Wheeler Company, Ampere, N. J.**, reports that its recent sales aggregate more than 5000 hp in d. c. motors and approximately 2000 kw in d. c. generators and 2000 k.v.a. in a. c. generators.

**Perry Ventilator Corporation, New Bedford, Mass.**, reports that ventilators have been delivered to the American Car Company, St. Louis, Mo., for the new cars being built at that plant for the Oklahoma Railway.

**Standard Coupler Company, New York, N. Y.**, has elected Geo. A. Post, Jr., a director to succeed J. E. French, who is also chairman of the board of directors of the Railway Steel Spring Company, New York, N. Y.

**Rockwell Furnace Company, New York, N. Y.**, has appointed J. W. Coyle, recently connected with the Best American Calorific Company, New York, N. Y., as a specialist of oil and gas furnaces for railway work.

**Crane Company, Chicago, Ill.**, announces the death on Jan. 4, 1910, of Edwin Richardson, superintendent of the malleable department of the company. Mr. Richardson was 57 years old, and had been connected with this company for 39 years.

**Chicago Car Heating Company, Chicago, Ill.**, has elected J. E. Buker first vice-president, with offices beginning Feb. 1, 1910, at the Railway Exchange Building, Chicago, Ill. Mr. Buker was formerly superintendent of the car department of the Illinois Central Railroad.

**National Lumber & Creosoting Company, Texarkana, Ark.**, is rebuilding its creosoting plant which was burned in September, 1909. The new structure will be fireproof, and will have about 50 per cent greater capacity than the old plant, or about 2,000,000 ties per year.

**Chicago Bearing Metal Company, Chicago, Ill.**, has appointed Walter D. La Parle sales manager. Mr. La Parle has been in the railway supply business for 20 years. He has been connected with the Verona Tool Works, Pittsburgh, Pa., for 11 years, and organized the Solid Steel Tool Company, which has been succeeded by the Western Tool & Forge Company, Brakenridge, Pa. The company's offices are located in the Old Colony Building.

**Massachusetts Chemical Company, Walpole, Mass.**, reports an exceptional increase during 1909 in the use of Armalac, particularly for the insulation of armatures. It is claimed for Armalac that it remains plastic under repeated heating and cooling, and that coils on which it is used resist moisture after years of service because the compound has for its base a black paraffin wax, the melting point of which is raised permanently by a process known only to the Massachusetts Chemical Company.

**Bridgeport Brass Company, Bridgeport, Conn.**, moved its sales offices on Jan. 22, 1910, from New York to Bridgeport, where a new office building has been erected in which the general offices of the company will be located. The works of the company are at Bridgeport, and it was felt that centralizing the departments in that city would make it possible for the company to serve its customers to better advantage and more promptly than in the past. The company will, however, maintain a branch office in the Postal Telegraph Building, Broadway and Murray Street, New York, N. Y., where its sales department was formerly located.

**Stone & Webster, Boston, Mass.**, announce that they have opened offices in the Hanover Bank Building, 5 Nassau Street, New York, N. Y., to deal in securities of the electric railway, lighting, power and gas companies which are under their direct management. The Stone & Webster Engineering Corporation, which does a general engineering and construction business, will also be represented at these offices. The former New York offices at 45 Cedar Street will be closed. The New York office hereafter will be in charge of John W. Hallowell and T. T. Whitney, Jr. G. E. Tripp, of Stone & Webster, who is chairman of the reorganization committee of the Metropolitan Street Railway, will make his headquarters in the new office. The Stone & Webster Engineering Corporation had at the first of the year \$11,341,000 of construction in progress, divided as follows: Water powers, \$4,140,600; interurban railways, \$2,607,700; street railways, \$777,700; steam power stations, \$940,000; buildings, \$2,495,000; miscellaneous, \$380,000. This work is largely in the Far West and in the South.

#### ADVERTISING LITERATURE

**MacGovern, Archer & Company, New York, N. Y.**, have issued their list of electrical and steam machinery, power-house equipment, cars, etc., dated February, 1910.

**Western Electric Company, Chicago, Ill.**, has issued Bulletin No. 5270 describing its type "T" transformers. The features of design and construction of the transformers are illustrated.

**Wheeler Condenser & Engineering Company, Carteret, N. J.**, has issued a pamphlet on the general theory of jet condenser construction, but with particular reference to its rain-type condenser.

**Elastic Tip Company, Boston, Mass.**, has issued a circular in which are shown its various shapes and styles of soft-rubber car-seat bumpers, actual size, and its car sign or ventilator stick rubbers.

**Jeffrey Manufacturing Company, Columbus, Ohio**, has issued Booklets Nos. 33 and 34, both dated December, 1909. In Booklet No. 33 the company's conveyors are described and illustrated and in Bulletin No. 34 its elevator buckets are described and illustrated.

**General Fire Extinguisher Company, Providence, R. I.**, has printed in the November, 1909, issue of the Automatic Sprinkler Bulletin, which it publishes, a history of automatic sprinklers and a fire record from June, 1909, of places where Grinnell sprinklers were installed.

**American Engine Company, Bound Brook, N. J.**, has just issued a pamphlet entitled, "Arrangement of Engine Cylinders to Produce Uniform Torque." This pamphlet contains typical indicator cards taken from the company's angle compound engine, and also a derived crank effort diagram which shows that this type of engine produces a torque which is nearly as uniform as that given by steam turbines.

**H. W. Johns-Manville Company, Cleveland, Ohio**, has issued the first number of the "J. W. Packing Expert," a four-page publication devoted to the packing industry. The foreword is entitled "The Story of Asbestos" and will be continued in the February issue of the publication. In an article entitled "Great Oaks from Little Acorns Grow" the company tells of the progress made by it recently in Ohio, Kentucky, and West Virginia, where its business was at one time taken care of by correspondence and by traveling salesmen. In 1898, however, it became necessary to open offices in Columbus to care for the territory mentioned.