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Coming Meeting of the Interurban Rules Committee

The committee on interurban rules of the Transportation & Traffic Association is to hold its first meeting of the year in Chicago, on April 4, when the advocates of the Denver code and the American Railway Association code will have another opportunity of threshing out their differences of opinion. There have been so many valid as well as trivial objections urged against each code by the supporters of the other that it might seem to be an almost hopeless task to reconcile both sides to a compromise code. Yet when the two conflicting codes are compared without bias the differences in principle are not so very wide. Each code has its good features and its bad features which have come to be generally recognized as the result of the discussions of the last three years. By eliminating the latter and combining the former it ought to be possible to evolve a code of interurban rules which can be, and will be, generally accepted as safe in principle and practicable in application. The interurban rules committee is capable of drawing up such a code, but its work will be in vain unless the members of the association individually and collectively are willing to give their support to its adoption as standard. This would not require its use in full without additions or omissions, but only the use of such portions as would fit the conditions on each road and filling out with such special rules as might be required. All are agreed that a standard code is desirable, and it is to be hoped that small differences of opinion will be laid aside this year and a compromise reached which will be for the common good of all interurban roads regardless of their geographical location or the character of their train service.

The Stay-at-Home Master Mechanic

The faithful attendant at electric railway meetings knows well that the informal interchange of maintenance experiences which they afford often proves of more value than the formal published proceedings would lead an outsider to suppose. But such attendance should be supplemented, wherever practicable, by occasional visits to the shops of other properties where the other man's methods can be examined on the spot. We know of one master mechanic who was very skeptical concerning the merits asserted for commutator slotting. He cared nothing about printed statements, but became intensely interested when told that he could see the methods and results of commutator slotting by visiting the shops of a railway less than 100 miles distant. In another instance two master mechanics on Eastern heavy traction lines independently developed some sand-blasting apparatus. Both equipments failed for the same reason; in both the failures were overcome in the same way. A good deal of time and money certainly would have been saved if the second man had made some inquiries into the practices of

the first. Cases of this kind could be cited without end, to prove that no matter how busy a man may be his employers should give him the opportunity of seeing his daily work from a different angle than that afforded by sticking to his home grindstone.

A Standard for Standing Load

A report upon service and equipment in Philadelphia made by Ford, Bacon & Davis for the Pennsylvania State Railroad Commission contains a definite recommendation for a standard of car loading. As shown in the abstract published elsewhere in this issue, it is assumed that 4 sq. ft. of aisle and platform space per standing passenger would allow a comfortable standing space. By the application of this average to the present types of cars operated in Philadelphia there would be a standing capacity of 75 per cent to 90 per cent of the seating capacity for the cross-seat cars and of 100 per cent in the case of the longitudinal seat cars. Limitation of car loads has engaged the attention of a number of companies and various experiments in this direction have been tried. Any attempt to limit the load of cars in this way can be successful in time of rush-hour traffic only when the company provides sufficient service to meet the standard conditions of car loading prescribed. One difficulty with many of the attempts to limit the load in the past has been that the number of proposed passengers has been reduced so low that the company has not had either the track or rolling stock capacity necessary to care for the traffic in rush hours. The only practical method if any definite limitation is to be attempted is to fix a reasonable condition and try to meet it. Even this attempt would fail to restrict loads in the event of a sudden rush of traffic due to games or similar cause.

The Path of Greatest Opportunity in Operating Economies

The importance of increasing the operating efficiency of transportation, shop and power departments is an old story on many systems. Employees naturally feel that in the face of frequent repetitions of the economy cry they are doing all that they reasonably can to save money without cutting into the quality of work done. The opportunities for improving the efficiency of a department are never exhausted, however, particularly along the line of preventing unnecessary movements and waste of time. It is along this line rather than in the direction of forcing men to work at an uncomfortable and unnatural speed that the most lasting results are to be gained. What is necessary is a realization that a dollar saved the company is just as large a saving in absolute figures as a dollar saved in the personal expense account. Where thousands of brakeshoes, wheels, etc., are used yearly there is a natural tendency on the part of the individuals to fail to realize the intrinsic value of a wheel or shoe. In connection with mileage records and the adjustment of wearing parts purchased under a guarantee of travel, the failure to keep accurate data as to life and the improper installation of detail parts may easily lead to difficulties in renewing advantageous contracts, with the result that a different grade of material is often adopted in place of a previously satisfactory product. This tends to increase the uncertainties of operating cost and to add to the burden of new devices and materials which must be tried out on the road before their fitness for the service in which they are to be used can be determined.

SPECIALIZING ON CONCENTRATION OF CAR MAINTENANCE

One of the policies which have brought about higher standards of economy and efficiency in car maintenance on the Brooklyn Rapid Transit System has been that of specializing in this work and of concentrating all of a certain kind of such labor in individual shops. If the Brooklyn system should be created to-morrow it is probable that a central repair shop would be provided with sharply defined departments for the different kinds of work to be undertaken. There is no single shop of this kind on the present Brooklyn system, because, like most other large roads, the road has developed both by growth and accretion, and in this process it fell heir to at least three maintenance plants which so far as the work performed in them is concerned were more or less duplicates of one another. With these shops, however, the policy of specialization and concentration has been carried out. The advantages of such a policy were long recognized, but a real start upon its fulfilment had to be postponed until 1907 because the energies of the mechanical department were fully occupied up to that time with the extensive plans of car improvement and standardization then under way. This work was practically completed, however, about four years ago, and since that time the company has materially changed the internal organization of each shop by removing some divisions entirely and by enlarging others so as to include all work of a given nature. Thus all wheel work, gear changing and seat manufacture and repairs are done at the company's East New York shops; all air-brake, compressor, curtain, miscellaneous leather and fender jobs are performed at Thirty-ninth Street, and the electrical and wheel-guard departments are concentrated at Fifty-second Street. Specialization has been drastic even in straight maintenance, like the inspection and calibration of electric heaters.

This policy of eliminating extra shops has proved highly satisfactory in every way. First of all, it has brought about an improvement in the quality and a reduction in the net cost of the product through the employment of expert help and more specialized machinery. For instance, the air-brake department now can assign to separate individuals such subdivisions as the calibration of gages and the testing of triple valves; furthermore, it is now in the possession of such costly precision equipments as triple-valve test racks which the company could not well afford to install in duplicate. The same principle applies to wheel operations. With wheel lathes in service at several shops, there may not be sufficient work to justify the addition of extra-output devices. When, however, all of the wheels are handled at one point there is every probability that it will pay to apply some means for raising the output per machine, say, from four to 14 pairs a day.

The concentration of facilities has also led to noteworthy savings in the storeroom department. It is no longer necessary to maintain separate supplies for raw material, but each car maintenance depot carries enough finished stock to replace immediately all the defective or outworn articles, which must be forwarded to the proper repair shop. The shipment to the repair centers of all discarded goods, whether they look like scrap or not, keeps the car maintenance buildings free from litter, lessens the possibility of theft and permits the reclamation of much material by expert workmen.

It need hardly be stated that the fundamental requisites for

the success of an organization like that described are an executive headquarters which serves as a prompt clearing house for every transaction and an ample transportation equipment to tie together the different parts of the system. These facilities have been thoroughly worked out on the Brooklyn Rapid Transit System to a degree which expedites all manufacturing and overhauling processes far better than if the practice of having independent or self-contained shops for territorial divisions was followed.

ADJUSTING SCHEDULES

The need of a joint traffic association among electric railways in sections where no such organization exists, or at least its effective equivalent, makes itself felt as the season of heavy traffic draws near. During the months of mild weather there is an opportunity for a very large amount of through traffic, excursion and ordinary, which electric railways, as commonly organized, quite fail to secure. Of course, there are large networks of interurban lines under united management in which the requirements of long-distance travel are fully met, but in and between very many cities, and in the absence of any direct and through line under a single management, there is an almost complete failure to meet the requirements of the traveling public. We do not think the roads fail to meet these requirements from any unwillingness to do so, but from lack of the co-operative spirit. As it is now, it too frequently happens that one starts, let us say, from A to B by electric car, knowing that there will be changes to the rolling stock of two different companies at two points in the trip and that two transfers will have to be made.

The first line starts out, let us say, on a 10-minute schedule, leaving on the even hour. Of course, the ideal plan is to arrange for through cars if there is any considerable chance of through traffic, but, laying aside this possibility for a minute, it is very likely to happen that the first change will be made to a line running a half-hour schedule, leaving the junction point very likely at five minutes past the hour, and so on. Now, the passenger may or may not make a close connection in a case of this kind, but the chances are altogether good for waiting something over 5 minutes, even if he knows the connecting cars, and from 15 to 25 minutes if he does not know them. At the second junction point the half-hour schedule is just as likely at not to change to one of 15 or 20 minutes, entailing another wait of from 5 to 15 minutes, according to luck. In other words, it very often happens that a journey which should take, let us say, an hour, takes an hour and a half, merely because the connecting lines have not adjusted their schedules so as to make connections and advertised the fact so that the public may know it.

This is a matter for a joint traffic committee to take up, since such an adjustment as will make close and certain connection at the junction would infallibly build up through traffic when none now exists for the reasons already described. A good many connecting roads pay some attention to this matter; others do not, and the public pays the penalty of their carelessness and avenges itself by automatically cutting down the traffic. It is simply a recurrence to the conditions which existed in early days of American railroading. We have long since outgrown such conditions on a large scale. They re-

main, however, to a very undesirable extent on a small scale in the service furnished by suburban and interurban lines. It is merely a case where a little co-operation means increased profits all around, and such co-operation should be inaugurated in all places where it does not now exist.

THE CORPORATION TAX DECISION

The constitutionality of the tax laid by the United States government on the annual net earnings above \$5,000 of corporations has been upheld by the Supreme Court. In our opinion the chief objections to this act are two in number. In the first place, it constitutes a serious burden upon those public utility companies which, like the city railways, cannot increase their charges to the public so as to compensate themselves for the tax paid. The second and most important evil in the tax is the establishment of the principle of corporation taxation by the government. This principle may easily be extended in the future to a point where it would be not only very oppressive to many existing corporations, but also a serious deterrent to all business activity in corporate form.

For several reasons the electric railway interests of the country were able to offer very strong legal arguments against the imposition of the tax. Of the 16 cases considered by the Supreme Court in reaching its decision two presented the defense of electric railway companies and were considered by name in the abstract of the decision made public in the newspapers. In these two special pleas the Interborough Rapid Transit Company of New York claimed that it had a special contract with the State of New York and City of New York under which it was to be exempt from all taxation in respect to its interest in the rapid transit railroads in the city. It also claimed that the property which it administered belonged to the City of New York and hence was municipal property, which cannot be taxed under the constitution of the United States. The Coney Island & Brooklyn Railroad also claimed that its property was quasi-State in character because the State has power to fix the rates which it may charge and to describe in detail the services which it shall render. Moreover, the road must not be abandoned without the State's consent and is subject to use by the State for the transportation of troops, etc. All of these objections were swept aside by the court in affirming unanimously the constitutionality of the act. The tax must therefore be considered now as a thing accomplished, and so long as it remains on the statute books it must be taken into consideration in all plans for future enterprises.

The opposition of electric railway companies to the act, we believe, did not extend to any material extent to what are known as its publicity features. Most electric railways now recognize the right of the public to possess a knowledge of the financial condition of these properties, and the trend of practice is to make this information even more available. If the effect of the act will be to encourage a more general publicity of the accounts, not only of electric railway companies but of all corporations, it will be of benefit to the stockholders and to the public generally, as well as to the corporations themselves. With this publicity the reasonableness of the demand for higher fares on electric railways should become more apparent.

TRACK CONSTRUCTION IN OKLAHOMA CITY

BY W. A. HALLER, FORMER GENERAL MANAGER OKLAHOMA RAILWAY COMPANY

The rapid growth of Oklahoma City from a population of about 10,000 in the year 1900 to a population of 65,000 in the year 1910, together with the broad-gage and comprehensive policy adopted in laying out and building, naturally brought out

About 61 miles of track is within the city limits, 41 miles of the city track being located on private right-of-way owned by the company. About 20 miles of city track is in paved streets and something over 10 miles of the track in paved streets in the downtown section is laid on Carnegie steel ties with a reinforced concrete base. The company has title to about 75 miles of private right-of-way within the city limits, only a part of this being occupied up to the present time. The private right-of-way in question in most instances starts within less

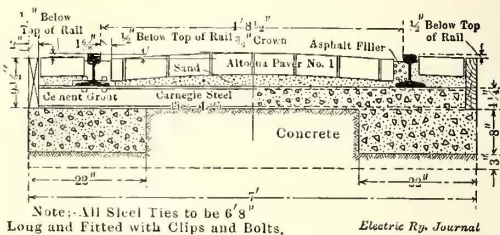
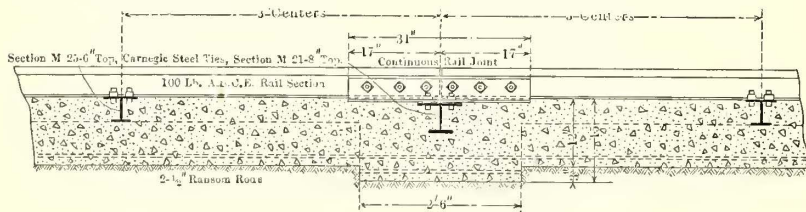


Fig. 1—Oklahoma Track—Concrete and Steel Tie Construction

many new and interesting features in connection with financing and building the street railway system in that city. There are at present about 110 miles of paved streets. Nearly all of this

than a mile of the center of the city and radiates in every direction, thus providing means for quick transit to the suburban portions of the city and very good outlets for interurban service.

STEEL TIE TRACK IN PAVED STREETS

The company's present standard construction in paved streets consists of 100-lb. rail A. S. C. E. section laid on Carnegie M-25 T-section steel ties having 6-in. tops. These ties are spaced 3 ft. apart and embedded in concrete, as shown in Fig. 1. This construction incorporates two continuous concrete girders 22 in. wide x 12 in. deep extending longitudinally under the

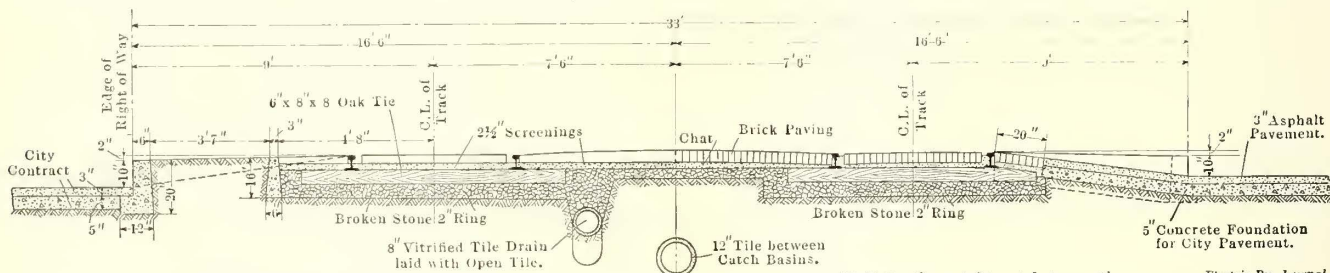
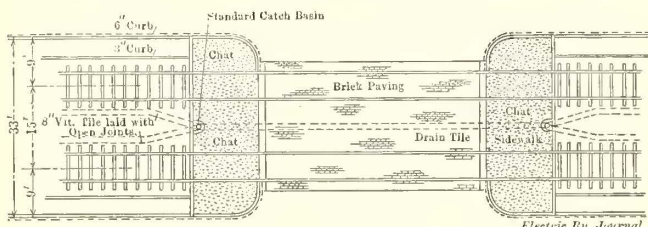


Fig. 2—Oklahoma Track—Drainage and Track Construction on Parked Right-of-Way in City

paving has been put down since 1903. The street railway system is now seven years old and comprises 71 miles of track, the growth by years having been as follows:

rails, each girder being reinforced with two 1/2-in. twisted bars. The concrete is placed within wooden forms after the track



Fig. 3—Oklahoma Track—Steel Tie Construction Ready for Paving



Fig. 4—Oklahoma Track—Concreting Steel Tie Track Direct from Mixer

Year.	Miles of Track.	Per Cent. Increase.
1904	9	..
1905	12	22
1906	17.5	46
1907	26	48 1/2
1908	37.5	44 1/2
1909	40.5	9 1/2
1910	71	75

work has been assembled, lined and leveled. The concrete used consists of 1 part Portland cement, 2 1/2 parts sand and 4 1/2 to 6 parts concrete stone mixed and placed very wet. During the concreting process the concrete is well puddled around the ties and up under the base of the rail. After being placed it is allowed to set at least 72 hours before the track is used,

and at no time during the concreting or setting process is the track subjected to any load. If concrete is placed during very hot weather, or when there is a possibility of freezing, it is covered with sand or other material as a means of protection during the setting process.

The rail used in all recent work has been 100-lb. A. S. C. E.

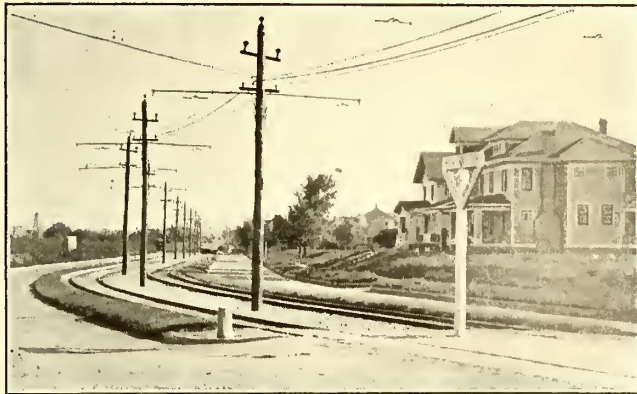


Fig. 5—Oklahoma Track—Parked Private Right-of-Way Construction

The paving outside of the rails is laid on stiff cement mortar and the paving between the rails is laid on a sand cushion, all of the paving being somewhat lower than the ball of the rail in order to let the rail present a clean surface; the whole with the exception of the flangeway is grouted. The flangeway is then filled flush with asphalt, the wheels later forming the groove. The forms used for holding the concrete in position also act as a guide for laying the paving outside of the rails.

The progress of the steel tie construction during various



Fig. 7—Oklahoma Track—Parked Right-of-Way in the City

section in 60-ft. lengths. The rails are attached to the ties by means of Carnegie No. 23 improved clips, four clips per tie being used. The rails are joined by 34-in. six-hole continuous joints and under the joints a Carnegie section, M-21 tie

stages is shown in Fig. 4, in which the assembled track work and forms are shown. A portable mixer is shown discharging concrete directly to the track structure. Fig. 3 represents track concreted ready for paving. This type of construction, it is thought, will stand up under the heaviest traffic and the design is such that sewer or other excavations of a considerable width may pass under the tracks without settlement or other injury thereto.

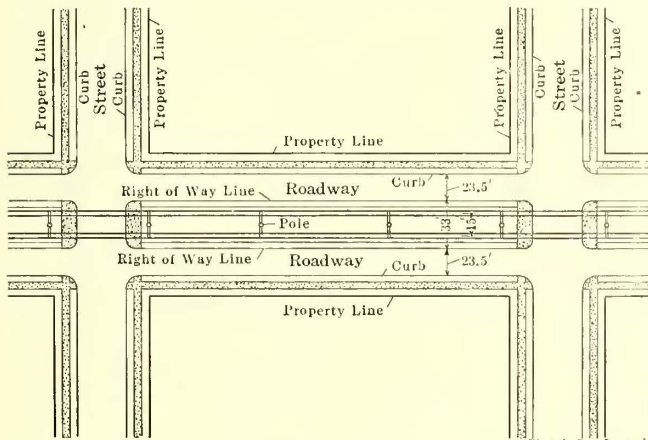


Fig. 6—Oklahoma Track—Plan of Right-of-Way in City Limits

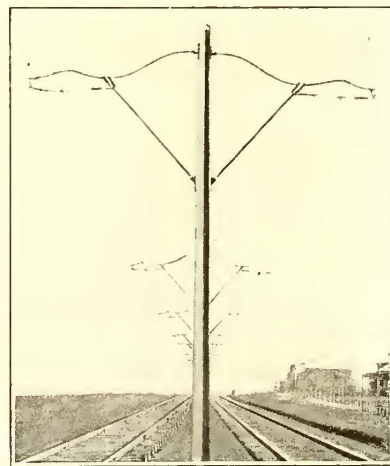
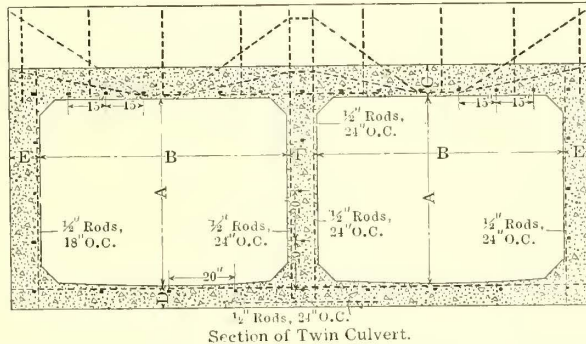
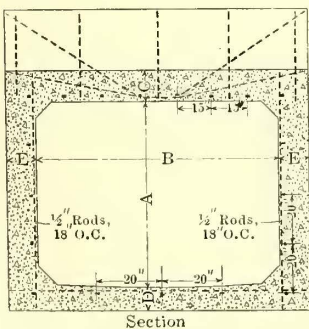


Fig. 8—Oklahoma Track—Center-Pole Construction on Right-of-Way

with an 8-in. top is used. No tie rods are used on account of the rigid attachment to the tie and the comparatively wide base of the rail. This form of construction will permit the

replace brick paving or other paving requiring more than 4 in. in depth, this form of construction has been discontinued except in communities where traffic is light and where there is a



Dimensions of Standard Culverts.					
Size of Culverts.		Thickness of Walls			
A	B	C	D	E	F
10'	10'	1 1/2" Rods, 14"	12"	14"	16"
8'	8'	12"	10"	12"	14"
6'	8'	12"	10"	12"	12"
6'	6'	10"	8"	9"	10"
4'	6'	10"	8"	7"	9"
4'	4'	8"	6"	6"	8"

Fig. 9—Oklahoma Track—Standard Reinforced Concrete Box Culverts

replacement of a similar section of rail at any time merely by lifting a strip of paving paralleling the rail and without in any way disturbing the ties or concrete roadbed. Vitrified block paving has been used, but other types of paving requiring not more than 5 1/2 in. above the base of rail may be employed.

likelihood of asphalt paving being maintained. The unit costs and quantities of 100-lb. and 70-lb. track construction are given in Table I, on page 452, these figures being exclusive of overhead construction.

A considerable portion of the track constructed in paved

streets prior to 1907 was of the so-called concrete beam type, consisting of 7-in. high T-rail laid on wood ties, the ties being embedded in concrete. While this construction was considered good practice at that time, the present standard of steel tie construction promises to give so much longer life and better service that its adoption seems well warranted.

PRIVATE RIGHT-OF-WAY CONSTRUCTION

As before stated, the company controls about 75 miles of private right-of-way within the city limits and about 41 miles

toward the inner end of the ties and a continuous tile drain with open joints is carried to the street intersections and there connected to the storm sewer. The tracks are ballasted with 2-in. stone, 4 in. being placed under the outside end of the tie and 6 in. under the inner end of the tie. The intervening space between the tracks is also covered with a thin layer of stone to retard the growth of weeds or other vegetation, the space between curbs being planted in Bermuda grass. The details of this construction are shown in Fig. 2 and views of the

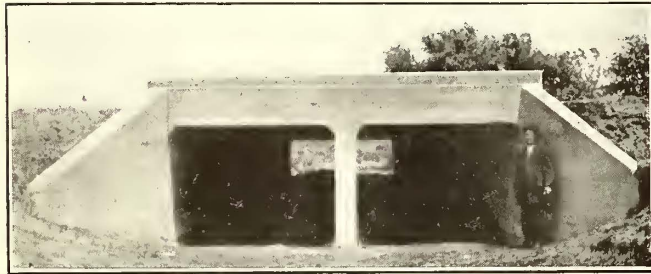


Fig. 10—Oklahoma Track—Box Culvert

of the present track system is located on this land. The very great amount of this private right-of-way, the manner in which it is laid out, the evidence of good design and adaptability indicate originality and foresight to an unusual degree and reflect great credit on the railway owners and the city officials responsible for the development of the system. The private right-

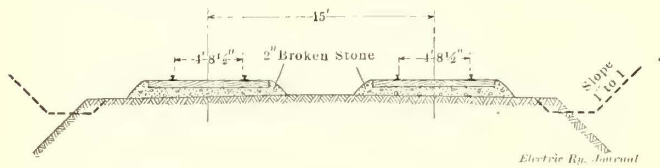


Fig. 11—Oklahoma Track—Cross-Section Through Interurban Construction

of-way before mentioned is with few exceptions owned outright by the railway company. Its only obligation is to curb each side of the right-of-way and pave street intersections where they exist only when the paralleling or intersecting streets are paved by the city. This private right-of-way in nearly every instance is paralleled by boulevards on either side, thus insuring future development. That portion of the track on private right-of-way which parallels paved streets or boulevards has been ballasted and curbed. The portion in the undeveloped sections of the city, however, has not yet been ballasted.

The present standard for private right-of-way construction consists of 70-lb. A. S. C. E. rail in 33-ft. lengths laid on wood ties spaced on 21-in. centers. A concrete curb is placed along

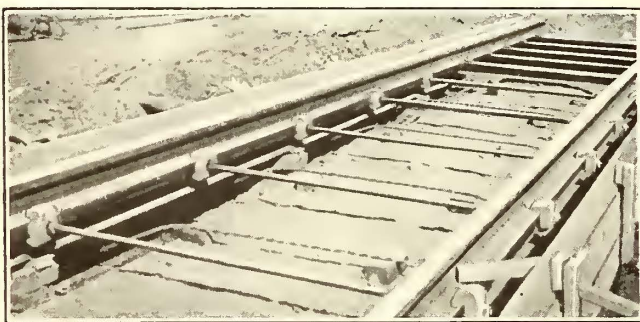


Fig. 12—Oklahoma Track—Junction of Steel Tie Work and Experimental Creosoted Wood Cushion Track

each side of the right-of-way adjoining the paving and in addition thereto a 3-in. curb is placed 6 in. from the outside end of the ties. This inner curb is level with the rail and the outer curb 2 in. below the top of the rail, the intervening space being parked. Before ballasting the roadbed is graded to slope

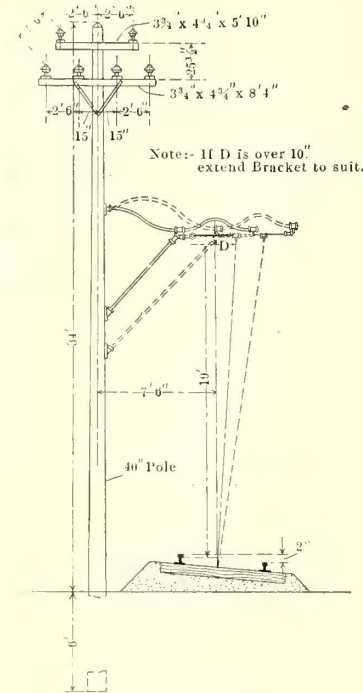


Fig. 13—Oklahoma Track—Overhead and Track Construction at Curves

City Lines			High Speed Interurban		
Degree of Curve	Super Elevation	Deflection of Trolley D	Super Elevation	Deflection of Trolley D	Degree of Curve
1°	5/8"	2 1/2"	1 3/8"	5 1/2"	1°
2°	1 1/4"	5"	2 3/4"	11"	2°
3°	1 7/8"	7 1/2"	4 1/8"	16 1/2"	3°
4°	2 1/2"	10"	5 1/2"	22 1/4"	4°
5°	3 1/16"	12 1/4"	6 3/8"	28 3/4"	5°
6°	3 1/16"	14 3/4"	8 3/4"	35 1/2"	6°
7°	4 1/4"	17 1/4"	9 3/4"	42 1/2"	7°
8°	5"	19 3/4"			8°
9°	5 1/2"	22"			9°
10°	6 1/8"	24 3/4"			10°
11°	6 3/4"	27 3/4"			
12°	7 3/8"	30 1/2"			
14°	8 1/2"	34 1/2"			
16°	9 3/4"	38 1/2"			
		40"			

Note: Elevation should always be Maximum at P.C. & P.T. of Curve and should diminish 1/2 Inch to 30 Feet.

finished construction are shown in Figs. 5 and 7. Fig. 6 shows a typical plan of the right-of-way widths and clearances in the city limits. The detailed unit costs and quantities of this work, exclusive of overhead work, are also given in Table II, printed on page 452.

It is contemplated that the concrete pole and ornamental bracket shown in Fig. 8 will be used in connection with the better portions of double-track private right-of-way construction. It is obvious that this type of construction presents many advantages, namely, low first cost compared to paved track



Fig. 14—Oklahoma Track—Portable Tool Box Used by Small Construction Gangs

construction, accessibility, low maintenance cost and a clean and unobstructed track.

SUBURBAN AND INTERURBAN CONSTRUCTION

The suburban and interurban lines are all constructed on private right-of-way, there being no track on public highways;

this right-of-way varies in width from 36 ft. to 60 ft. The principal interurban lines are laid out with boulevards on either side and the grades, with few exceptions, do not exceed 1 per cent. Ultimately these boulevards will be macadamized. In some instances, when in close proximity to the city, the con-

struction is to overcome impact by providing a cushioning medium of creosoted wood between the rail and the steel tie. Another object of this construction is to permit the easy replacement of the present T-rail with 7-in. girder or any other intermediate section of rail at some future time without

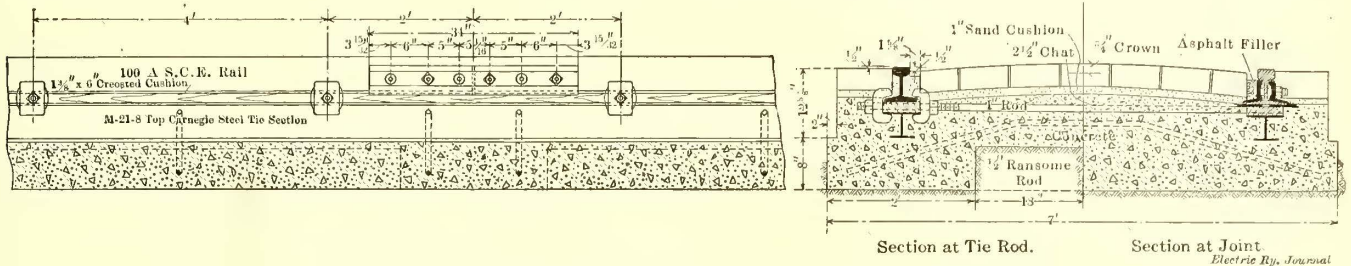


Fig. 15—Oklahoma Track—Track on Creosoted Wood Cushions

crete culverts have been carried the entire width of the railway right-of-way and boulevards. These culverts are constructed of concrete, being of the box type shown in the drawing Fig. 9 and the half-tone Fig. 10. Fig. 11 is a cross-section of simple interurban construction. Fig. 13 shows the overhead and track construction standards at curves with a table of elevations, degrees of curvature, etc. The detailed unit costs

disturbing the concrete foundation. The difference in the height of rail is compensated for by varying the thickness of the creosoted wood cushioning strip. This construction requires about the same amount of concrete as that shown in the drawing Fig. 1 and the cost per mile is about the same.

TOOLS AND EQUIPMENT

A brief description of the tools and equipment employed in carrying on the construction in Oklahoma City may be of interest.

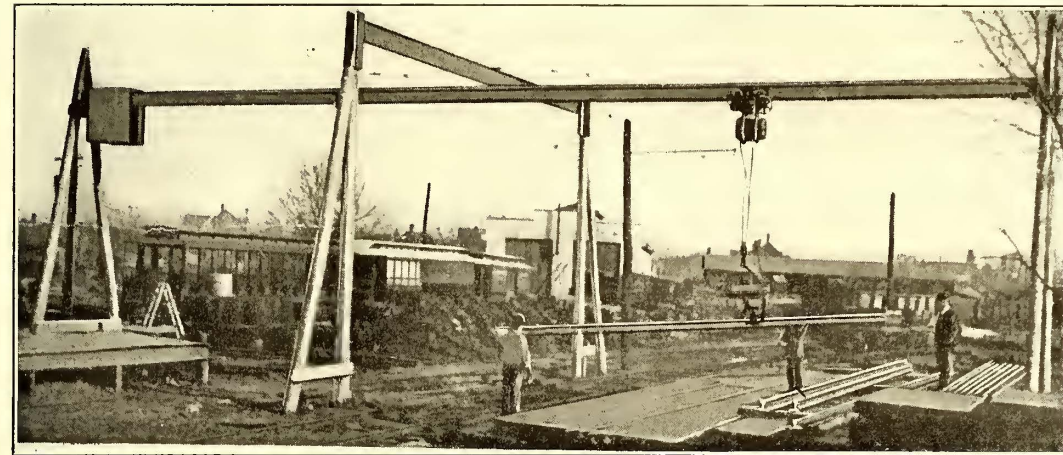


Fig. 16—Oklahoma Track—Track-Handling Outfit

and quantities of private right-of-way construction of this character, excluding all special construction and line work, are presented in Table III, on page 452.

EXPERIMENTAL TRACK

The half-tone Fig. 12 and the drawing Fig. 15 show the details of a piece of experimental track which is laid with

Fig. 14 shows the type of portable tool box which is used by small construction gangs. Fig. 18 is a view of the standard type of tool wagon employed by the larger construction gangs. This wagon is covered with sheet iron and is fitted with separate compartments for picks, shovels and miscellaneous tools. Fig. 17 shows one of the home-made electric locomotives used for transportation and hauling of construction material. This locomotive is constructed of steel, 34 ft. long, mounted on two Standard C-60 trucks and equipped with four Westinghouse No. 306 motors. The cab is supported on steel pedestals, these being framed into the car body.

Fig. 16 shows a rail unloader and handler which is used for

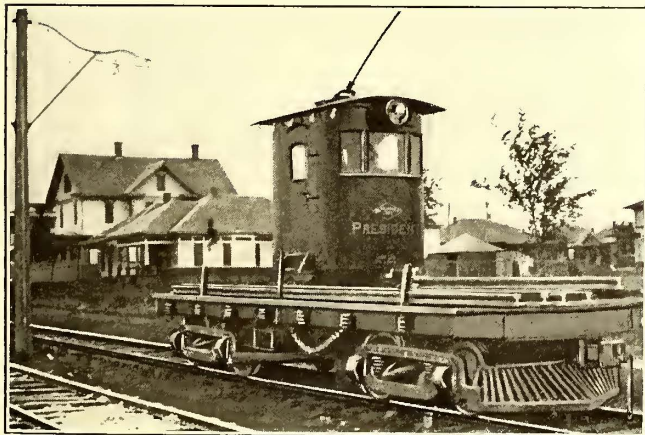


Fig. 17—Oklahoma Track—Electric Locomotive Flat Car

longitudinal steel ties with a creosoted wood cushioning strip between the tie and rail. These steel ties are 30 ft. long and are clamped to the base of the rail every 4 ft. The object of

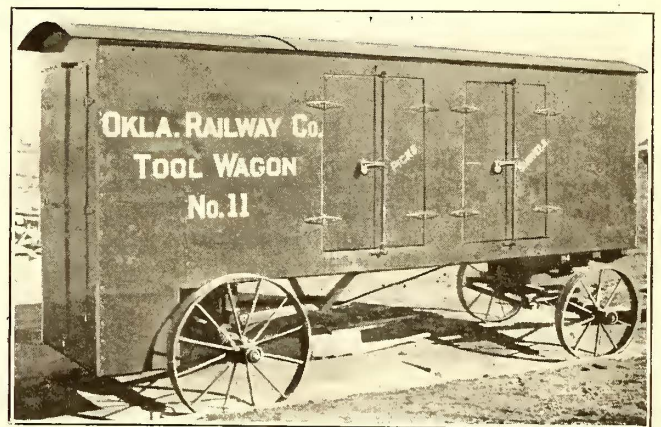


Fig. 18—Oklahoma Track—Metal Tool Wagon

unloading, stacking and reloading. This outfit consists of a Sprague motor-operated hoist traveling under an I-beam and has a range of 100 ft. travel over tracks and storage pile.

TABLE I.—UNIT COSTS AND QUANTITIES OF 100 LB. STEEL TIE CONCRETE AND PAVED CONSTRUCTION.

Class 3.	Quantities, Per 100 Ft. Per Mile.		Cost Per 100 Ft.	Cost Per Mile.
30.	1600.	Cu. yd. excavation, at 50 cents...	\$15.00	\$800.00
CONCRETING.				
17.8	940.	Cu. yd. stone, at \$1.55 and 45 cts.	\$36.00	\$1,880.00
9.5	500.	Cu. yd. sand, at \$1.00 and 35 cts.	12.80	675.00
19.	1000.	Bbls. cement at \$1.60.....	33.00	1,600.00
		Labor	19.00	1,000.00
425.	22400.	(Feet)		
360.	19000.	Lbs. ¼ twisted bars, at \$2.60....	9.90	494.00
700.	3700.	Feet form lumber, at \$20.....	14.00	740.00
		Equipment and miscellaneous....	6.20	327.00
19.	1000.	Cu. yd total concrete.....	\$130.00	\$6,716.00
TRACK.				
1.7	88.88	Joint ties, at \$2.50.....	\$4.27	\$220.00
31.7	1672.	M-25 steel ties, at \$2.....	64.30	3,344.00
2.97	157.14	Tons of rail.....	110.00	5,814.00
3.33	176.	Cont. joints, at \$2.20 and 80 cts.	10.00	528.00
20.	1056.	Bolts.		
.18	9.2	Kegs, 1 in. x 4½ in. bolts, at \$6..	1.08	55.20
3.3	176.	No. 0000 10 in. x ¾ in. rail bonds at 40 cents and 40 cents.....	2.50	130.80
100.	5280.	Feet track laying, at 30 cents....	30.00	1,584.00
	5280.	Feet—Total track.....	\$222.00	\$11,676.00
PAVING.				
4500.	235000.	Brick. at \$13.....	\$58.00	\$3,055.00
	60.	Brick per sq. yd.....		
20.5	1075.	Sq. yd. border, at 40 cents.....	8.20	430.00
52.	2738.	Sq. yd. center, at 30 cents.....	15.60	820.00
4.4	235.	Bbls. cement, at \$1.60.....	7.15	376.00
4.45	235.	Yd. sand, at \$1.40.....	6.23	329.00
		Supervision and miscellaneous....	5.10	270.00
74.	3911.	Sq. yd. total paving.....	\$100.00	\$5,280.00
		Total	\$467.00	\$24,472.00
		Incidentals, 5 per cent.....	23.35	1,223.60
		Engineering and supt., 5 per cent.	23.35	1,223.60
			\$513.70	\$26,919.20

TABLE II.—UNIT COSTS AND QUANTITIES OF 70 LB. WOOD TIE PRIVATE RIGHT-OF-WAY. (Items not used omitted.)

			Cost Per 100 Ft.	Cost Per Mile.
30.	1600.	Cu. yd. excavation, at 50 cents..	\$15.15	\$800.00
CONCRETING.				
41.8	2200.	Cu. yd. ballast, at \$1.55 and 45c.	\$83.30	\$4,400.00
3.8	200.	Cu. yd. stone screenings, at \$1 and 50 cents.....	5.68	300.00
			\$88.98	\$4,700.00
TRACK.				
57.	3000.	Wood ties, at 51 cents and 5 cents	\$31.80	\$1,680.00
6.35	335.	No. 0000 10 in. x ¾ in. rail bonds, at 40 cents and 40 cents.....	5.00	268.00
2.08	110.	Tons 70 ft. rail, at \$35.....	72.90	3,850.00
6.25	330.	Pairs rail joints, at \$1.60.....	10.00	528.00
25.5	1350.	Bolts.		
.17	9.	Kegs, ¾ in. x 4 in. bolts, at \$6..	1.02	54.00
.57	30.	Kegs, 9/16 in. x 5½ in. spikes, at \$4.40	2.50	132.00
	5280.	Feet track laying and surfacing, including ballasting, at 50 cents.	50.00	2,640.00
			\$173.22	\$9,152.00
PAVING.				
14.90	780.	Sq. yd. paving, at \$1.35.		
8900.	47000.	Paving brick, at \$13.....	\$11.60	\$611.00
.89	47.	Bbls. cement, at \$1.60.....	1.40	75.20
.89	47.	Cu. yd. sand at \$1 and 50 cents..	1.30	70.50
		Labor and incidentals, at 40 cents.	5.90	312.00
102.	5400.	Lin. ft. curbing, at 60 cents....	61.70	3,240.00
95.	5000.	Lin. ft. curbing, at 30 cents.....	28.40	1,500.00
102.	5400.	Ft. 6 in. drain tile, at 12 cents..	12.25	648.00
			\$122.55	\$6,456.00
		Total	\$399.90	\$21,108.50
		Incidentals, 5 per cent.....	\$10.90	\$1,055.42
		Engineering and supt., 5 per cent.	19.99	1,055.42
		Grand total.....	\$439.88	\$23,219.34

TABLE III.—UNIT COSTS AND QUANTITIES OF 70 LB. WOOD TIE PRIVATE RIGHT-OF-WAY.

			Cost Per 100 Ft.	Cost Per Mile.
30.	1600.	Cu. yd excavation, at 50 cents...	\$15.15	\$800.00
BALLASTING.				
41.8	2200.	Cu. yd. ballast, at \$1.55 and 45 cts.	\$83.30	\$4,400.00
3.8	200.	Cu. yd. stone screenings, at \$1 and 50 cents.....	5.68	300.00
			\$88.98	\$4,700.00
TRACK.				
57.	3000.	Wood ties, at 51 cents and 5 cents	\$31.80	\$1,680.00
6.35	335.	No. 0000 10 in. x ¾ in. rail bonds, at 40 cents and 40 cents.....	5.00	268.00
2.08	110.	Tons 70 ft. rail, at \$35.....	72.90	3,850.00
6.25	330.	Pairs rail joints, at \$1.60.....	10.00	528.00
25.5	1350.	Bolts.		
.17	9.	Kegs, ¾ in. x 4 in. bolts, at \$6.	1.02	54.00
.57	30.	Kegs, 9/16 in. x 5½ in. spikes, at \$4.40	2.50	132.00
	5280.	Ft. track laying and surfacing, including ballasting, at 50 cents.	50.00	2,640.00
			\$277.35	\$14,652.00
		Incidentals, 5 per cent.....	13.61	719.20
		Engineering and supt., 5 per cent	13.61	719.20
		Grand total.....	\$304.57	\$16,090.40

THE USE OF T-RAIL IN STREETS

At the annual meeting of the Engineering Society of Wisconsin, held at Madison on March 9, Fred G. Simmons, superintendent of way, the Milwaukee Electric Railway & Light Company, presented a paper on the use of T-rail in street track.

Mr. Simmons said that practically all engineers in charge of street railway work were in favor of the use of T-rail. Where an exception occurs it was always in one of the very largest cities of the country. The only cases that had come to Mr. Simmons' knowledge were in New York, Philadelphia and Chicago. In these three cases the engineers all agreed that T-rail was preferable where the team travel was not too heavy on the track portion of the street, but when a constant stream of vehicles was encountered on this space a girder on grooved girder type of rail was preferable.

One of the most frequent arguments of those who oppose the use of T-rail was that the paving along the rail was subjected to extreme wear and ruts out with undue rapidity. The undue wear along the rail was undoubtedly brought about because of incorrect methods of paving. It had been considered advisable in the past to place rows of granite blocks or bricks on each side of the rails. While, to a large extent, these absorbed the minute vibrations which were incident to the somewhat elastic foundation necessary, they served only to transfer the undue wear to a point further from the rail itself and did not remove the cause. Many cities required the use of a grooved girder rail, but Mr. Simmons maintained that this rail did not preserve the integrity of the abutting asphalt paving to any greater extent than did the more serviceable T-rail.

The design of paving that would be permanent has been most difficult. A prejudice had existed and in some quarters still existed in favor of a groove, either molded or cut in the blocks or bricks. Up to the present time, Mr. Simmons said, such grooves had proved unsatisfactory. The best results were probably obtained with granite, but the difficulty of obtaining a smooth and even cutting of the hard material was a serious objection. With vitrified brick the use of grooves was absolutely disastrous. The sharp edge of the groove wore away quickly and the material at this point was subjected to undue wear from the beginning. A new method of solving this problem which was rapidly gaining favor in the West and Middle West was to depress the blocks or brick and extend them under the heads of the rails at the gage line, thus giving the paving a flat crown between the rails. This method had been adopted in Milwaukee and it was found after about four years of actual experience that it worked very well. It had been adopted in a number of other places with uniformly good results.

As to the proper construction of tracks in city streets, the proper paving to be laid in connection with these tracks and the proper method of laying such paving, Mr. Simmons gave the following as the result of his experience.

T-rail of proper section should be selected. The track should be so laid that, while not absolutely rigid, it will yet permit only a very minor deflection, scarcely more than a vibration. The paving should not be of the sheet variety.

Specifications for an ideal construction are: Prepare the subgrade in the trench by thorough rolling, employing an 8-ton roller. Install a tile in the center between double tracks about 8 in. below the base of the tie and connect with the sewers at about 100-ft. intervals. Use wood ties chemically treated with some efficient preservative. The ties should have not less than a 6-in. face. Lay with not more than 16 in. open space between ties. Rails should be of the 7-in. Shanghai T-rail type not less than 90 lb. per yard in weight, 60-ft. to 66-ft. lengths and preferably of open-hearth steel. Joints should be cast welded in a workmanlike manner. Track is to be ballasted on at least 6 in. of Portland cement concrete, the mixture to be no leaner than 1:2½:5 and to be well tamped to place; concrete to be continued up to the proper level for the installation of the paving.

Paving is to be as follows: On streets where commercial vehicular traffic is very heavy use granite stone paving. Where

the traffic is still commercial but not so heavy use either sandstone or vitrified brick. On residence streets use vitrified brick or creosoted blocks.

The blocks or bricks at the gage line of the rail should be depressed and projected under the head of the rail, crowning up within 17 in. to a level with the top of the rail and then extending practically level until within 17 in. of the other gage line. The outside stem of the rail should be properly filled with a creosoted strip of cement blocks and the entire paving filled with a 1:1 cement grout very carefully applied and allowed to set thoroughly before any traffic is permitted.

MEETING OF THE COMMITTEE ON POWER DISTRIBUTION

Meetings of the committee on power distribution of the American Electric Railway Engineering Association were held in New York on March 8 and 9. The meeting on March 8, as mentioned in our issue of March 11, was devoted largely to a discussion of the proposed specifications for overhead crossings of electric light and power lines which are being considered jointly by committees of the Engineering Association, National Electric Light Association and the American Railway Engineering & Maintenance of Way Association.

On March 9 the committee re-convened and went over carefully the entire list of subjects which will be considered by the committee in its report at the 1911 convention. Sub-committees were then appointed by Chairman Hovey to consider the different topics. These briefly were as follows:

At the 1910 convention the committee presented outline specifications for high-tension, three-conductor paper cables, for 30 per cent rubber compound and for paper-insulated underground railway feeders for 1200 volts or less. To a sub-committee consisting of G. W. Palmer, Jr.; A. S. Richey, William Roberts and S. D. Sprong was assigned the duty of going over these specifications again to determine whether any changes were desirable in them before they should be submitted for approval to the committee on standards.

The next subject discussed was that of a standard specification for Nos. 00 and 000 grooved trolley wires. The 1909 committee recommended a standard shape for a No. 0000 trolley wire. It was thought that if reports should be presented on these three sizes all of the sizes of copper trolley wire ordinarily used would be covered. On the committee to report on this subject are Messrs. Dunne, Palmer, Harte and Foster. The same sub-committee was also requested to report on specifications for hard-drawn copper trolley wire.

The subject of standard specifications of overhead crossings of trolley contacts was referred to a sub-committee consisting of Messrs. Richey, Dunne, Palmer and Harte. The chairman of this committee, Prof. Richey, is also the representative of the association on the joint committee to consider specifications for overhead crossings of electric light and power lines. The subjects to be taken up by the report on the overhead crossings of trolley contacts will include the standard height of the trolley wire over the tracks of steam railroads, clearances to be allowed for other wires, types of conductors to use, minimum sag permissible, proper supports and factors of safety. To this sub-committee was also assigned the subject of drafting preliminary specifications covering the joint occupancy of poles by railway wires and foreign wires.

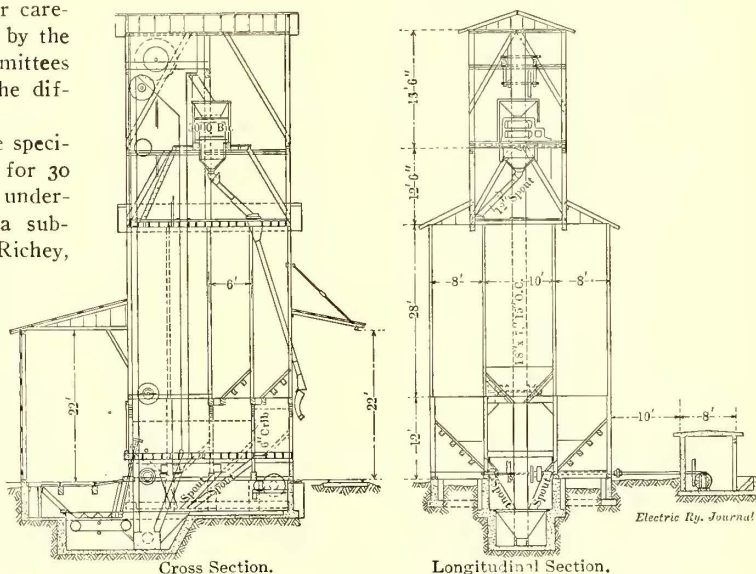
The subject of line material standardization was assigned to a sub-committee consisting of Messrs. Harte, Sprong and Dunne. The subject of concrete poles and of tubular and lattice galvanized-iron side poles was assigned to another sub-committee consisting of J. J. Brennan, William Roberts and S. L. Foster.

It was decided to ask the sub-committees to prepare preliminary reports on the subjects assigned to them for submission at the next meeting of the committee on power distribution, which will be held in New York May 3.

GRAIN TRANSFER ELEVATOR OF ILLINOIS TRACTION SYSTEM

The Illinois Traction System recently put into service at Glover, Ill., a large grain transfer elevator. It is located close to the junction of the Danville, Urbana & Champaign division of the Illinois Traction System and the main line of the Chicago & Eastern Illinois Railroad, with which the traction system has traffic interchange agreements. At this junction also the Cleveland, Chicago, Cincinnati & St. Louis Railroad intersects the Chicago & Eastern Illinois. The new plan was installed by the Burrell Engineering & Construction Company, of Chicago, acting under the supervision of E. M. Haas, superintendent of bridges and buildings for the Illinois Traction System. The purpose of the large new transfer elevator is to keep, so far as possible, the equipment of the electric road on its own lines and prevent a shortage of cars on the originating road. This is largely because so many of the steam railroad cars will not take the sharp curves in some of the cities through which the interurban road operates, while the interurban company's cars are designed to operate satisfactorily around these curves.

The new elevator, which is shown in vertical sections, is



Grain Elevator at Glover—Illinois Traction System

provided with nine storage bins, each with a capacity of approximately 1000 bushels of grain. This provision for storage in the transfer elevator is made to facilitate the handling of grain when there is a shortage of cars on the connecting steam roads. It will provide at such times for the immediate unloading of the interurban grain cars so that they may be available for service.

The elevator structure is located between two tracks, one serving for loading and the other for transfer. The building inclosing the elevator machinery and the bins has ground dimensions 26 ft. x 24 ft. and is 68 ft. high. It is made up of a timber framework covered with corrugated iron.

The plant is handled by a 30-hp electric motor located in a special housing at a distance of 10 ft. from the elevator building and transmitting power through a line shaft. Suitable hoppers are provided under the receiving track for feeding a bucket conveyor which is used to elevate the grain to the cupola of the building. Here the grain is passed over a Richardson automatic scale which is so equipped that it will show automatically any given amounts up to 1000 lb., for which it previously may have been adjusted, before it discharges the grain into either the bins or a spout leading to the outbound car. This automatic scale has a capacity of 5000 bushels per hour. The transfer plant is provided with an electrically driven car puller for spotting freight cars at the sides of the

building and a power shovel for moving the grain from the ends of the cars to the car doors, where it is dumped into the hoppers located under the tracks. During the month of January, 1910, when the transfer elevator was first put in service it handled 65 cars of outbound corn.

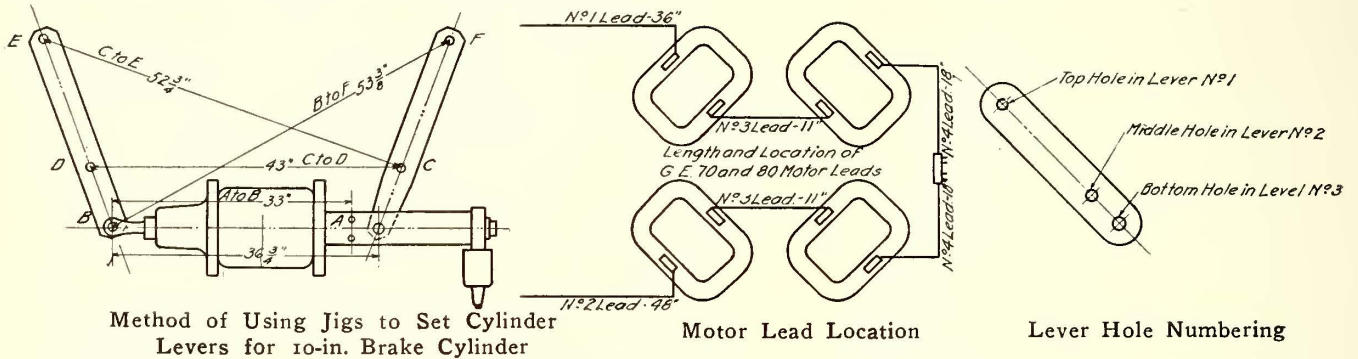
SHOP INSTRUCTION PRINTS AND JIGS FOR GAGING BRAKE RIGGING

The tendency to introduce exact methods in shop work is admirably illustrated by the brake rigging adjustment practice of the Philadelphia Rapid Transit Company. It is well known that poor braking and unequal brakeshoe wear are due partly to errors in leverage dimensions and to inaccurate ad-

RETURNS OF TRAMWAYS IN THE UNITED KINGDOM

The miles of route of tramways and light railways open for traffic in the United Kingdom in the fiscal year 1909-10 were 2562, as compared with 2526 miles in the previous year. The returns for the fiscal year 1909-10 cover the calendar year 1909 for the companies and the fiscal year ended March 31, 1910, for the municipal authorities.

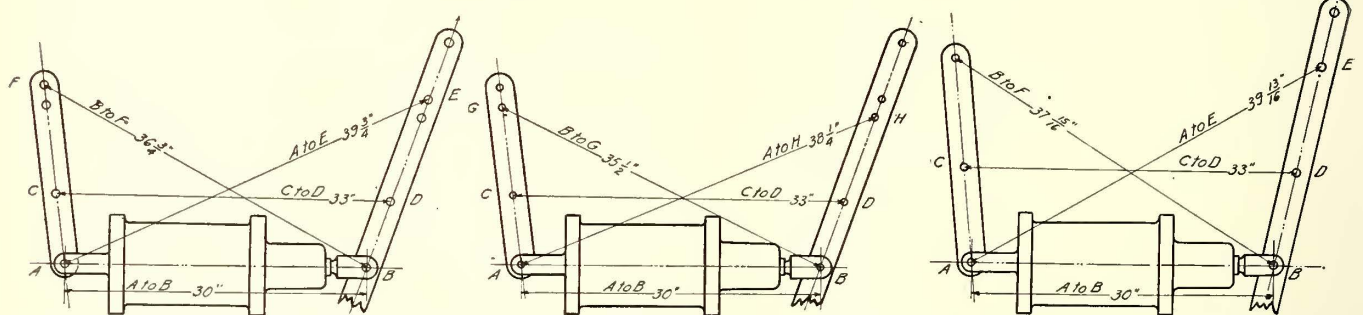
The report of the Board of Trade shows a total of 2,743,189,439 passengers during the last year, as compared with 2,659,981,136 in the previous year. The number of car miles run was 297,844,686, against 292,245,562 in the preceding year. The capital expenditures per mile of single track open compare as follows: Lines and works, £13,467 last year and £13,002 in the preceding year; all items, £17,750 last year and £17,345 the pre-



justments by the shop men. To eliminate trouble from both of these causes the Philadelphia company developed over two years ago a series of accurately calculated jigs for setting the cylinder levers of its numerous types of brake rigging. All that the brake inspector is required to do is to see that the distances between certain points on these levers are to gage as shown by the jigs. These gaging points are indicated on blueprints of the style reproduced in the accompanying engravings. The prints are 6 in. x 4 in. in size and are bound for handy pocket use with other drawings of brake rigging parts such as dead and live levers, cylinder tie rods and push rods, brake beams, etc. One of the latter prints shows the standard method of numbering holes in all levers. This practice was introduced by Harry

ceding year. The percentage of net receipts to the total capital outlay was 6.69 last year and 6.47 in the preceding year. This percentage for the net capital outlay, determined by the elimination of the amounts expended on construction or purchase of old lines and works now superseded, was 7.30 per cent last year, as compared with 7.06 per cent in the preceding year. The operating expenditures reached 62.18 per cent of the gross receipts, as compared with 63.64 per cent in the preceding year. The number of passengers carried per mile of route open was 1,070,872 last year, as compared with 1,053,049 in the preceding year. The average number of passengers carried per car mile was 9.21 last year and 9.10 in the previous year.

The introduction to the report says in part: "The number



Method of Using Jigs to Set Cylinder Levers for Brill 27-G, Curtis D2 and Curtis Maximum Traction Trucks; Brill Maximum Traction Trucks and Curtis C. I. Trucks

Branson, superintendent of rolling stock and equipment, who has also devised pocket shop prints for the electrical work such as the one reproduced, which shows the location of GE-70 and GE-80 motor leads. All of the leads are of No. 6, 49-strand heavy triple-braid insulation. The ends of the motor leads are soldered.

The Clarkson Engineering Assembly announced that the charter day exercises of the Thomas S. Clarkson Memorial School of Technology, Potsdam, N. Y., would be held in the assembly hall of the institution at eight o'clock on March 17, 1911. Moses Nelson Baker, C. E., one of the editors of *Engineering News*, New York, was to deliver an address on "The Engineer and Social Service."

of passengers carried in the year 1909-10 is equal to about 62 times the estimated population of the United Kingdom.

"Of the total of 1710 miles of line owned by local authorities 1503 miles are worked by those authorities themselves or (in a few cases) by other local authorities leasing from them, and the remaining 207 miles by leasing companies.

"Last year the route mileage open of electric line was 2360 miles out of a total of 2526; this year it is 2429 miles out of 2562. The mileage worked otherwise than by electric traction has thus further diminished from 166 miles to 133 miles.

"Of the 300 undertakings, 176 belong to local authorities and 124 to companies or other parties. The net receipts of local authorities who work tramway undertakings belonging to them or leased from other local authorities amounted to £3,600,191 on

the year's traffic, and they applied £1,111,888 toward the reduction of tramway debt and £346,274 in relief of rates, while carrying £761,646 to reserve and renewal funds.

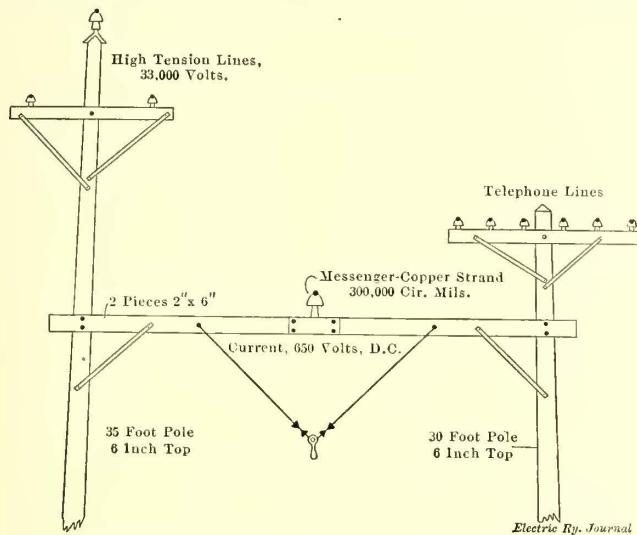
"In the case of four local authorities and eight companies the returns show an excess of working expenditure over gross receipts.

"With regard to the appropriations for interest or dividend, etc., it is desirable to explain that the present return has not been restricted to showing the disposal of the net receipts earned during the year, as was the case with former returns. The total amount allocated is now given and the return shows that in 29 cases it was necessary to obtain aid from rates to meet the charges for the year (including interest and redemption of tramway debt). The total amount thus obtained was £64,215."

The appropriation for reserve, including depreciation and renewal funds, amounted for the properties of the local authorities in the entire United Kingdom to £761,646. The corresponding appropriation by the companies was £220,258, a total for the properties of both classes of £981,904.

PROPOSED CATENARY BRIDGE CONSTRUCTION WITH WOOD POLES

The accompanying sketch shows a catenary construction proposed by A. C. Sekell, engineer of the Grand Rapids, Hastings & Battle Creek Railway, a projected line in Michigan. The two cross-pieces connecting the poles are 2-in. x 6-in. timber and 16 ft. long. The insulator pin for the messenger cables passes through a packing block about 2 ft. long bolted between the two cross-pieces and set in after the cross-pieces are fastened to the poles, so that it can easily be set to bring the pinhole exactly over the middle of the track. The feeder



Proposed Catenary Construction with Wooden Bridge Support

is used as a messenger and is designed to have a sag of 4½ ft. in a span of 220 ft.

Owing to the cross-bracing, the designer believes that poles with 6-in. tops will be amply strong enough for the construction and that they can be spaced 220 ft. apart on straight tracks. The pole spacing on curves would depend on the degree of the curve. On long radii curves the straight-track spacing could be used and a wire from one outside pole to the other would serve as an attachment for the pull-offs.

The trolley wire has an independent support at each bridge, thus reducing the weight on messenger. With a messenger of 300,000-circ. mil capacity, having a sag of 4½ ft., a No. 0000 trolley wire with a sag of 3 in. and hangers 55 ft. apart, the designer estimates that the strain on the copper in the messenger would be about 8300 lb. per square inch and in the trolley wire 5800 lb. per square inch.

REPORT OF FORD, BACON & DAVIS ON PHILADELPHIA SERVICE AND EQUIPMENT

A summary of a report made by Ford, Bacon & Davis, of New York, to the Pennsylvania State Railroad Commission in reference to the service and equipment of the Philadelphia Rapid Transit Company has been made public. The summary is dated March 7, 1911, and gives the conclusions derived from the detailed report. The preliminary report, practically in full, follows:

"On May 27, 1910, you commissioned us to make an examination of the service and equipment of the Philadelphia Rapid Transit Company in order to determine whether certain complaints against the service were well founded or not, and to make a report upon existing conditions with recommendations.

"We first obtained from the Philadelphia Rapid Transit Company, upon forms prepared by us, comprehensive statistics showing the amount and character of the physical property and presenting a record of its operation for a period of years. We also secured from reports of supervisory commissions and street railway companies recent comparative statistics of the four other largest American cities, New York, Brooklyn, Boston and Chicago. From July 12, 1910, to Feb. 1, 1911, we made systematic observations of the traffic and car service in Philadelphia. We also made a special examination of the car equipment of this company and of the standard cars of the four other cities.

"Following is a summary of our conclusions and recommendations:

"It is our opinion that while in many particulars the property and service of the Philadelphia Rapid Transit Company compare favorably with other large systems, there are lacking two essential features of good street railway service, upon which more largely than any other depend the comfort and convenience of the traveling public.

"While we find the track construction to be substantial, the surface track mileage larger than the average considering the population served, the overhead line of first-class design, the power plants of adequate capacity and fair economy, and the carhouse and shop facilities ample, the car equipment, which is the most important part of the physical property from the passengers' standpoint, is distinctly inferior to that of other large American cities; and while the average seats provided per passenger and total car mileage operated throughout the entire day are greater than the average of other cities, the proportion of rush-hour car service to middle-of-the-day service is considerably less than standard practice, resulting in unreasonable overcrowding at the times of heaviest traffic.

RUSH-HOUR CAR SERVICE—COUNTS OF RUSH-HOUR TRAFFIC

"An extended series of observations and passenger counts was made for each line, especially as to operation during the evening or heaviest rush hours in and adjacent to the principal delivery district, which is the central business section bounded by the Delaware River, Seventeenth Street, Cherry and Locust Streets. From these we ascertained the number of passengers on each line during each half hour of the rush hour at the point of maximum loading. We found from our observations and records covering a period of about six months that the evening rush-hour traffic for Wednesday, Oct. 5, 1910, represented an average for that time of year and consequently have used in our determinations the count made on that day. We ascertained for each line the number of passengers carried past the point of maximum loading during each half hour and the number of cars observed, and determined the absolute and the average car loading of each line and of each group of lines by sections of the city.

Having thus obtained the number of passengers by half hours from 4 p. m. to 7 p. m. carried past the maximum-load point of each line we were in position to make a critical analysis of the service operated and to devise a plan of car service which would provide adequately for this rush-hour traffic.

LIMITATIONS OF RUSH-HOUR SERVICE

"This problem involves the determination of a standard of reasonable car service for the rush hours and the definition of practicable rules for car loading. The extreme limits of such service would be, on the one hand, to provide seats for all passengers, and, on the other, to continue the midday car service through this busy period. The maximum number of cars which can be operated is absolutely limited by track and crossing capacity and the necessity of providing sufficient employment for the extra car men. The track as now operated in the delivery district of Philadelphia has not yet been used to its greatest capacity except on some streets. An efficient re-routing of lines, the replacement of present small cars by large motor cars and the use of large trailers, if practicable, would make possible a considerable increase of service in this district.

"The company now schedules in winter about 39 per cent more cars and in summer about 45 per cent more cars during the evening rush hour than on its base schedule during the middle of the day. Other large American street railway systems operate as many as 100 per cent more cars during the rush hours than on the base schedule, which proves the feasibility of at least doubling the service during the rush hours with single car operation. With the use of large trailers it is believed that a still larger proportion of rush-hour capacity would be found practicable.

"On the other hand, however, there are conditions of finance in the broad sense which place an economic limit upon the amount of car service that can be operated at this time of day. Track and street capacity must also be conserved as far as possible in the interest of speed of operation.

REASONABLE CAR LOADING

"Looking at the problem from another standpoint, if the service is proportioned upon the number that the car can accommodate comfortably, both seated and standing, its capacity would be used most efficiently and overcrowding would be prevented.

"From careful studies of car capacities we have found that 4 sq. ft. of aisle and platform space per standing passenger allows comfortable standing space. This would mean, for the Philadelphia pay-within car, two rows of standing passengers with sufficient space for passage between and a total capacity of 76, of whom 38 would be seated and 38 standing. In other words, for a car with longitudinal or lengthwise seats the standing capacity would equal the seating capacity. For a cross-seat car like those now operated in Philadelphia, with seating capacity of 40, the standing capacity would be 29 and the total 69. If the usual large prepayment platforms were used on the cross-seat car it would accommodate 36 standing passengers, or with the seated passengers a total of 76. Therefore, applying this rule to the cross-seat cars, the standing capacity would equal from 75 per cent to 90 per cent of the seating capacity. This standing load is practically within the limits used by other American street railway companies which have given attention to the subject, and as prescribed in some cases by governmental regulations abroad.

"We believe this to be a reasonable limit of car loading, and have used it in our calculations and recommendations of rush-hour service.

LIMITS TO INDIVIDUAL CAR LOADS

"In order to prevent or lessen periodical overcrowding caused by the bunching of cars or passengers, we believe it is necessary to limit the loading of cars to the standard capacity determined. This under ordinary conditions of operation can be accomplished with platform doors or gates which close the entrance and exit when the car is in motion, together with the use of the 'car full' sign.

"The reasonable use of the individual car limit and the 'car full' sign has been found beneficial by the American companies that have adopted it. This largely does away with the uncomfortable, unsanitary overcrowding, so common at present in many American cities at rush hours, and facilitates the speed and regularity of operation by eliminating the most serious cause of bunching of cars. Such a definite notice also reduces the annoyance of being passed by the motorman.

"Efforts to restrict car loading to standards sometimes used abroad have met with objection because the limit has been placed at or near the seating capacity. This is impracticable under American conditions. During the non-rush hours, however, seats should be provided for all passengers. As the traffic increases at the beginning of the rush hours sufficient cars to furnish seats should be added until the maximum schedule is in operation.

RECOMMENDED RUSH-HOUR SERVICE

"We, therefore, recommend that the Philadelphia Rapid Transit Company should furnish sufficient rush-hour car service to provide the above standard capacity, and should limit individual car loads on a practicable plan, making allowance for extraordinary conditions.

IMPROVED SERVICE PRACTICABLE IMMEDIATELY

"As the present rush-hour service is considerably less than the standard recommended, this plan cannot be put into effect until additional cars and power are secured.

"During the time of construction of this equipment we recommend that the company operate a service as far as the number of present cars and the capacity of its power system will permit, which will provide on each line during the busiest half-hour an average car loading equal to the recommended standard of maximum car capacity. This standard of service immediately practicable would require the operation of 1987 cars, an increase of 315, or 19 per cent, over the winter schedule, and of 205 cars, or 11 per cent, over the summer schedule. Although this would result in a considerable improvement of car loading, there would still be carried regularly maximum loads up to the crowding limit of the car.

RECOMMENDED SERVICE APPLIED TO TRAFFIC OF OCTOBER, 1910

"From a large number of observations both in Philadelphia and elsewhere, we find that the maximum car loads on any line in a half-hour approximate 25 per cent more than the average loading for that half-hour. Thus, for example, if 76 is fixed as the maximum load of the pay-within car, the average loading for the heaviest half-hour would be 61 passengers. Consequently, our recommendation for standard service would require approximately 25 per cent more cars to pass the maximum point of loading on each line at the busiest half-hour than would be required for the average loading just referred to, and this, as calculated for the entire system, would result in an additional number of large cars in operation of about 14 per cent.

"In order to ascertain whether our recommended standard limit of rush-hour car loading would be unreasonable or impracticable in Philadelphia we have calculated in detail for each line the car service which would have been necessary to provide for the rush-hour traffic of an average day of October, 1910, represented by Wednesday, Oct. 5. We have assumed that additional small single-truck and maximum-traction cars would be used to furnish the increase of service of lines on which these types are now operated, which would mean that practically all of the best of this class of car equipment now on hand would be used. The additional cars necessary to provide the recommended service are assumed to be motor cars having the same maximum capacity of 76 as the present pay-within car.

"With the use of these types and of the present large double-truck cars there would be required to provide the recommended service a total of 2265 cars in operation, rendering necessary the purchase of 489 cars. This total number of 2265 cars required for recommended service compares with 1672 called for by the company's winter schedule, an increase of 593 cars, or 35 per cent. Compared with the company's summer schedule, which calls for 1782 cars, it represents an increase of 483, or 27 per cent. This increase would differ for each line, in some cases being more and in some less than this average. The increase of cars on lines operating into the delivery district is from 1315 cars of present winter schedule to 1801 cars, or 37 per cent, thus necessitating some rearrangement of routing for certain of these lines.

"If 2265 cars are operated at the rush hours, there would be 89 per cent more cars in service than in the middle of the day

on the base schedule in force last October. This is within the limits of American practice.

"We estimate that this service for both morning and evening rush hours would result in additional car mileage of 11 per cent, or an increase of approximately 9 per cent in operating expenses. We believe that more efficient scheduling during the non-rush hours and the use for all-day service of the large new cars purchased to replace many of the small single-truck cars, together with the saving which might be secured by a comprehensive re-routing plan, would largely offset the additional expense of operation at the rush hours. Thus, while providing far better service to the public, the company's operations might be placed on a more provident basis and a considerable increase in gross earnings made possible.

"With regard to the subway-elevated service, we also find, especially during winter operation, a condition of overcrowding. We would recommend that additional service be provided on the basis outlined for surface cars. To accommodate the traffic on Oct. 5, 1910, in accordance with this standard 120 cars would have been required. On this division 10 per cent of the cars in operation are needed as a 'shop' reserve, or as of that date, 12 cars were required in addition to the 120 cars now owned.

FUTURE CAR SERVICE

"The number of additional cars stated above to be required for both surface and subway-elevated operation should be considered as examples of the rules recommended, not as present requirements. They were the number necessary in October, 1910. The traffic is continually increasing, and with the broader plans which have been proposed the rate of increase should be more rapid in the future. The car equipment calculated to have been necessary for last October with the additional power equipment would require probably a year to purchase and install, and by that time still more cars and power would be needed. Consequently these standards of car loading and car service should be adopted in principle and should be applied by a bureau or department to be established by the company. Based on the periodical determinations of this department, the company should estimate and provide for its car and power requirements from one to two years in advance.

CAR EQUIPMENT—PRESENT TYPE OF CARS

"The other principal criticism to which we have referred concerns the inferior character of the car equipment. Of the 3292 cars owned by the company about two-thirds are of the small, single-truck type purchased at the time of original electrification, and of the large double-truck cars 272 were reconstructed from the small cars by splicing in a short section without modernizing this equipment; consequently about 70 per cent of the total cars are of a type generally unsuited to present conditions of congested traffic. Of the remaining 772 large double-truck cars about 90 per cent have been rebuilt and changed from cross-seat cars into the present longitudinal-seat pay-within type. This conversion, largely on account of the change to longitudinal seats of poor design, has rendered this car uncomfortable and unpopular, especially for summer operation.

"Of the total surface car equipment in Philadelphia 36 per cent are large double-truck cars, in New York 75 per cent, in Brooklyn 89 per cent and in Chicago about 75 per cent. While the single-truck car has its use on lines of light regular traffic, it is generally unsuitable for operation during the rush hours in the congested delivery district of large cities, and on many lines it is uneconomical to operate. It is assumed that the company will desire gradually to replace a considerable proportion of these single-truck cars by the purchase of large cars. We do not make any definite recommendations upon this point, as it concerns principally the operating economy.

COMPARATIVE CAR PURCHASES

"Reasonable service during the rush hours, as stated above, would necessitate, as of last October, the addition of 489 large cars. With the purchase of these cars the proportion of large double-truck cars owned to total closed and semi-convertible cars would be about 63 per cent or more nearly the proportion in other cities.

"In this connection it is of interest to note that during the past 10 years the Philadelphia system purchased 655 large double-truck surface cars, while the two large surface systems of New York City purchased 1472 cars, the Brooklyn systems 1127 cars and the Chicago systems about 2200 cars. These figures do not include the large amount of subway and elevated equipment purchased in other cities, nor does the figure for the Philadelphia company include its 120 subway-elevated cars.

THE PHILADELPHIA PAY-WITHIN CAR

"The principal criticism of this car is the replacement of cross seats by longitudinal seats. This was occasioned by the retention of the small platforms, which with the adoption of the prepayment plan compelled the exit of passengers from the front platform only, requiring a wider aisle than was practicable with the double row of cross seats. The sliding platform doors necessitate door pockets which interfere materially with the comfort of passengers on the corner seats and narrow the car entrance. It is not believed, however, that this difficulty can be much improved without practically rebuilding the ends of the car and the platforms. Eight cross seats should be restored in this car, either half on each side or all on one side. The cars already altered by the company, on the former plan, are understood to operate satisfactorily. With car loads limited as recommended the passageway is ample. The remaining longitudinal seats should be remodeled by using a more comfortable, higher back of spring rattan and by proper sloping of seats and backs.

"The sliding platform doors operated by air should be provided with a simple, positive mechanical release so that they can be opened by passengers in case of emergency. This device should be under the proper restriction of motorman or conductor.

"These cars are also insufficiently provided with steadying devices, which cause an unusual number of accidents to passengers falling on cars. Suitable grab handles on the backs of the proposed cross seats, and grab handles, horizontal rails or stanchions on platforms should be provided, to reduce this risk.

"The number and capacity of the electric heaters on this car should be doubled in order to secure the heating effect of the small single-truck Philadelphia car and the usual heating effect of standard cars of other cities.

"The present number of lights should be doubled in order to provide the amount of lighting usual in modern standard cars of this size.

"Both the line and destination signs are of poor design and insufficiently illuminated. Transparent line signs should be used on the front, rear and sides of the monitor and illuminated from the car. A destination sign should be placed in the center of the front and rear vestibules directly under the hood, independently illuminated.

"This car should be provided with the usual mechanical sander so that the motorman can drop sand on the track when necessary for an emergency stop.

"The present projecting fenders should be used only on high-speed lines in the suburban districts and when thus used should be properly maintained. Automatic wheel guards should be installed for city service in place of the projecting fender. These are placed under the car platform in front of the wheels and operate automatically when the trip strikes an obstruction. They have been found to be of value in the reduction of fatal accidents where used in other cities. Persons struck constitute a large class of fatal accidents occurring in Philadelphia. With the use of these wheel guards it is advisable to change the design of drawhead so that it will not project beyond the bumper.

OTHER SURFACE CARS

"As a large proportion of the other types of surface cars will, it is assumed, be discarded within a few years, it is believed not to be desirable to reconstruct them except for the requirements of safety. We would recommend that all surface cars be equipped with mechanical sanders, automatic wheel guards and non-projecting drawheads, and that projecting fenders be used only on high-speed lines in the suburbs.

"All cars not painted within the past year should be put

through the paint shop, and thereafter painted and varnished on a definite schedule.

"We recommend that the system and nomenclature of line and destination signs be entirely rearranged and standardized.

SUBWAY-ELEVATED CARS

"The present subway-elevated cars are of good design and no changes are recommended.

NEW STANDARD SURFACE CAR

"It is assumed that the new standard car for Philadelphia will be a two-motor prepayment car with windows capable of large opening, which would make it suitable for both summer and winter operation. If the body is 28 ft. long with platforms 5 ft. 6 in. long (inside), mounted on reversed, center-bearing, maximum-traction trucks, the overhang of car without projecting fender when operated on standard track curve at 50-ft. street intersections would be approximately the same as the bumper on the present pay-within car and about 18 in. less than the overhang of the fender on the present car. Consequently the length of body might be 30 ft. if found desirable, or even longer if operated on some lines. For the purposes of this report we have assumed the use of a 28-ft. cross-seat car as generally practicable, with seating and standing capacity of 76 passengers on the basis recommended.

"This, with a car 8 ft. 4 in. wide with skeleton sides and 34-in. seats, would permit of an aisle 28 in. wide. With exits from both rear and front platforms, and with the recommended limit of car load, this width of aisle should be found practicable from an operating standpoint.

"Our recommendations upon the points of design especially affecting the traveling public are as follows:

"The illuminated line and destination signs should be of the same type as recommended for the pay-within car.

"The height of the step should be from 14 to 15 in. and the width of step at least 11 in. The step should be folding or protected and should have safety tread.

"The folding platform doors should be mechanically operated by motorman or conductor and should be kept closed while the car is in motion. The bulkheads should be open and all passageways should be at least 23 in. in the clear. The conductor should be located on the rear platform behind a suitable rail or steadying device.

"The seats and backs should be of spring rattan, of comfortable height and properly sloped.

"The vestibule windows should be given full opening. Monitors should be fixed shut and there should be provided sufficient roof or monitor automatic ventilators.

"There should be installed 16 electric heaters of a total rated capacity of 12 amp.

"Twenty 16-cp incandescent lamps should be used; fifteen inside the car, arranged in single sockets on the ceiling and lower decks, one on each platform, two for destination signs and one for headlight.

"There should be a passengers' push-button signal on each side post of car, with electric bell or buzzer on platforms.

"Mechanical sanders and automatic wheel guards should be installed. Drawheads should not project beyond bumpers.

ESTIMATED COST OF ADDITIONAL EQUIPMENT

"The addition of 489 cars, if all motor cars of the above standard, would involve an expenditure for car equipment and equivalent additional capacity of power house and feeder system, car houses and shops which we estimate at approximately \$7,126,000. The recommended changes in present pay-within and other surface-car equipment are estimated to cost not more than \$500,000. Twelve additional cars for the subway-elevated line would cost about \$144,000. These recommendations, therefore, involve a total expenditure to secure the recommended car capacity needed in October, 1910, of approximately \$7,770,000, and are exclusive of betterments and extensions of track and line. With a normal rate of growth we estimate that at least 100 additional cars per year, with power and storage capacity, will be needed to provide for additional traffic.

RE-ROUTING PLAN

"We find that the present routing of cars in Philadelphia is poorly arranged from standpoints both of public convenience and economical operation. The delivery district trackage is not accessible to lines from all sections of the city. Lines through the residence districts are not spaced uniformly, and many lines were located originally under competitive conditions on narrow streets, with numerous curves and frequently crossing each other. We submit in the detailed report a statement of the general principles involved, and have therein developed a tentative plan of re-routing covering the entire city, based on these principles and upon the information derived from observations and passenger counts. This plan is suggested as an approach to the subject, and is presented for discussion and study. A final plan of re-routing should be adopted by agreement of all parties interested and should be put into effect as soon as practicable."

STATEMENT OF MR. KRUGER

Charles O. Kruger, president and general manager of the Philadelphia Rapid Transit Company, was quoted in the Philadelphia Press of March 10 as having stated in reference to the report:

"In the absence of the full report I cannot make any definite statement. My first impression of the summary, as given us to-day, is that it is distinctly favorable and in keeping with the policy of the company. What is said concerning the number of cars is exactly in line with what the management has realized to be necessary. The company realizes that it has not enough cars, but its lack of capital is responsible for this condition. The new régime has already planned to fill this want. The exact number of cars required, or to be purchased out of the first year's apportionment of the proposed new loan, to fill this want, has not been determined. But if you keep within the range of 150 and 250 cars you will be near the figure. This is a subject that Mr. Mitten and I will consider.

"As to the criticism that the car equipment is poorer than that of other American cities, it is one with which I do not agree, but here as in other respects, since the report is not in hand, I am unable to know exactly what is meant, and therefore am unable to comment on the point at issue.

"Concerning the suggestion that the standing room be limited to a given number of square feet to the passenger, I feel that it is getting back to the European idea, which the average American will not stand for. The average American will board a car as long as he can get a foothold, regardless of law or regulations.

"To give you figures from memory I should say that the company now has about 4000 cars. Of this number about 1200 are summer cars, which are not now in use. About 1750 cars are run at high load line, and about 1550 at other parts of the day. We are continually experimenting on cars and are now putting on five new cars with folding doors, which are of the manual opening type. These cars will be added to-day to the service on the Willow Grove line. We find that the sliding doors operate too slowly, and for that reason will adopt the folding door type, if it proves satisfactory in all respects."

PARCEL BUSINESS OF BRADFORD TRAMWAYS

The Bradford City Tramways, Bradford, England, have developed a large parcels express business and are now collecting and delivering weekly about 14,000 parcels. The capital expenditure at present standing against the business is £2,500 and the annual profits are about £1,700. The parcel service is in charge of C. E. Hobson, parcels superintendent.

Bulletin No. 3 of Purdue University, issued under date of February, 1911, describes the complete shop and laboratory equipment of the engineering schools of the university. It is illustrated with numerous half-tone views of the exterior and interior of the buildings.

DECISION OF COMMISSION ON CONEY ISLAND FARE

In connection with the decision of the New York Public Service Commission, First District, upholding the fare of 10 cents charged by the Coney Island & Brooklyn Railroad to Coney Island on week days, separate opinions were filed by several of the commissioners. Those who voted for the order dismissing the complaint of Jonas Monheimer against the company were Commissioners William R. Willcox, William McCarroll and John E. Eustis. Negative votes were cast by Commissioners Edward M. Bassett and Milo R. Maltbie. Opinions were filed by Commissioners Eustis, Bassett and Maltbie and a statement was made by Commissioner McCarroll. A brief reference to the decision was published in the issue of the ELECTRIC RAILWAY JOURNAL for Jan. 14, 1911, page 95.

OPINION OF COMMISSIONER EUSTIS

The opinion of Commissioner Eustis was, in part, as follows:

"I am unable to concur in the conclusion of the sitting commissioner in which he reasons that because the company formerly maintained a 10-cent rate to Coney Island on Saturdays, Sundays and holidays and a 5-cent rate on other days and because the company has not shown that the increase made two years ago to a 10-cent fare on week days has effected any substantial improvement in the company's earnings such increased charge to those who travel on week days without any corresponding benefit to the company or to the users of the cars is an injustice to all. In my opinion, the equalization of fare on all days is distinctly an act of justice to the passengers who travel over the defendant's road on Saturdays, Sundays or holidays, rather than an injustice to any one.

"A fair price for a service of this kind seems to me to mean the same price for the same service every day, and such uniformity is, in my judgment, the first essential of a fair and reasonable rate. The fact that the company voluntarily maintained two rates of fare to Coney Island, one for week days and one for holidays, Saturdays and Sundays, does not constitute a reason for this commission to require a return to such a practice. There is much force in the suggestion that there is a moral obligation in favor of the patrons who have located along the line of this road and built homes on the implied promise of a 5-cent fare five days in the week. But the commission would exceed its powers if it undertook to enforce such an obligation in the absence of evidence that the fare charged was unreasonable.

"No inference that the fare is excessive or unreasonable is to be derived from figures of the company's earnings in 1905 and 1906. Since the early part of 1907 the Coney Island & Brooklyn Railroad Company has paid no dividends whatever. In that time the company has been called upon to spend large sums to rehabilitate its property, extensive repairs have been made to its track and equipment, and these repairs are not yet completed. For nearly four years all surplus earnings have been required for replacements and they will continue to be so required for some time to come.

"The evidence in the case contains a careful appraisal of the company's property, from which, after deciding all doubtful questions against the company, I derive a figure between \$4,900,000 and \$5,000,000 as the present value of the company's property used for purposes of transportation. This value is the net value after thorough depreciation and after a rigid exclusion of all items of which there could be any question. It covers property upon which the evidence shows that \$8,641,952 of securities have been issued, the average market price of which securities during the six months preceding Aug. 31, 1909, was \$7,868,152. The figure which I have taken does not include any franchise value, although the defendant company owns two franchises, the original Coney Island & Brooklyn Railroad franchise and the Brooklyn City & Newtown Railroad franchise, which are assessed for purposes of franchise taxation at over \$5,000,000.

"For the year ended June 30, 1909, the company's profits

from operation were \$413,790, or less than 8½ per cent on the minimum valuation of \$4,900,000. This return would be reduced to about 6¾ per cent if corrections were made in the profit and loss account to adjust operating expenses to conditions that could reasonably be defined as normal. The actual profit for the year ended June 30, 1910, is shown to be about 7.9 per cent upon the figure which I have taken. From these recent figures of earnings I conclude that it is safe to assume 7½ per cent as a fair average figure for the company's profit on the depreciated value of its property under the present fare schedule of 10 cents every day. This return would represent about 5 per cent on the outstanding securities. I do not consider 7½ per cent an unreasonable profit to a company of this kind going through a period of rehabilitation."

STATEMENT OF COMMISSIONER M'CARROLL

Commissioner McCarroll concurred in the opinion of Commissioner Eustis, "with the expression of the additional view that the testimony in the case rather shows that the financial results of the present rate to the company are more favorable than formerly."

OPINION OF COMMISSIONER BASSETT

Commissioner Bassett discussed the case at length and said, in part:

"The 10-cent fare is not restricted to Coney Island passengers exclusively, but is a long-ride fare, adjusted with a rough approximation to the distance traveled. The adjustment is effected by means of a fare zone located in the southern portion of the several routes. The arrangement is that a passenger may ride between any point within the fare zone and any point north or south of the zone for a single fare of 5 cents, whereas a passenger boarding a car outside of the fare zone and riding across the zone into the territory on the other side is charged a second fare of 5 cents on passing out of the zone. The effect of this arrangement is that passengers riding between the territory in the vicinity of Coney Island and points in Manhattan or in the northern portion of the Borough of Brooklyn are charged 10 cents. The southern boundary of the fare zone is Kings Highway, 2.62 miles north of Coney Island, and the width of the zone is about 4.16 miles. The maximum distance that a passenger can travel for 5 cents is nearly 10 miles, from Delancey Street, Manhattan, to Kings Highway. The minimum distance for which the company charges a 10-cent fare is less than 5 miles, from a point south of Kings Highway to a point north of the corner of Ninth Avenue and Ninth Street. The maximum distances traveled for a 5-cent fare and a 10-cent fare respectively on the six different routes operated to Coney Island by this company are stated approximately in the following table:

Route.	5 Cent Fare.	10 Cent Fare.
Between Covert Avenue and Coney Island.....	8.91	11.53
" Delancey Street, Manhattan, and Coney Island.....	9.76	12.38
" Grand Street Ferry and Coney Island.....	8.56	11.18
" Park Row, Manhattan, and Coney Island...	8.65	11.27
" Fulton Ferry and Coney Island.....	7.89	10.51
" Hamilton Ferry and Coney Island.....	6.68	9.3

"On the theory that the fare charged is a reasonable price for the average distance traveled by all passengers, the uniform rate of 5 cents for transportation on a city street surface railway has met with public acceptance in most cities in this country, notwithstanding the disparity in the service rendered to different passengers.

"The inequality in the ordinary case of a flat rate of 5 cents is enhanced under a system of fare such as that in force on the Coney Island & Brooklyn Railroad, by which the maximum distance traveled on one route for 10 cents is less than a distance a traveler may ride on another route for 5 cents, and by which some passengers pay 10 cents for a ride of 4.6 miles on a particular route while other passengers travel 9.5 miles over a slightly different portion of the same route for 5 cents. It is impossible under these circumstances to test the reasonableness of the company's charge except by studying the entire business of the company.

"I am forced by a consideration of the evidence to the con-

clusion that the increase in fare does not substantially, if at all, increase the receipts of the company and does not in a broad sense benefit it by any economy in expenditure."

OPINION OF COMMISSIONER MALTBIE

Commissioner Maltbie stated that he concurred with Commissioner Bassett, and added:

"The basic question is whether the company is justified in increasing the rate to 10 cents upon every day of the week. If a company cannot show that an increase in rates does result in an increase of its net income, it seems to me that the increase should be disapproved and the company ordered to institute its former or a lower rate. The evidence presented by the company in this case does not prove that the increase in rates has resulted in an increase in net income, at least not beyond a few thousand dollars, which would not affect the conclusion. Consequently, the company should be ordered to return to its former rate or a lower rate fixed."

FENDER AND WHEELGUARD TESTS TO BE CONDUCTED IN ST. LOUIS

The Board of Public Improvements of the City of St. Louis, Mo., has arranged to conduct a series of fender and wheelguard tests beginning April 10, 1911. The trials will be conducted on the tracks of the Water Works Electric Railway (St. Louis Electric Terminal Railway), at Bissell's Point, under Francis T. Cutts, engineer in charge fender and wheel-guard tests.

In addition to the rules governing the assignment of ratings, Mr. Cutts has prepared for the information of prospective competitors two blueprints which show the platform construction and clearances of the cars to which the fenders and wheelguards would be attached. The rules follow in full:

RULES GOVERNING TESTS

Generally, the tests will consist of picking up or removing from the track two sizes and weights of dummies placed in various positions in front of the car, approaching them at three different speeds. The fenders will be attached to a double-truck car. A granite block pavement will be imitated on the roadbed to conform with street conditions in St. Louis.

The two dummies will represent, respectively, a man and a child. The first will be about 5 ft. 9 in. in height and weigh 200 lb. and the second about 4 ft. in height and weigh 50 lb. The dummies will be placed on the granite block not more than 30 ft. from the end of such pavement nearest the approaching car.

The three speeds at which the tests will be made will be approximately 5, 10 and 15 m.p.h. The portion of the track prepared for the test will be about 100 ft. long.

The positions in which the dummies will be placed for the test are as follows:

Test No. 1—Dummy placed in an upright position on the track with its back toward the car.

Test No. 2—Dummy placed in an upright position on the track with its side toward the car.

Test No. 3—Dummy lying on its side, with arms extended toward the car.

Test No. 4—Dummy lying somewhat diagonally on the track with its feet toward the car.

Test No. 5—Dummy lying along the rail, with its head and one arm extended toward the car.

The board reserves the right to eliminate any of the above tests.

Each projecting fender will be submitted to tests Nos. 1, 2 and 3, with each size of dummy, over roadbed paved with granite block, and at three speeds, provided the tests are not discontinued as hereinafter prescribed. Each underneath fender or wheelguard will be submitted to tests Nos. 3, 4 and 5, with each size of dummy, over roadbed paved with granite blocks, and at three speeds, provided also the tests are not discontinued as hereinafter prescribed.

The entire conduct of the tests will be under the Board of

Public Improvements. Applications for tests must be filed with the Board of Public Improvements on or before April 3, 1911. Applications received after this date will not be considered. The testing grounds will be roped off, and all disinterested parties will be excluded therefrom.

Each fender or wheelguard submitted for test may be represented by accredited representatives, who must be named before the tests are begun. The order in which devices will be tested will be determined by the Board of Public Improvements. Its decisions will be announced as far in advance as possible. A failure on the part of a competitor to be ready in his proper order may result in his being dropped from the competition. The competitors will be notified in advance and will have ample time to arrange for the tests.

The fenders must be shipped by the manufacturers or inventors themselves, care of the Board of Public Improvements (Water Works office, 34 East Grand Avenue, St. Louis). The Board of Public Improvements will not be responsible for the receipt or for care of any devices.

The number of tests will be determined by the Board of Public Improvements. If 50 per cent of the tests in any series on any fender or wheelguard are not of grade "B," as herein-after defined, the tests on such fender or wheelguard will be immediately discontinued.

The tests will be conducted in the following order:

First Series—50-lb. dummy at 5 m.p.h.

Second Series—50-lb. dummy at 10 m.p.h.

Third Series—50-lb. dummy at 15 m.p.h.

Fourth Series—200-lb. dummy at 5 m.p.h.

Fifth Series—200-lb. dummy at 10 m.p.h.

Sixth Series—200-lb. dummy at 15 m.p.h.

Only the predetermined number of tests will be permitted, except as provided in these rules. If a device does not pass satisfactorily a sufficient number of tests in any series a protest may be filed and considered as provided in the following rule:

If the ruling of the engineer in charge, or his representative, is disputed at any point in a test, notice of a formal protest shall be given immediately. The formal protest shall be filed on the date of the test, setting forth all particulars, and a hearing shall be held and final ruling rendered in time to permit other tests to be made, if allowed by the Board of Public Improvements.

The points for the tests will be apportioned as follows:

"A"—Complete pick-up..... 6 points

"B"—Partial pick-up..... 3 points

"C"—Drag along..... 1 point

"D"—Miss 0 point

N—Interference with traffic and storage.

None. Slight. Considerable.

25 20 5

Y—Design.

Good. Fair. Complicated.

27 20 3

Complete pick-up on Series Nos. 1, 2, 3, 4, 5 and 6 will give a rating of 108 points (which is highest possible score in action). If fender has no interference with traffic it will be credited with 25 points. If fender is of *good* design it will be credited with 27 points. A possible high score is therefore 160 points. If a fender receives a 160-point credit its efficiency will be 100 per cent.

EXAMPLE.—Given fender of following qualifications:

X—Interference with traffic.....Slight

Y—Design Complicated

		OPERATIVE TESTS				
Series.	1.	2.	3.	Ttl.	Operation	Points
1.....	6	6	6	18	X	20 points
2.....	6	6	6	18	Y	3 points
3.....	3	6	6	15		—
4.....	6	6	6	18	Total	110 points
5.....	6	3	3	12		
6.....	3	3	0	6	Possible score.....	160 points
Total..	30	30	27	87	Efficiency	68¾%

HISTORY OF THE COLUMBUS STRIKE

A condensed history of the strike of a minority of the trainmen of the Columbus Railway & Light Company in the spring and summer of 1910 has been published in pamphlet form by the company. The causes and results of the strike were given in articles published in the current issues of the *ELECTRIC RAILWAY JOURNAL* last year. A number of additional facts are given in the history, an abstract of which follows:

"For more than 18 years prior to February-March, 1910, relations between the Columbus Railway & Light Company (including its predecessors) and its employees were all that either could desire. The first intimation of any uneasiness among the employees of the company was in the latter part of February or first part of March, 1910, when the general manager was waited upon by a committee of seven or eight employees with a copy of a petition which was being circulated for signatures at the various car barns. It was a very modest request for an increase in wages.

"The general manager carefully read the paper and stated to the men that he was sorry that they thought it necessary to go to the trouble to get up a petition on a matter of this kind, for the reason that the subject of increase of wages had already been up before the board of directors and a substantial advance had been decided upon to take effect in the early spring, just as soon as it could be conveniently arranged, and that the company had made advances from time to time in the way of increased dividends to employees by reason of increased dividends to the stockholders of the company (this company having several years since adopted the plan of distributing dividends to its employees on wages earned in the same ratio that dividends are paid to stockholders of the company). This seemingly had been overlooked by the men, although as a matter of fact it was equivalent to an increase in wages.

"The men complained of the increased cost of living, which the general manager could not deny, but in reply said: 'Well, boys, the company is hardly responsible for that state of affairs, but we are all alike in that particular, and about the only thing left for all of us to do is to try and get along and if possible live more economically.' From that time on trouble began to brew and early in April, 1910, a strike was threatened but was averted by an agreement entered into at the suggestion of the secretary of the State Board of Arbitration, through whom an agreement was consummated April 6, 1910. Under this agreement the wages of all conductors and motormen were increased 1 cent per hour beginning April 1 and were to be again increased ½ cent per hour on Jan. 1, 1911. Thirty-five men who had been discharged were to be reinstated 'provided the men who were promoted to fill the positions so created will assent thereto.'

"In the latter part of April the union men claimed that the company broke the agreement and decided to go out on a strike, which they did April 29, 1910.

"As to the charge that the company broke the agreement, the facts were as follows:

"Section 4 of the agreement of April 6 provided that some thirty-five men who had been discharged for cause be taken back and reinstated in the places occupied by them previous to their discharge *provided that the men who had been promoted to fill vacancies so created would assent thereto*. All of these 35 men were reinstated within a few days after this agreement had been entered into except four, who were not reinstated (although the company offered them positions on the extra list) for the reason that four employees who had been moved up refused to move back, in short would not 'assent thereto.' These employees felt that they were entitled to the places to which they had been promoted and which they had earned, and declined to move back. Because of this fact and because the company would not force them to go back (which would have been a most unjust thing to these men, involving the surrender of a principle of justice and fairness to which no company or person could honorably yield) the union men went out on a strike April 29, thereby breaking the agreement.

"This strike was ultimately settled on May 3 by the company agreeing to an interpretation of certain clauses of the agreement of April 6. The acceptance of the interpretation by the union men was simply to give an excuse for calling off the strike, the four men being given city positions by the Mayor.

"This settlement was satisfactory to the employees of the company, but was not to the professional agitators and organizers or to the officers of the national union of the Street Railway Amalgamated Association. They sought a 'closed shop,' the company having declared for an 'open shop.' The national union officers, the agitators and the organizers set about producing another strike for the purpose of securing, if possible, their demand for the 'closed shop.' On June 21 they voted for a second strike, the time for making it effective being left to a committee of the union. Before the second strike was made effective the Chamber of Commerce asked the State Board of Arbitration to intervene. Both the company and the men were called before the State Board.

"While the hearing was in progress an offer was made by the union on behalf of the union that the men would accept the award of the board if the company would sign in writing a similar offer to submit to such award. This would have meant a contract between the company and the union; a complete recognition of the union by the company, and the unionizing of a company where 75 per cent of its employees were non-union. The offer was refused on those grounds, as the company in all of its negotiations had declined to deal with or recognize the union.

"The deductions from the findings of the State Board of Arbitration showed that of about 50 charges made by the men against the company less than 20 per cent were sustained by the board. Of those sustained, more than one-half were sustained on the supposition that men who were in fact still working had been discharged from the service; in fact the whole 50 charges simmered down to the discharge of two men. The findings of the board were made public late Saturday evening, July 23, and at four o'clock the following morning (Sunday), without conferring further or seeking to ascertain even whether the company would or would not abide by the award of the board, the union men went out on a strike and inaugurated the warfare that for 12 weeks and 3 days disgraced the State and its capital with lawlessness and a reign of terror.

"From the beginning of the second strike mob law was supreme in Columbus for a period of 9 or 10 weeks, during which cars were attacked and crews beaten almost daily, over 200 cars were disabled, 24 of them having been blown up with dynamite, 120 employees were so injured as to require surgical attention, many of them being most brutally beaten, many passengers were assaulted and one murdered. Cars were stoned and shot at continuously. Bottles of acid were thrown from the dark into the faces of the motormen and hundreds of attempts were made to wreck the cars.

"The Mayor of the city was responsible in a large degree for this shameful record. His open and secret encouragement of the lawless element, his positive refusal to take any effective method of restraining the mob, his open denunciation of the company and its employees who attempted to operate cars in the face of the mob, and his zeal in seeking technical pretexts for the arrest of the loyal employees of the company who continued to operate cars, combined to produce a spirit of insubordination in the police department which resulted in an open mutiny on the part of a large number of policemen, lent encouragement to the lawless and discouraged all officers who honestly sought to conserve the peace.

"To the shame and disgrace of the city, the strikers and their sympathizers were allowed full sway in attacking and dismantling cars, beating and driving off the crews and instituting a reign of terror in the very heart of the city. The Mayor and his police force stood by in plain sight, refusing to raise a hand to quell the rioting, restrain the mob or protect either the cars or crews, until the men had been thoroughly taught this lesson, viz., that if any non-union man dared to operate a car he could expect no protection from the civil authorities but

would be turned over to the mercy of the mob. Not till then did the Mayor make even a pretense of restoring order; and after that his efforts were only a pretense.

"Throughout both strikes the real controversy has been one between the 'open shop' and the 'closed shop.' The company decided not to accede to the demand for a closed shop nor to submit that demand to arbitration.

"The strike was officially declared off on Tuesday night, Oct. 18, and thus ended one of the most disastrous labor agitations in the annals of the country.

"A large number of new men have been employed and occupy the places made vacant by the striking men; quite a number of the striking employees have returned to work, accepting such places as they could obtain, so that at the present time the company is operating its full quota of cars and the business of the company is again about normal.

"As an exhibition of error accompanied with violence on the part of misguided men led by crafty and vicious leaders, of incompetence and disregard of duty by those in authority, of public sympathy wasted on an unworthy and unrighteous cause, and of a final and deserved collapse of a dangerous movement, this strike was without a parallel. It was inaugurated without excuse. It was conducted in utter disregard of the rights and interests of the public. Misdeeds committed in its interests were winked at by those intrusted with power whose sworn and sacred duty it was to suppress them and punish the perpetrators. That it proved a miserable failure was due to the firm and uncompromising stand taken by the company. The lesson of this strike was a dear one, but it may prove valuable as an obstacle to a repetition of such an event in the future and a warning to unprincipled agitators who thrive by such misfortunes.

"The value of it as a lesson should inure not only to the benefit of the company whose welfare was directly involved, and to that of all manufacturing and commercial interests of the City of Columbus, but to the benefit of all like industries throughout the country at large, and to the peace and protection of the public."

CORPORATION TAX UPHeld BY THE SUPREME COURT

In a decision rendered by the Supreme Court, March 13, the constitutionality of the corporation tax law was affirmed by unanimous decision. The case came before the Supreme Court through suits brought in United States courts by stockholders to restrain the companies in which they held stock from paying to the government the amount of the tax. Sixteen of these cases were appealed to the Supreme Court and formed a basis for the decision rendered on Monday.

The Supreme Court upheld the argument advanced by the government that the tax was an excise law on "its doing of business in a corporate capacity." The court held that the tax was not applicable to the Real Estate Trust of Boston, which was organized, not under any statute, but under the common law, and that it was also not applicable to the Minneapolis Real Estate Syndicate on the ground that "that enterprise was not doing business within meaning of the law." It also decided that the Coney Island & Brooklyn Railroad and the Interborough Rapid Transit Company in New York were subject to the tax because it was no part of the essential governmental functions of a State to provide means of transportation or to supply artificial light, water or the like.

The exemption of certain labor organizations and charity institutions was briefly upheld on the theory that Congress has the power to select objects of taxation and to omit others. In this connection, but in another part of the decision, the court says:

"The right to select the measure and objects of taxation devolves upon the Congress and not upon the courts, and such selections are valid unless constitutional limitations are overstepped."

NEW LAWS IN INDIANA

Laws have been passed by the Legislature of Indiana relating to the equipment of interurban cars with hand brakes in addition to air brakes and the installation of block signals. The laws have been approved by the Governor. Abstracts of the new measures follow:

LAW RELATING TO BRAKES

"That it shall be unlawful for any common carrier in this State operating an interurban railway by electric power to operate or run upon any railroad in this State any motor car used in regular interurban passenger traffic which is not equipped with an approved power air brake in good condition, and subject to the control and operation of the motorman in charge of such cars, and of sufficient capacity to control the speed of the car. It shall also be unlawful for any common carrier operating a steam or electric railway and engaged in moving traffic between points in this State to operate or run upon any railroad in this State any freight or passenger train which is not equipped, at least, as to a steam railroad 75 per cent and as to an interurban street railroad 50 per cent of the cars in said train, with an approved system of hand brakes in addition to power or train brakes. The hand brakes shall be kept at all times in proper working condition and of sufficient capacity to control the speed of such train. Provided, that the hand brakes upon every passenger coach, both steam and electric, shall be so constructed that they can be operated in connection with the air or power brakes upon such coach. Provided, however, that whenever such power air brake becomes disabled from any cause while such car is in service on any such railroad, then if such car is equipped with a hand brake sufficient therefor it may complete its run: and provided, further, that this act shall not make it unlawful to run a disabled car to the most convenient repair shop upon the road upon which it is then being operated. Provided, that this act shall not apply to city street railway cars or cars engaged in suburban traffic.

LAW RELATING TO BLOCK SIGNALS

"After Jan. 1, 1912, it shall be unlawful for any person, firm or corporation which shall own or operate any line of steam or interurban railroad in this State to operate any train or car over such railroad by steam, by electric power or other power unless such railroad is equipped with and has in operation an automatic block signal system for the control of train or car movements thereon, unless the time therefor be extended by such Railroad Commission.

"Power and authority are hereby conferred upon the Railroad Commission of Indiana to extend the time specified when it shall be made to appear to it that a reasonable necessity for such extension shall exist. Provided, that the extension so granted shall not exceed one year. Full power and authority are also hereby conferred upon such commission to relieve any such carrier from the obligations imposed when it shall be made to appear that the volume of traffic or train or car movement over such railroad is such that the same can be dispatched without substantial hazard to life and property over a line not so protected. Full power and authority are also hereby conferred upon such commission to permit, authorize and order in place of the automatic block either a controlled manual block, or a manual block, or a dispatcher's block, or any other form of block signaling that may be hereafter devised or used, if in the judgment of such commission it shall be made to appear that a controlled manual block, or a manual block, or a dispatcher's block, or any other form of block signaling now or hereafter devised or used shall reasonably conserve the safety of life and property, and whenever such order is made by the Railroad Commission and such other form of block signaling is installed, operated and maintained in obedience to such order it shall be taken and held as a full compliance with this act.

"Any person, firm or corporation, receiver or lessee who or which shall violate any of the provisions of this act shall forfeit and pay to the State of Indiana the sum of \$1,000 per

week for each week that trains shall be operated over any such railroad in violation of the act, the same to be collected by the Railroad Commission of Indiana by a suit in its name for the use of the State of Indiana in any court of competent jurisdiction."

METHOD OF ACCOUNTING OF FREIGHT CLAIMS*

BY O. I. DAVIS, LOCAL AUDITOR DAYTON, COVINGTON & PIQUA TRACTION COMPANY

The reports of over, short, damaged, refused or unclaimed freight and the investigation of the same relate so closely to the subject of this paper that I cannot treat it as I should without also considering this phase of accounting.

To handle to advantage the work in any department of accounting proper forms of stationery must first be provided. Several kinds of O. S. & D. forms are used by different roads, but the best one that has come to my attention is employed by one of the larger lines where the investigation of O. S. & D.'s and claims is conducted by the superintendent of transportation. The form is printed on paper sufficiently thin to allow four copies to be made at one writing by the use of carbons. The original is sent direct to the superintendent, a copy to the auditor, a copy to the forwarding agent and a copy is retained by the issuing agent for his file. The reports are numbered consecutively throughout the year by the various agents. The auditor files the copies sent him in station order and can always refer to them if the original papers should become lost. The advantages of sending a copy to the forwarding agent are many, for in a number of cases the cause of "overs and shorts" is the result of error in billing. This can be adjusted immediately by correction. If, however, the trouble cannot be corrected by the forwarding agent he adds his complete forwarding record to the report and sends it to the superintendent for investigation. After the investigation is completed, the entire file is sent to the auditor to be held awaiting claim, or to swell the volume of correspondence, reports and the like with which our record rooms are already burdened.

I consider the following records necessary in each claim department: A claim record book in which each claim is entered in numerical order and a good index system. For a road having only a few claims a card index system would probably answer. In case the claims are numerous, a loose-leaf book, properly ruled, would be found much better, as several accounts may be kept on one sheet and many more accounts can be kept in one book than could be filed in two or three card index files. A stock letter containing the questions most used in investigating damage claims with agents and train crews is also of advantage. A blank claim statement or base, when properly filled out, will show at a glance the name and address of the claimant, the amount, the nature of the claim, whether for loss, damage or overcharge; billing reference, date entered, and the supporting papers attached to the file. It is very important that the claimant furnish the necessary supporting papers, including the original bill of lading, the paid expense bill and the shipper's invoice. The statement can be made in duplicate so that there is a complete record of the claim while the original papers are out of the office undergoing investigation.

Most of you no doubt are familiar with the loss, damage and overage rules adopted by this conference, Feb. 11, 1908. These are, so far as I know, sufficient to meet the present requirements of the roads interested. Several cases have come to my attention where a duplicate claim was presented for the same damage. This is possible if the shipper uses the original bill of lading and a copy of the expense bill, while the consignee supports his claim by a copy of the bill of lading and the original expense bill. In order to detect duplication, each claim number should be checked against the auditor's

record of the waybill. I believe the best way is to insert the claim number on the abstract of freight forwarded.

If the head of the claim department keeps a statement of "over" or "unclaimed" freight he will no doubt be able to fill some of the shortages for which claims have been made. He will also be in position to reply promptly to connecting lines which may trace him for shortages. When the volume of business is sufficient, it is of advantage to maintain an "unclaimed freight" wareroom at some central point to which all unclaimed shipments may be sent after they have been held the required length of time at the original destination. Shippers should be notified in case the destination agent is unable to make delivery. Better freight facilities and the training of agents and others directly concerned in the handling of freight will do much toward reducing the number of claims.

Regarding interline shipments, one of the conference rules (Rule 2, Loss and Damage) specifies that the carrier agent to which claim is presented shall place its claim-back on the papers. It is understood that the carrier that accepts the claim, whether it is presented by the shipper or the consignee, should handle the matter to a conclusion and make final report to the claimant, either paying or rejecting the claim. There may be a difference of opinion on this, but I contend that a claimant would prefer to deal with the company whose agent is located in his town. If the carrier against which claim is made advises the claimant that his papers have been sent to the company with which the shipment originated and that he should look to that company for payment it is sure to create dissatisfaction among claimants. I further believe that when the consignee presents the claim to the delivering carrier the investigation should first be made between junction point and destination; if the loss or damage is found to have existed at the junction point it is then proper to send the claim to the initial carrier. I do not think it advisable or necessary, however, to forward claims arising on interline shipments to the initial carrier without first ascertaining the condition of the shipment at the junction point. To do so often places an unnecessary claim in the files of the connecting line and unnecessarily delays the settlement of the claim.

The freight claim authorized or draft authority is generally used on all steam roads in the settlement of claims affecting interline shipments. Inquiries among the officials of the various electric lines develop the fact that very few of us are making use of this excellent plan in our claim departments. The draft authority simplifies this line of accounting, reduces the work to a minimum and, best of all, it is the speediest method of paying to the connecting line all or a portion of a claim in which two or more carriers are interested.

I now wish to speak of the advantage of prompt attention to freight claims. Delay in handling papers results in dissatisfaction among shippers and increases the work in the claim department of the lines interested. Unless the obligation is paid promptly the claimant is sure to trace for settlement; this necessitates a reply to him and an additional letter to the party who has the claim papers.

I find the long-haul or interline business is steadily increasing, as well as the number of local freight shipments because of the ability of electric lines to handle freight with greater dispatch than the steam railroads. The increase is gratifying, indeed, but it should not serve as an excuse for careless or tardy settlement of freight claims, for I believe the future freight business of the electric railways depends greatly on the treatment accorded the shippers. In many instances a flat declination of the claim would be far more satisfactory to the claimant (especially if he be a wholesale dealer) than a series of excuses and finally an offer to compromise for about 50 per cent. Freight claim agents should, in my opinion, deal as liberally with the claimants as the circumstances permit. This also applies to transactions between claim departments of the roads doing interline business. To haggle about the payment of an insignificant amount may do much harm and is surely a very poor advertisement.

*Abstract of a paper presented at the Central Electric Accounting Conference held in Springfield, Ohio, March 11, 1911.

PROPOSED CHANGES IN CLEVELAND ORDINANCE

The second meeting of the special committee of the Cleveland Chamber of Commerce appointed to investigate the needs of the Cleveland Railway was held on March 9, when statements were made by F. H. Goff, Henry J. Davies, secretary of the company; Andrew Squire, street railway commissioner; G. M. Dahl and others.

STATEMENT OF F. H. GOFF

Mr. Goff spoke in part as follows:

"The success of the Tayler plan, as I see it, necessitates the railway company being in a position now and throughout the grant to obtain funds in a large way for development and extension at reasonable rates.

"The possibility of continuing the rate of fare at 3 cents, if it can be accomplished, will necessitate the utmost economy in the operation of the property, which, as I now see it, can be best secured by providing for a sliding scale of return to capital proportionate to the successes and achievements of the management.

"To obtain the best results from the operation of public service corporations, as it seems to me, capital invested in them should be penalized for inefficiency and waste and rewarded for efficiency and economies.

"If the ordinance necessitates extravagance in financing, and I would regard a sale of a guaranteed stock at par and of a 5 per cent first mortgage bond at a discount as wasteful, the loss is going to fall upon the car riders and not upon the company.

"It is going to be contended, as I understand, that the ordinance permits the company to maintain additions and betterments only up to a standard of 70 per cent of reproduction cost, entailing, it is claimed, a loss of 30 per cent on all capital hereafter invested, and that this provision makes it impossible or unduly expensive to secure funds for these purposes. If this be true, as to which I express no opinion, the vital question is not what ought to be done to protect the interests of the railway company, but what ought to and must be done to protect the interests of the public by putting the company in a position which will enable it to secure necessary facilities without delay to take care of our rapidly increasing traffic.

"If it is true that by a fair construction of the ordinance a loss of 30 per cent will be sustained on all money hereafter invested, there can be no question that neither money nor needed improvements will be forthcoming. If I interpret the ordinance correctly, the railway company cannot be compelled to provide any additional facilities, and one of the important questions that may arise may be whether some amendment ought not to be suggested in the ordinance making the furnishing of needed facilities compulsory. However that may be, I am clearly of the opinion that it would not only be ineffectual but unconscionable for the company to invite investment of capital upon the terms prescribed in the ordinance, if the ordinance is subject to the interpretation claimed for it in the matters I have referred to."

STATEMENT OF ANDREW SQUIRE

Andrew Squire, of Squire, Sanders & Dempsey, counsel for the company, said, in part, in his statement:

"While you have cordially requested representatives of the street railway company, of the city and of the public to be present at your meetings, it seems to me that, except as represented by yourselves, the most important factor in the settlement of the street railway question has not been invited to take part in your counsels. By this factor I mean the conservation investor.

"There are some people who do not believe sufficient money for the purpose of the railway company can be attracted upon a 6 per cent basis. Judge Tayler believed that it could. This chamber believed that it could, and many persons connected with the street railway company so believed, and the time has not yet arrived when any other basis than 6 per cent can be considered, if it ever need be. However, a period of more than

14 months since the passage of the ordinance has demonstrated that the security of the property invested is not sufficiently safeguarded to attract the investor. By 'investor' I do not mean the casual person who may be willing to take his chances by buying stock in the Cleveland Railway Company, who may have faith in the management of the property, who may have faith in the city's protecting the property, and who may be able to invest a few thousands or even a few hundreds of thousands of dollars.

"The situation and the demands of the city for improved street railroad service and facilities make it imperative that the investor should be some person or some group of persons who can furnish millions of dollars almost immediately, and further millions as increased demands shall require. Such investors would view the property from their standpoint. They are generally represented by so-called leaders of finance, bond houses or bankers with large clienteles, who examine into the merits of each investment.

"How will an investment in the securities of the street railway company stand investigation? The company has recently sold, or contracted to sell, \$5,000,000 of bonds, the proceeds of which are to be used in retiring \$3,150,000 of bonds maturing on Jan. 1 next and the floating indebtedness of the company. When the aggregate of this indebtedness shall have been retired a small amount of money may be left to put into betterments. Five million dollars more of bonds mature March 1, 1913, and probably will have to be retired by the sale of additional bonds. The sale of these \$10,000,000 of bonds, therefore, is practically the substitution of a new indebtedness for an old one. The mortgage securing the bonds, in order to meet the views of the purchaser of the indebtedness, contains conditions intended to protect the security for the outstanding bonds and all future bonds to be issued under this same mortgage. The stockholders of the company who have investigated the ordinance of December, 1909, are convinced that any substantial increase of indebtedness is made at the expense of the value of their stock, and the board of directors cannot be expected to continue to sell bonds and increase the indebtedness when by so doing the value of the stock would be diminished; so that, under the present ordinance, after the present indebtedness shall have been refunded the only available resource for new money is the investor. The only thing which the company has to offer to the investor is its stock at par, the security behind that stock being the property of the company and the ordinance of Dec. 18, 1909.

"The investor, when he looks to the perpetuity of the property and the security of his principal, will find that on May 1, 1934, all rights of the company in the streets of the City of Cleveland terminate and that the city has the power to do what has been done, to wit: order the company to take its property from the streets. He will not rely upon the moral obligation of the city to continue his property in the streets upon some fair basis, and he will look in vain for a legal obligation so to continue it. He will be advised that there is no absolute safeguard in Sections 35 and 36 of the ordinance, which sections provide that at the end of the grant the city may, if it desires, purchase the property, but it is not obliged to do so and could not be obligated to do so; and, even if purchased, he will be advised that the purchase would in all probability be made at a price far below the amount of the capital value. He will be advised that Section 37, which provides, in substance, that if the city grants a franchise to any other person or corporation to operate a railroad over any of the then existing lines of the company the city shall require such new grantee to purchase the property of the Cleveland Railway Company at the depreciated price provided in Sections 35 and 36, has no legality whatever; that at most it is a moral statement made by the Council of 1909 that cannot bind the Council of 1934 or any grantee not choosing to be bound by it. He will be further advised that any stock he may purchase to-day is on a parity with the present outstanding stock, and that there is no provision made in the ordinance to amortize several millions of value; that there is no provision to keep the property from depreciation to the

extent of at least 30 per cent of its value. In fact, the investor will look at all of the other defects in the present ordinance and weigh them carefully before making his investment.

"So far as I have talked with investors having some ability to furnish the money required, they have said to me that the city should willingly amortize the franchise value; that there should be no difficulty in arranging that the property be kept up to its par value, either by keeping it in a condition to be worth 100 per cent or by allowing a maintenance and reserve or depreciation fund to go into additional extensions and betterments, so that the full value of the property shall be maintained; that so long as the stockholder is limited to 6 per cent upon his stock the city, having supervision, should not hesitate to permit its representative to allow the fare to be increased to any rate that will enable the company to earn the 6 per cent and preserve and protect the property; that they are exceedingly doubtful about the maximum rate specified in the ordinance providing such a return, and that it should be abolished, the city receiving its protection from the fact that the stockholder can never get more than 6 per cent; that there is no way of insuring to the investor on May 1, 1934, the return of his principal except to allow the railway company, during the last years of its grant, to charge any rate of fare necessary to recover so much of his principal as will leave him protected in the remainder of it by the value of the property of the company.

"The present ordinance provides that, within the limitations of the grant, whenever the ordinance has less than 15 years to run the company may charge the maximum rate of fare. There is no special virtue in 15 years. It might be 12, possibly as small a number as 10, but the investor must have the right in those last years to withdraw a substantial percentage of his investment, or his investment will be seriously imperiled. The city can always protect itself against any such increase in fare by keeping at least 15 years of the grant alive."

STATEMENT OF HENRY J. DAVIES

Henry J. Davies, secretary of the company, said, in part:

"The interests of the city and the company under this franchise seeming to me to be mutual, as Judge Tayler intended that they should be, it will not be difficult, I think, to show that the amendments desired by the company will, if made, be to the advantage of the city as well as to the advantage of the company, or, at least, will not operate to the disadvantage of the city. Some of the respects in which the interests of the two parties to this contract are mutual are these:

"1. That the capital liabilities of the company represent actual value. The city has the right under the franchise to purchase the property of the company if the State ever authorizes the ownership of street railway properties by municipalities at a price fixed in the franchise—a price not only equal to but in excess of the capitalization. It is to its interest, therefore, that the value of the property be somewhere near the price to be paid. The franchise gives the city another and a different right to buy—the right to buy, at the grant's termination, at a price to be agreed upon or to be fixed by arbitration plus a bonus of 10 per cent. This price is to include the value of the physical property only—and not all of that, for the cash in the interest fund is to be excluded, and, as I read Section 36, part at least of the value of pavement paid for by the company is also to be excluded. It is to the interest of the company, therefore, that the property at that time be equal in value to the total capital obligations of the company.

"2. That the property of the company be kept in good condition, thorough repair and working order. This is in the interest of the city because of the provisions of Section 32, reserving to the city the right to buy the property at the capital value plus 10 per cent, and because a good road is essential to good service. It is in the interest of the company because of the provisions of Sections 35 and 36, under which it may be required to sell at the appraised value of its physical property.

"3. That operating expenses, taxes and interest charges—in other words, the cost of running the road—be as low as pos-

sible consistently with good maintenance and good service. The city desires this because low cost means low fares for the car riders, the company because the rates of fares which it may charge are limited, and if the cost of running the road exceeds the maximum rates of fare permitted by the ordinance the excess must come out of the dividends of the stockholders.

"4. That each party to the franchise contract be just to the other.

"Having in mind this mutuality of interest in these and other respects the company asks simply that the ordinance be so amended as to protect the principal of the investment of its stockholders and bondholders, to the end that if the company be compelled to sell to the city within the lifetime of the franchise it may, in justice to the city, give to it a property worth the price that the city must pay or that, if it be compelled to sell to the city at the end of the grant, it may, in justice to its stockholders and bondholders, receive for its property a price equal to the capital value defined by Section 16 of the ordinance. This is all."

STATEMENT OF G. M. DAHL

Street Railway Commissioner G. M. Dahl read a statement in which he asserted that the city is not adequately protected in certain features. He believes that the city should have the right to initiate improvements and that any franchise which is dependent upon the company in this particular will be a failure. The city should have the right to pass upon maintenance and renewals, he said, and should be represented in any arbitration with the employees, should arbitration be necessary. Mr. Dahl stated that the inability of the company to market its securities was a mark of weakness in its franchise and that something should be done to relieve the company from the interest that is being paid upon the interest fund which it was compelled to borrow when it took the properties over. The interest paid on the fund is at the rate of 6 per cent and taxes are 3 per cent. Interest received from the banks is 4 per cent, so the company is losing 5 per cent interest on the money. He intimated that a provision should be inserted in the grant that would allow the suburban villages the same fare as is enjoyed within the present limits of the city, whenever they are annexed.

Chairman Hitchins, of the street railway committee of the City Council, stated that the franchise does not represent what was intended by Judge Tayler, as those who were close to him know. He asked that the grant be interpreted by attorneys.

Peter Witt, city clerk during the Johnson administrations, suggested that the city do away with the office of street railway commissioner and save the company \$50,000 a year, adopt a sliding scale of income on the stock, based upon economical management, and make the safety of the investment unquestionable. Then the problem of securing funds and the economical management of the property would be solved. Mr. Witt, however, said that it would be impossible to induce men to purchase stock if they believed they would get back only 70 per cent of what they paid for the stock.

Commissioner Dahl said that 200 cars are needed now and that \$2,500,000 should be invested in improvements in power. James A. Garfield asked him what security would be required to make the investment safe. An automatic renewal of franchise was suggested by Mr. Dahl as one plan and restrictions that would cause the city to act upon renewal quickly was another. If the service was poor, he would have the city empowered to nominate a purchaser. He said he believed that 30 per cent loss was an unreasonable probability.

On the evening of March 6 a resolution, presented by Mr. Hitchins, chairman of the street railway committee, was adopted by the City Council giving the company authority to sell \$5,000,000 of its bonds at 97.

Chairman Hitchins introduced a resolution on March 6 increasing the operating allowance from 11½ cents to 12 cents per car mile in order to offset the increased wages of the motormen and conductors. The matter has been referred to the street railway committee. Councilman Burke has presented a resolution calling upon the street railway commissioner to abolish the fine of 3 cents levied upon conductors for accepting

transfers which are punched incorrectly. This question was also referred to the street railway committee.

ELECTRIFICATION PLANS IN AND ABOUT BOSTON

Comprehensive plans for the railroad development of Boston and eastern Massachusetts are embodied in a bill coming from the New York, New Haven & Hartford Railroad on which a hearing was given Thursday, March 9, by the committee on railroads and metropolitan affairs sitting jointly. The acquisition by the Boston & Maine of the Boston, Revere Beach & Lynn and the acquisition by the New Haven of the Boston & Providence; the construction of a tunnel, to be known as the "Boston Tunnel," under the harbor from a point between the South Station and the Back Bay Station to East Boston, and the establishment of a through electric service from Readville on the south to Beverly on the north as a first step in a scheme of much further extension of electric service, all this to be effected within four years, are the principal points in the proposed legislation.

Vice-president Timothy E. Byrnes of the New Haven and Boston & Maine railroads presented the railroad's views. Mr. Byrnes outlined graphically the possibilities from electrification of existing and new roads and said in part:

"Logically the great trunk-line route for one of the most intensely developed traffic areas in the United States runs northeasterly from New York along the shore of Long Island Sound, traverses Rhode Island and southeastern Massachusetts, passes through the heart of Boston, and thence proceeds by a second 'Shore Line' onward through Lynn, Salem, Beverly, Newburyport and Portsmouth to Portland and beyond. All the way this is the line of the lowest grades and the greatest population. These conditions invite the highest type of transportation development.

"By means of the Boston Tunnel the several other lines entering on the north are made to share the benefits of direct connection with the great longitudinal routes. Defective and unrelated terminals have kept these lines upon a plane of low efficiency. Their development under the new conditions will be of the highest order.

"Along the eastern New England seaboard lie two great regions of dense population and intense industrial development. One centers about Narragansett Bay; the other, and the greater, about Massachusetts Bay. These two huge industrial districts together form the great eastern New England belt of intensive manufacturing and commercial development.

"The transportation axis of this belt is coincident with the main railroad line between Providence and Boston and the original course of the old Eastern Railroad. The line from Providence to Beverly by this route is practically as direct as topographical circumstances will permit.

"First may be considered the relation to the service now performed by the Boston, Revere Beach & Lynn Railroad. With electrification there will be great improvement over the present service. The frequent express train service to be installed to and from Lynn for the Revere Beach route will immensely improve the transportation facilities of that city. The popularity of the great metropolitan pleasure resort at Revere Beach will correspondingly advance, while the development of the Winthrop shore and of Nahant, Lynn and Swampscott beaches may be expected to compare with Brighton and other English watering places.

"Winthrop, Revere and Lynn will also benefit greatly from the connection with the South Station by way of the tunnel under the harbor built to parallel the existing East Boston tunnel. The quicker transit than that by way of the ferry will well be worth the additional fare. With the Railroad Commission empowered to determine the just rate for this additional fare through the tunnel the amount cannot be excessive at the most.

"In terms of transportation greater Boston will practically be extended to Cape Ann by the swift transit facilities planned for the entire region. This means a fairly marvelous acceler-

ation in population and industry for this great region, which beyond Lynn includes Swampscott, Marblehead, Salem, Peabody, Danvers, Beverly. The electrification of the Gloucester branch must soon follow as a matter of course.

"This improvement should effectively promote the transatlantic passenger and freight business from Boston. At present the Cunard company and other steamship lines that dock at East Boston complain of the handicap upon their business imposed by the inadequate ferry service. With a tunnel under the harbor passengers could be landed with their baggage at a suitable station near the East Boston docks directly from the South Station.

"By taking over the Revere Beach road and making rail connection with the piers in East Boston, the great export traffic from the West and the Canadian Northwest is given opportunity for convenient and unobstructed access to the dock system, which on that side of the harbor is capable of enormous expansion. The marine terminals of the Boston & Maine at the Mystic River and the Hoosac Tunnel Docks are so limited that room for expansion must be provided. East Boston will offer, with this tunnel connection, exceptionally good facilities for ocean traffic from all the railroads entering Boston.

"The contemplated tunnel under the harbor, available for freight as well as for passenger service, likewise has a bearing upon the development of the Commonwealth's water front at South Boston as well as East Boston. The physical connection thus effected across the harbor co-ordinates the two water fronts and should make each more accessible from the other.

"The task of steam line electrification for metropolitan Boston goes far beyond anything that might be looked for in a strictly metropolitan scheme of electrification; that is to say, a scheme practically restricted to the limits of the metropolitan district. As a piece of main-route electrification it achieves with efficiency and economy the ends aimed at. Undertaken immediately upon the giving of legislative sanction, the work will be pushed as rapidly as possible to completion. The entire task would be taken in hand all of a piece, so that with the finishing of the tunnel under the harbor there would also be completed the electrification of the Revere Beach property, including the Winthrop loop; the newly restored line of the Boston & Maine from Revere Junction into East Boston, its connection with the tunnel and its electrification to Lynn; the costly work of adapting the lower level of the South Station to the requirements of this service and the electrification of at least two tracks of the Providence line as far as Readville. With the exception of the double track tunnel under the harbor there will be a continuous four-track electrified line all the way from Beverly to Readville. The conditions are most favorable for the intensive form of traffic that electric traction is best adapted to serve. Under such conditions a service of high frequency at certain times of day could easily be maintained throughout the entire route."

The work outlined, Mr. Byrnes thought, could easily be completed in four years and he was willing that that time limit be fixed by the bill.

Eight pages of the Springfield (Ill.) *Record* of Feb. 28, 1911, were devoted to a description of the properties of the Illinois Traction System. The subjects were "The McKinley Bridge, St. Louis," "Illinois Traction System, Equipment and Power Shops," "Terminals," "Safety," "Stations, Bridges and Buildings," "Illinois Valley Scenes," and "The Road of Good Service," and to each of these a page was devoted. The first page contained a portrait of W. B. McKinley, president of the Illinois Traction System. There also were portraits of George M. Mattis, vice-president and treasurer of the system, and H. E. Chubbuck, vice-president executive, and biographies of these officials. The article "The Road of Good Service" contained a map of the Illinois Traction System and a group picture which showed the operating and traffic officials of the system and the superintendents.

THE TRAVELING AUDITOR *

BY A. J. WHITE, TRAVELING AUDITOR OHIO ELECTRIC RAILWAY

I desire first to speak of the traveling auditor's opportunities: First, he has a great opportunity for creating a willing service on the part of agents; second, the opportunity of gaining the good will and respect of agents; third, the opportunity for using his eyes and ears in a thousand and one ways. Too often the traveling auditor has a wrong conception of what is essential in dealing with agents, and he goes along groping his way and failing to achieve the most important things in his work, namely, creating a willing service and getting the good will and respect of those with whom he necessarily deals.

The traveling auditor should feel for the shortcomings of others and keep the conviction strong in his mind that every educated person should be able to keep an intelligent account of the things intrusted to him, but that such a person should also aim to present the accounts in such simple form that their keeping shall come within the apprehension of any mind of ordinary intelligence. With the right principle in the mind of agents, experience will readily suggest the proper manner of handling an account.

AGENCY ACCOUNTS

The first duty of the traveling auditor in his checking agencies is to impress upon agents the importance of the cash book and of having an absolute balance of his cash daily. This in itself locates errors of any description in his account because it entails the listing of uncollected bills and all items, such as overcharges, unrefunded and prepaid beyond unpaid. This impressed on an agent's mind and carried out by him leaves him little room for any serious errors in so far as his freight account is concerned.

Next in importance is the instruction as to the making of bills of lading, waybills forwarded, freight received and freight forwarded, reports and balance sheets and the proper filling of these documents. Too much stress cannot be laid on the importance of complete files placed in such manner that every document may be found with the least work. Then, too, the changing of agents at different periods makes it difficult for new incumbents to locate documents unless they have been filed properly.

On our line at all our larger agencies the progressive number system is used on all inbound waybills and cash book entries are made from progressive reference instead of waybill reference. In this way the freight receipt for any shipment will always be found filed in progressive number order by dates of delivery as shown in cash book carried to the freight received abstract. Hence in tracing for delivery of any shipment it is necessary only to go to the freight received abstract and secure the date of delivery, which gives you the key to the file. The proper filing of copies of O. S. & D. reports, corrections, circulars and tariffs for ready reference is also important. In fact, I believe a perfect file makes any agency practically immune from serious trouble. Therefore, it should be the aim of the traveling auditor to watch closely, and from time to time make suggestions that will improve any existing system of files and then to see that instructions are carried out. Talks with agents as to method of checking freight from cars, loading freight to cars and general matters of this kind, including passing record of overhead freight, bring good results, as sometimes the agent has the faculty of teaching the traveling auditor a thing or two. With these fundamental ideas inculcated in the minds of agents the hard part of the traveling auditor's life is in a measure ameliorated.

TICKET ACCOUNTS

Ticket accounts constitute an important part of the traveling auditor's duties. It is his duty to go to the agencies at odd times. Never under any circumstances should he make his visits for checking stations uniform as to time. After he has learned the dispositions and habits of the men he is in position to know when it is best to visit any certain place. I have

found that this system gets the dishonest man when all other methods fail. A study of the different methods of covering dishonest ticket transactions is a splendid thing for him. For instance, the measuring of a man, his method of work, manner of keeping accounts, etc., gives the traveling auditor his cue for proper visits.

The traveling auditor should scrutinize all tickets in the ticket case, watching closely for rear end and middle work. When an agent is working with a conductor tickets given to the agents by the conductor are placed in the ticket case for early sale and as often for late sale, so that the fellow who is here, there and everywhere has each individual between the devil and the deep blue sea as to any knowledge of when he might drop in. It is a good practice for the traveling auditor to time his visits for odd hours and let the other fellow do much more guessing than he.

Another important thing in ticket accounts at agencies is the changing of tricks from day to night men. Our system is to open a book, much of the same nature as a ticket book, writing destinations and all ticket forms once and carrying daily sales of the day and night men together with the cash on hand by each man. This is a thorough check to fix responsibility for shortages, and at the same time is a check against the ticket book itself as to total sales each day. It is necessary for each man to O.K. his trick with total sales and cash on hand, which in turn is O. K'd by the agent in the morning of the following day. This works very well and I have less trouble in fixing responsibility for shortages than on any other line for which I have worked.

It is also a good habit to drop into agencies at various times and look over things generally without a check of the station. This keeps the traveling auditor up to date and also permits him to give agents such instructions as may seem necessary. At the same time it is wise to open at random and to look into all drawers, safes and compartments of same.

COUNTING CASH—INSTRUCTING AGENTS, ETC.

The traveling auditor should never, unless absolutely necessary to take charge of a station, count the cash himself. He should require agents to count the cash from drawer and tabulate and have the agent count back into the cash drawer. This works admirably, as there is never a question of a shortage between the traveling auditor and an agent. It is just to the agents that all persons keep hands off the money, and the agents are, as a rule, better satisfied.

The traveling auditor in the short time allotted to him at stations in making transfers has insufficient time to explain thoroughly the entire business to a new incumbent. Hence, it is necessary, especially on electric lines, to go back from time to time and coach the agent, as it were. It is too bad that experienced men cannot always be secured to fill vacancies as on steam railroads, where men are promoted from small agencies to larger ones, and grow up with the business. On our line this mode is meeting with more favor as we grow. In a great measure promotions are being made from the ranks. I am heartily in favor of promoting those who are making good. It has a tendency to keep down shortages on account of the known reliability of the men promoted and also creates a loyalty not to be measured by dollars and cents. The placing of unknown quantities in agencies causes more shortages than anything else. I believe also that superintendents should consult with the accounting department in making changes at agencies. The chances are that then fewer mistakes will be made in appointments, as the accounting department has a general line on agents. On our line the auditor and traveling auditor keep in close touch with the superintendents, advising with them from time to time.

It is the duty of the traveling auditor to instruct the agent as to the exact meaning and result of each thing that he does. First comes the proper explanation of the first step in handling freight, namely, the bill of lading and the importance of securing the signature of the shipper; then numbering the shipping order consecutively with waybills; next the explanation of what a waybill means and its importance—that a waybill is the car-

* Abstract of a paper presented at the Central Electric Accounting Conference held in Springfield, Ohio, March 11, 1911.

rier's note in hand against receiving agents for so much money and so much merchandise—the importance of reporting every waybill received on day of receipt, whether the freight covering the same has arrived or not.

The traveling auditor should ever keep before him the chance for suppression of waybills by an agent. This, of course, needs the co-operation of two or more men; one man cannot suppress a waybill alone. The traveling auditor's ingenuity is often taxed to catch up with this kind of work and unless (especially in carload shipments) all employees are instructed to report the movement of all cars there is a chance of revenue escaping for a time through the connivance of freight crews and agents. The traveling auditor must also watch very closely such miscellaneous collections as car service, switching, freight storage, etc.

In the making of "over, short and damaged" reports, the receiving agent should send a copy of the O. S. and D. to the forwarding agent, to the superintendent and to the auditor. This completes a chain of investigation that must result in a reduction in the number of claims.

In the collection of freight it is perhaps unfortunate that such a thing as a credit list exists. If it could be dispensed with a source of trouble could be avoided, as it is possible for an agent to cover up a shortage in his account by manipulating his uncollected bills. Any large number of uncollected bills on hand means that it is the traveling auditor's duty to verify by collection and visits to consignees.

Some lines have a daily report of business; others, weekly, semi-monthly and monthly. Advocates of each, of course, stick to theirs as the best. All are good and we could all use some of the good things of the others. On our line we use the daily reports on freight, a memorandum daily report on ticket sales and a monthly ticket report and balance sheet or account current.

Another thing that requires continual watching is the kiting of bank accounts; in other words, when agents bank the company's money and check against it for daily remittance. I have had a half-dozen shortages (in no case losing a cent) where an agent would draw checks on a bank and fail to deposit, this being made possible because the checks went to foreign banks after having reached the cashier of our company. Of course, as soon as I reach a station where the check system is used a balance of the bank account is made at once and special supervision is made of these agencies.

ASSISTING CONDUCTORS

The traveling auditor should make it his business to help the conductors in their difficulties. The fact is that nowadays conductors on electric lines are expected to do so many things in the way of keeping records, detaching cash fare receipts, watching dates on tickets and keeping in touch with all passengers boarding cars and watching their orders that fares are missed many times. Since I have been on the road I have picked up hundreds of passengers who had escaped the conductor's eye by some subterfuge or other. By calling the conductor's attention to the matter fares have been collected or tickets lifted.

We are all more or less lame in respect to conductor's cash fare receipts as we make the passenger the auditor for the company. I am sorry to say that a goodly percentage of passengers will assist the conductor in pilfering instead of assisting the company by reporting. Personally I would like to see the straight steam line cash fare receipt in use on electric lines as the re-tearing of one of these means the increasing of the amount collected from the passenger, and it is the best proposition I have seen.

At the meeting of the Central Electric Accounting Conference at Springfield, Ohio, on March 11, A. F. Elkins was elected president. Mr. Elkins is auditor of the Columbus, Delaware & Marion Railway, Columbus, Ohio. Walter Shroyer, auditor of the Indiana Union Traction Company, Anderson, Ind., was elected secretary and treasurer.

ENGINEERING MEETING IN NEW YORK

A meeting of the American Electric Railway Engineering Association's committee for conference with the American Society for Testing Materials was held in New York on Wednesday, March 15. Those present were: W. J. Harvie, president of the association; Norman Litchfield, secretary-treasurer of the association; John Lindall, superintendent rolling stock and shops Boston Elevated Railway; Martin Schreiber, engineer maintenance of way Public Service Railway, and H. H. Adams, superintendent of rolling stock and shops Metropolitan Street Railway, New York, who was present to assist the committee.

Mr. Litchfield, who had been appointed to open negotiations with the American Society for Testing Materials, reported that he had conferred in Philadelphia on Feb. 6 with Edgar Marburg, secretary of the society. Mr. Marburg suggested that the Engineering Association should appoint representatives for joint sub-committees on specifications for steel axles, rolled-steel wheels, steel rails and wrought iron. On such sub-committees the two or three representatives of the Engineering Association would have a single vote in the name of the association, but should they join the society each man could vote separately. The secretary of the Society for Testing Materials suggested that J. S. Doyle, superintendent of equipment Interborough Rapid Transit Company, be appointed a member of the axle specification committee with a view to becoming its chairman. Mr. Marburg advised that the specifications on steel wheels practically were ready. He said also that the Testing Society desired to have the four specifications previously mentioned ready for presentation at its annual meeting to be held next June.

On motion it was decided that the chairman of each standing committee should be instructed by the president to select sub-committees, each consisting of not more than three members, to serve on those sub-committees of the Testing Society which are considering subjects in which his standing committee is interested. The appointments are to be confirmed by the president, and one member, at least, of each sub-committee is to be a member of the standing committee in question. Each sub-committee is to cast one vote to represent the American Electric Railway Engineering Association in the sub-committees of the Testing Society.

The secretary was instructed to explain to the chairmen of the standing committees that arrangements have already been completed by which the Testing Society will appoint on the sub-committees the representatives of the association as above indicated. The secretary will also notify the several chairmen of the different subjects under consideration by the Testing Society for the current year.

Upon the completion of his appointments the chairman of each standing committee is to notify the secretary of the Engineering Association, so that the latter may arrange with the secretary of the American Society for Testing Materials to commence active work.

The subject of heat-treated axles will be referred to the committee on heavy electric traction with instructions to appoint a sub-committee. In like manner the question of wrought-iron bar specifications will be referred to the committee on equipment.

In regard to the rolled-steel wheel specification it was suggested that the secretary notify the chairman of the committee on equipment that this matter is now being taken up by the Testing Society and that he can take action toward co-operation if he considers it desirable. The chairman of the way committee will likewise be notified that the question of steel rail specifications is open for joint discussion.

The meeting then adjourned.

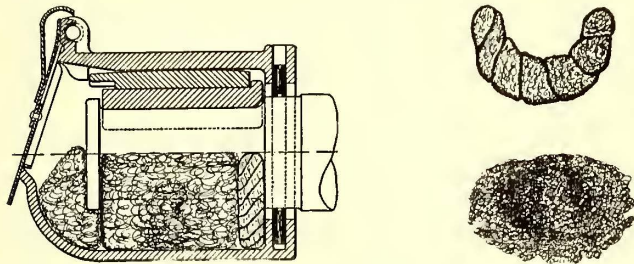
The American Electric Railway Association's committee on the location of the 1911 convention will meet at the Blackstone Hotel, Chicago, Ill., on Friday, March 24, at 9:30 a. m.

SCIENTIFIC LUBRICATING METHODS

The Galena Signal Oil Company publishes on a 14-in. x 22-in. card for distribution in electric railway shops some valuable information on how to prepare and apply lubricating materials. In order to give these instructions a wider circulation, they are reproduced herewith in the following paragraphs and the accompanying drawings:

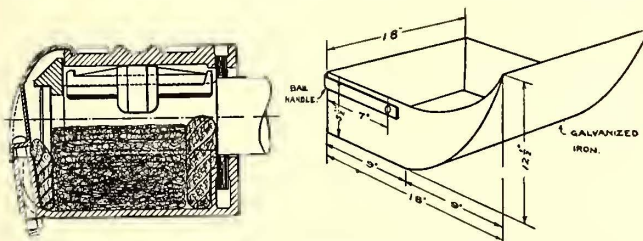
INSTRUCTIONS FOR THE PREPARATION OF PACKING FOR JOURNAL BOXES

First: The waste should be loosened up and submerged in the soaking tank for about 48 hours. Then drain or press off



Figs. 1, 2 and 3—Proper Method of Packing; Twisted Packing for Back of Box and Loose Packing for Rest of Box

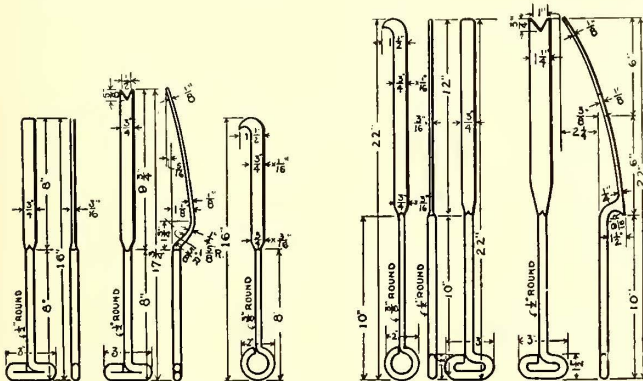
the surplus oil, allowing sufficient to remain approximately to equal four pints of oil per pound of dry waste, when the packing will be ready for use. To obtain proper saturation and draining, it is absolutely necessary that a temperature of not less than 70 deg. be maintained in the oil room at all times. After preparation, if the waste is gently squeezed in the hand



Figs. 4 and 5—Method of Packing Small Boxes; Floor Pan Which Serves to Catch Drip When Packing Boxes and to Carry Packing Tools

and does not show oil it is proof that it has been pressed too hard or drained too long. It should not be used but returned to the tank for re-saturation.

Second: The packing placed in the journal box first should



Figs. 6 and 7—Steel Packing Tools for Small and M.C.B. Journal Boxes

be in the form of a roll pressed out moderately dry and packed tightly around the back end of box, for the purpose not only of retaining the oil, but also better to exclude the dust, as shown in Fig. 2. To obtain satisfactory results strict attention must

be given to the condition of the dust guard in the back of the box before inserting the packing.

Third: Then proceed to pack the box with loosely formed packing under the journal, as shown in illustrations Figs. 1, 2 and 3, sufficiently firm to avoid the settling which is caused by shocks when the car is in motion. Pack it more lightly on each side of the journal, to avoid the wiping effect produced when waste is pressed too tightly between the journal and the side of box. The height of packing should not extend above the center line of journal and not beyond the inside of collar, as indicated in Fig. 1. This will avoid bad results caused by an excess of packing and by packing the boxes too tightly.

Fourth: The portion of packing placed between the end of the journal and the front end of the box, being the last which is put in the box (shown in Fig. 1), should have no thread connection with the packing under or on the side of the journal, and it should not extend more than 1/2 in. above the lower edge of the collar. This packing affords no means of lubrication to the journal, but prevents the packing on the sides and under the journal from working forward out of the normal position for satisfactory service.

Fifth: In boxes using check plates pack to the outer edge of the groove in the journal for holding check plate in place. After putting in check plate, roll packing and pack tightly in front of collar. See Fig. 4. See that the opening in the check plate is larger than the diameter of the bottom of the groove in the axle.

CARE OF PACKING IN JOURNAL BOXES

The most important part of the work for successful lubrication is intelligent attention to the packing in boxes on equipment in service. Briefly it consists of lightly loosening up the packing on each side of journal to avoid the hardened and glazed condition which is caused by the packing remaining too long in direct contact with journal. This work can be effectively accomplished by the use of a good steel tool, which should have a sharp V-shaped

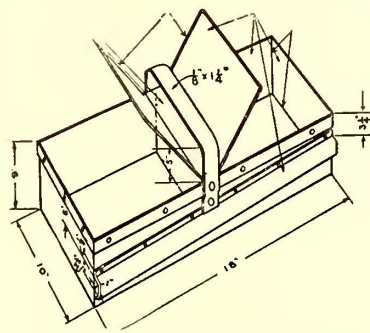


Fig. 8—Galvanized Iron Carrying Box for Waste and Tools

end, as shown in Figs. 6 and 7, to secure a free flow of oil from packing to journal.

Cars in the shops for general repairs should have the packing removed and the boxes repacked with freshly saturated

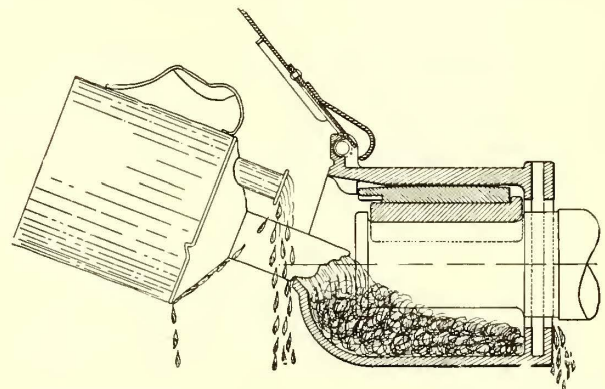


Fig. 9—An Example of Improper and Wasteful Oiling Practice

packing. Packing removed should be repicked, cleaned and re-saturated for future use. This work should be done when inspection shows it necessary. The object is to maintain an elastic condition of the packing.

Brasses should not be transferred from one journal to another. Before applying suitable-sized brasses the journal and the surface of the brass should be cleaned and oiled with Galena car oil. Where M. C. B. brasses using wedge or key are employed, they should be examined carefully before going into service to see if the key and wedge are a proper fit and work correctly together. All lumps or uneven places should be carefully removed before installing. The brasses should not be allowed in service when they are worn down to $3/16$ in. thickness, as the dross metal then becomes exposed to contact with the journal and hot bearings result. Check plates should be carefully fitted and frequently examined. The lids of journal boxes should be kept tight and in good repair. Broken check plates should not be allowed to remain in service.

In case of a hot box when the car is at a distance from the shops and the journal cannot be jacked up to install a new brass, all old packing should be removed and the box repacked with good saturated packing. In case of a hot box when it is possible to run the car to the shop, the box should be jacked up, the brass removed, the journal thoroughly cleaned, a new brass installed and properly repacked. If time and facilities will not permit this proceeding, it is well to have an emergency brass convenient, lined with some soft metal to assist in cooling the journal until the car can be properly attended to. When necessary the dust guard should be replaced. All new and good second-hand journals should be protected from rust by the use of center-plate grease.

A floor pan made of galvanized iron with a folding down handle in the middle and a bevel shape at one end to insert in the bell of the wheel under the journal box when packing or emptying the journal box will be found a handy and economical tool in the car house to keep oil off the wheels and floor, and it can be used to carry packing and tools. A convenient size is 16 in. long, 16 in. wide, 3 in. deep, bevel 4 in. from end. Fig. 8 shows a carrying box for waste and tools made of No. 22 galvanized sheet iron with all corners soldered.

MOISTURE-PROOF TELEPHONE CORDS FOR RAILWAY TELEPHONES

The Western Electric Company has recently developed a new line of telephone cords designed especially to meet the severe conditions common to electric railway work. The construction of these new cords is different from that of the standard cords now in use, the most radical change being that the insulation of each conductor is treated with a moisture-proof compound and that each conductor in the cords which are subjected to the greatest wear is reinforced with copper wires. For example, each of the two conductors in the No. 408 receiver cord consists of a number of strands of the best tinsel reinforced with six strands of copper wire. The conductors are made up with an improved twist, and with the copper wires a great amount of strength is added to the cord. Each conductor is wrapped with a covering of wool which has been saturated with a waterproof asphaltum solution. Over this is placed the conductor braid of mercerized cotton, and the entire cord is then inclosed in a special external braid of a high grade of mercerized cotton.

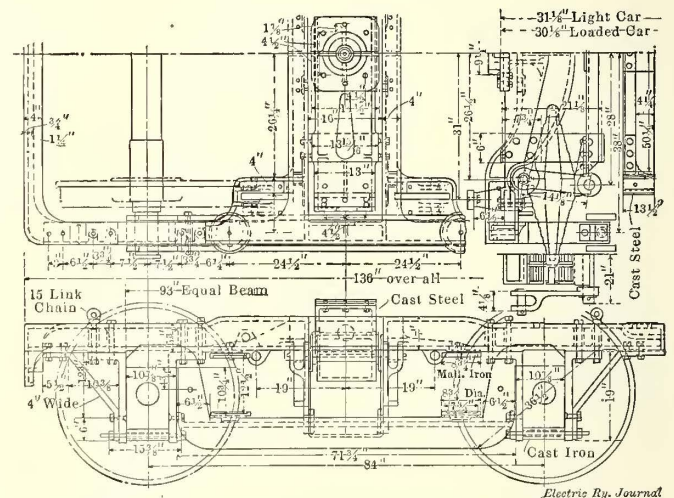
This construction insures a flexible, moisture-proof cord, with long life and increased strength throughout. These cords are made in standard lengths, consisting of one, two, three and four conductors for use as receiver, transmitter and extension cords in connection with the various types of desk stands, transmitter arms and flexiphones.

On account of the increase of its rolling stock the Sheffield City Council has decided to erect a new car house, to cost about £26,000. The new structure will accommodate about 100 cars and will save a large amount of mileage on account of its convenient location.

CAST-STEEL MOTOR TRUCKS FOR THE SOUTHERN PACIFIC COMPANY

In the *ELECTRIC RAILWAY JOURNAL* for Oct. 22, 1910, there was illustrated and described an electric motor truck, built by the Baldwin Locomotive Works for the Southern Pacific Company. This truck had forged iron side frames and steel channel transoms, and was one of an order for 130 motor and 120 trailer trucks recently completed for the Alameda electrification of the Southern Pacific Railroad. This order included 10 motor and 10 trailer trucks, which are equipped with cast-steel frames; and one of these motor trucks is the subject of the accompanying illustrations.

Like the previous examples, this truck is built for standard gage track, with a wheel base of 84 in., and is designed for a center pin load of 35,000 lb. It is of the equalized pedestal type and weighs, without motors, 15,275 lb., or practically the same as the truck with forged frames. The motors are inside hung and arranged for nose suspension. The side frames, end frames and transoms are of steel, cast in one piece. Special attention has been given to providing a light yet strong construction and to arranging the frames so that a minimum amount of finishing and fitting will be necessary. With this end in view such parts as the lugs for the swing link and brake hanger pins are cast in one piece with the truck frame.



Side Elevation and Half-Plan of Cast-Steel Truck for Southern Pacific Company

The transoms are deepened at the center in order to provide ample strength and rigidity.

The pedestals are of forged iron, machine-fitted to the frames. The inner pedestals are tied together by a horizontal brace, while the outer pedestals are braced to the frames by diagonal members. The center truss members and usual filling castings are omitted in this design. The bolster is of cast steel and is suspended on wrought-iron swing links. The bolster springs are triple elliptic and are carried on cast-steel spring seats. The equalizing beam spring seats are of malleable iron. The center plate is a steel casting bolted in place.

The wheels are steel-tired, with cast-steel centers, and measure $36\frac{1}{2}$ in. in diameter. The axles are of Taylor iron, with 5-in. x 9-in. journals. The wheels and axles were assembled by the Standard Steel Works Company.

The 10 trailer trucks, with cast-steel frames, are generally similar to the motor trucks described above. The wheel bases are the same and the bolsters used in the two classes are interchangeable. The trailer trucks are designed for a center pin load of 32,000 lb.

These trucks are of interest because of the extensive use of cast steel in their construction and also because they illustrate an increasing tendency to use a minimum number of separate parts and thus dispense with fitting where possible. They will run in regular service with trucks of the usual type.

News of Electric Railways

Program of Meeting of Central Electric Railway Association

The following program has been announced for the meeting of the Central Electric Railway Association which is to be held at the Hartman Hotel, Columbus, Ohio, on March 23, 1911:

MORNING SESSION, 9:30 A. M.

Business session and reports of special committees.

Paper, "Wheel Turning," by H. S. Williams, engineer of the Peter Smith Heater Company, Detroit, Mich.

Paper, "Development of Long Distance Travel," by T. J. Gore, general agent of the Indianapolis Interurban Joint Ticket Agency Association.

Paper, "Interline Accounting," by L. T. Hixson, auditor of the Terre Haute, Indianapolis & Eastern Traction Company, Indianapolis, Ind.

Discussion.

AFTERNOON SESSION, 1 P. M.

Paper, "Use of Sand on Interurban Cars," by W. H. Evans, superintendent of motive power of the Indiana Union Traction Company, Anderson, Ind.

Paper, "Asphaltic Oils as Economical Wood Preservatives," by F. W. Cherrington, representative of the Indian Refining Company, Incorporated, Cincinnati, Ohio.

Discussion.

Annual Meeting American Railway Engineering & Maintenance of Way Association

The American Railway Engineering & Maintenance of Way Association and the Railway Signal Association will hold their annual meetings in the Florentine room of the Congress Hotel and Annex at Chicago, Ill., on March 20, 21, 22 and 23. The program as issued by E. H. Fritch, secretary, Monadnock Building, Chicago, announces a number of features of interest to electric railway men. In connection with the annual meetings of these two associations the Railway Appliance Association will hold an exhibition at the Coliseum. The exhibits of appliances used in steam and electric railway construction and maintenance will occupy the first floor of the Coliseum and Annex, as well as the balcony of the Coliseum, the entire space of the ground floor having been under reservation for some time. This is the third annual exhibition held at the Coliseum and one of the attractions for this year will be a working model of the Brennan mono-rail car occupying the entire south end of the balcony. The sessions will be held from 9 a. m. to 12:30 p. m. and from 2 p. m. to 5:30 p. m. The program for the sessions of the Railway Signal Association for March 20 has not been announced. The program of the Maintenance of Way Association follows:

MARCH 21

President's address.

Reports of secretary and treasurer.

Reports of standing and special committees.

XII. Rules and Organization, Bulletin 129; X. Signals and Interlocking, Bulletin 130; XVIII. Electricity, Bulletins 127, 130; Special. Brine Drippings from Refrigerator Cars, Bulletin 129; XIV. Yards and Terminals, Bulletin 129; VII. Wooden Bridges and Trestles, Bulletin 129; XV. Iron and Steel Structures, Bulletin 130; XVI. Economics of Railway Location, Bulletin 130.

EVENING SESSION, MARCH 21

Special illustrated lecture on steel rails, by M. H. Wickhorst, engineer of tests for the rail committee, being a digest of the investigations made by the rail committee.

Informal smoker.

MARCH 22

II. Ballast, Bulletin 129; III. Ties, Bulletin 131; V. Track, Bulletin 131; IV. Rail, Bulletins 123, 132; VIII. Masonry, Bulletin 130; XIII. Water Service, Bulletin 130; IX. Signs, Fences and Crossings, Bulletin 130.

Annual dinner at 7 p. m.

MARCH 23

XI. Records and Accounts, Bulletin 131; XVII. Wood Preservation, Bulletin 131; Special. Grading Rules for Maintenance of Way Lumber, Bulletin 133; VI. Buildings,

Bulletin 131; I. Roadway, Bulletin 133; Special. Uniform General Contract Forms, Bulletin 133; XIX. Conservation of Natural Resources, Bulletin 133.

New business.

Election of officers.

Adjournment.

Annual Meeting of New England Street Railway Club

The program has been announced for the eleventh annual meeting of the New England Street Railway Club, which is to be held at the Hotel Somerset, Boston, Mass., on the evening of March 23, 1911, as mentioned briefly in the ELECTRIC RAILWAY JOURNAL of March 4, 1911. The annual business meeting will be held on the afternoon of March 23. At 6 p. m. there will be a reception and at 6:30 p. m. sharp the banquet will be held. The speakers announced are Eugene N. Foss, Governor of Massachusetts; William A. Bancroft, president of the Boston Elevated Railway; Arthur W. Brady, president of the American Electric Railway Association; Dr. Richard C. Maclaurin, president of the Massachusetts Institute of Technology; James F. Swift, Attorney General of Massachusetts; Walter Perley Hall, chairman of the Railroad Commission of Massachusetts; Patrick Calhoun, president of the United Railroads of San Francisco, and Joseph Smith, Lowell, Mass., newspaper representative. Henry F. Hurlburt will act as toastmaster. Members are requested to arrange for tickets for themselves and their guests at once and March 18 has been fixed as the latest date on which applications can be received to insure reserved seats. The tables will be arranged to seat six persons. The price of the banquet tickets is \$3 each.

Settlement Ordinance in St. Louis

A new ordinance providing for the settlement of a number of questions affecting the United Railways Company of St. Louis has been introduced in the Municipal Assembly of the city. It was prepared by a joint committee appointed by the Assembly and provides for the settlement of the mill tax and other controversies between the company and the municipality.

The amount of the mill tax accrued under the ordinance from January, 1904, when this revenue measure became effective, to and including December, 1910, is for the St. Louis & Suburban Railway, the St. Louis Transit Company and the United Railways Company, \$1,470,608. The committee considered that if it secured part of the sum in controversy directly and part through valuable rights and transportation betterments it would secure all the value either to the city directly or to the city indirectly through the people. The city was without power to compel the company to give the betterments which it was believed would increase the adequacy of the service.

The subject of subways was not considered by the committee in a way which would entitle it to present any report on this topic.

New conditions relating to transfers are part of the settlement. The committee had evidence of the flagrant abuse of the transfer system, but believes co-operation between the public authorities, the riding public and the company will practically eliminate the abuse.

The committee secured an agreement from the company to reconstruct certain extensions specifically mentioned and also future extensions at the rate of 1 mile or more of double track per year, beginning with 1916 and extending to 1940. Three new east and west through crosstown lines will be operated.

The committee found that the new traffic law eliminates a great many complaints due to unreasonable delay of passengers in cars by team traffic, but hopes that the supervision by the city secured by the settlement ordinance will improve this condition.

The committee has worked out a plan for the creation of a board of supervision to be charged with the duty of supervising the enforcement of the ordinances and laws respecting street railways. Under this plan the company

is to select one supervisor and the city another, while the two will select a third. The costs of the board are to be borne equally by the company and the city. The company is to pay the salary of the member of the board which it appoints; the salary of the city member and the third member will be \$3,000 per year. The cost of the assistants and supplies is not to exceed \$3,000 per year.

It is believed that some rapid transit can be furnished on certain lines by the elimination of stops. The settlement extends the underlying franchises until April 12, 1948. It eliminates various controversies as to transfers.

The company now pays \$147,000 per annum under its underlying ordinances. The settlement ordinance secures to the city the payment of an aggregate amount of \$3,466,000 from Feb. 1, 1911, to Feb. 1, 1920, and includes \$1,000,000 paid to the city in lieu of all accrued mill tax as for the three companies until Dec. 31, 1910. It secures to the city the annual payment thereafter of \$291,500 for the year from Feb. 1, 1920, to Feb. 1, 1921, and thereafter increasing amounts to the expiration of the franchises, the company paying in the last year \$389,500. The aggregate amount to be paid after Feb. 1, 1920, and secured to the city is \$9,570,000. These payments are in addition to the general taxes, special taxes for local improvement and the performance of other charter and ordinance obligations.

Eight loops will be constructed in order to eliminate the congestion and inadequacy of the service in rush hours. The settlement will authorize the board of supervision to allow some of the cars to be turned back before they reach terminals.

Des Moines City Council Rejects Proposal for Sale from Des Moines City Railway

At the meeting of the Council of Des Moines, Ia., on March 8, 1911, Mayor Hanna introduced a resolution rejecting the offer made by Harris, Forbes & Company, New York, N. Y., on Feb. 21, 1911, to dispose of the property of the Des Moines City Railway to the city for \$4,579,478. This motion was not seconded. Later Commissioner MacVicar presented a resolution accepting the terms made by Harris, Forbes & Company. This resolution was seconded, but pending discussion no vote was taken. Mr. MacVicar's resolution was then amended, but when the matter was put to a vote the Mayor voted against the resolution on the ground that the price which was asked was excessive. Thus the vote to submit the proposal of Harris, Forbes & Company to the people was four to one, but as one of the requirements of the proposal was that it should be accepted by a unanimous vote of the Council before 5 p. m. on March 8 the resolution was lost. The result of the vote was telegraphed to Harris, Forbes & Company, and the Mayor announced that he would advise the firm in detail in a letter about the reasons for his action in voting against the resolution. The commissioners who voted for the resolution all expressed the opinion after the meeting that the people should be allowed to signify their desire in the matter. In an interview which the Mayor gave after the meeting he is reported to have said:

"I voted against the proposition for two reasons. First, because the increased price will make it improbable that the proposition would carry before the people; second, because it would make it that much harder for the city to manage the property without loss. We cannot afford to put city ownership up to the people at such a price as to insure its being voted down. Neither can we afford to undertake municipal ownership under such a load of interest as to make it a failure.

"In the franchise the floating debt was given as \$400,000, less the amount taken up by bonds, but this debt appears at \$618,000 in the letter of Geo. B. Hippee, president of the company, dated March 6. This difference alone would buy 40 new cars. I firmly believe city purchase is the only means of securing to Des Moines first-class street car service under fair conditions. We can either then lease to a good operating company on favorable terms or we could successfully operate the plant ourselves under a board of directors of three men which would be entirely divorced from politics.

"The raising of the price \$218,000 has the effect of reducing the amount which the company proposed to furnish

the city for purpose of rehabilitation to somewhat less than \$900,000, which, of course, would make any complete rehabilitation impossible."

The Question of Providing Funds for Improvements in Kansas City

On March 4, 1911, Darius Brown, Mayor of Kansas City, Mo., addressed a letter to John M. Egan, president of the Metropolitan Street Railway, in regard to the plans of the company for carrying out certain work suggested to the company by the Common Council which it is claimed it was within the right of the Council to urge under the terms of the present franchise of the company. Perhaps the most important work to which the attention of the company was directed was the construction of the so-called Chestnut Street extension. The Mayor requested a reply by March 15 to his communication and indicated the probable course of action of the city as follows:

"In the event that your company shall fail, refuse or neglect so to signify in writing within the period of time specified, or in the event that the company shall fail to begin and prosecute with reasonable dispatch to completion the doing of the things specified, I shall instruct the city counselor and the counselor of the Public Utilities Commission to exercise every right and remedy of the city under the laws of Missouri, the charter and ordinances of Kansas City and the terms of the franchise contract, to compel the company to meet every obligation under the terms of the franchise contract which it has failed thus far to meet."

Thus far the company has been prevented from carrying out the program for improving the property which it made some time ago on account of its inability to finance the new work in contemplation without paying too great a premium for the needed capital. If the franchise extension had passed at the recent election the funds to carry out all needed work could have been raised. Recently when R. J. Dunham, chairman of the board of directors of the company, and J. J. Storrow, of Lee, Higginson & Company, Boston, Mass., bankers, were in Kansas City this phase of the situation was considered. Mr. Dunham said at that time that in 1910 the company spent \$824,840.92 in excess of its net earnings in improvements and betterments and built 11 miles of new single track. An amount equal to \$1,000,000 in excess of the company's anticipated revenues was planned to be spent in 1911, and this did not include the \$370,000 asked of the company for its share of building the West Twelfth Street trafficway and the demands of the city for the construction of the crosstown line on Chestnut Street and other new extensions.

Mr. Dunham was quoted as favoring the formation of an independent company to carry out the improvements and extensions, the new capital to be protected by a new franchise. In this connection Mr. Dunham is reported to have said:

"Let the title to the improvement be taken in the name of another, the property only to become that of the Metropolitan Street Railway when the money loaned to pay therefore shall be returned to the lender. The city should not renew the grant or grant any new general franchise without requiring the grantee to repay this money. If the Metropolitan Street Railway's franchise should expire and no franchise be issued to any other company, then the lender of the money should have the right to retain possession of and operate the improvement made until the loan is repaid. Of course, no property could be acquired except by direction from the city and the obligations issued for money loaned would all be under the supervision and direction of the city."

Mr. Storrow was quoted as saying:

"It looks to me as though the new money could be secured without tying the city's hands in any way. The company's suggestion strikes me as fair to both sides. Neither I nor my firm owns a share of stock in the company. I only see a situation that needs a bit of patience and fairness on both sides if the people of Kansas City are interested in good service."

It was felt by the company that the Mayor, judging from his published statements, did not understand the spirit of the suggestions which had been made for financing the

additions and improvements, and Frank Hagerman, vice-president of the company, issued a statement in which he said:

"(a) The growth of the city and consequent demands for additions, equipment and improvement, both under and outside of the franchise, has become so great that in view of the bonded debt and short remaining period of the right to operate it is impossible to borrow, without security, the money necessary to meet the demands of the public and give the service it desires, for those demands are not limited to franchise requirements. The question then is whether such a security can be given without changing, modifying, renewing or extending the present franchise.

"(b) If borrowed money be used for additions, the property acquired therewith goes immediately under the present mortgages, because they cover all property owned at the time of their execution and all that is subsequently acquired. The lender then would advance the money for the new property and could not have it for security because it would go in under the present mortgages for the benefit of the old bonds.

"(c) The suggestion then is: Let the title to the new property acquired by the new money be kept in the name of another company or some individual until the money borrowed is repaid, to be, however, operated as part of the Metropolitan system, the city agreeing that it will not renew the present franchise or grant one to another company without requiring the grantee to provide for the unpaid debt. If by June, 1925, no grant shall have been made to the Metropolitan Street Railway or any other company, then the lender may take possession of the new property made by his money and use it until the sum due him be paid by some one.

"(d) No addition or improvement will come under the arrangement except when hereafter ordered by the city, and no obligation recognized as coming thereunder except when approved by the city.

"(e) This is far from the arrangement mentioned by the Mayor, but is one which will bear open, full and frank discussion. This we would be glad to participate in at any time or place."

President Egan of the Metropolitan Street Railway replied at length under date of March 11, 1911, to the letter from the Mayor.

Bonds Authorized for Municipal Railway in Seattle.—At the municipal election held in Seattle, Wash., on March 8, 1911, an issue of bonds to the amount of \$800,000 was authorized to provide for the construction of a street railway by the municipality on a north and south trunk highway.

Report to Be Made on Municipal Terminal Railway.—The municipal railway committee, consisting of the Board of Harbor Commissioners, Board of Public Utilities and the City Engineer of Los Angeles, will report at the earliest possible date the terms upon which an engineer can be secured to estimate the cost of preparing plans for a municipal terminal railway to be projected as part of the whole transportation system of the city.

Council Postpones Action on Philadelphia Rapid Transit Company's Loan.—The committee on finance of the City Councils of Philadelphia has decided to postpone action on the measure before the body to sanction the proposed loan of \$10,000,000 which the Philadelphia Rapid Transit Company desires to make. More time is said to be desired in which to consider the report on the finances of the company presented recently and the report on the physical property made for the State Railroad Commission by Ford, Bacon & Davis, New York, N. Y.

Prosecution of Men Responsible for Disorder in Columbus Strike.—Twenty-five men have been indicted so far for stone throwing and interference with the property of the Columbus Railway & Light Company, Columbus, Ohio, during the strike in the summer of 1910. Six men have been sentenced to the penitentiary for terms of one or two years. Eight men have been sentenced to the reformatory and three given jail sentences. Four men are under indictment for dynamiting cars and one for having dynamite in his possession. No disposition has been made yet of six cases in which indictments for stone throwing were voted.

Bonds for the Geary Street, Park & Ocean Railroad.—The Board of Supervisors of San Francisco, Cal., has instructed the city clerk to call for bids for \$600,000 of bonds for the Geary Street, Park & Ocean Railroad. No date was set in the resolution, but it was understood the call would be for March 13. The money will be used to construct the municipal railway and to purchase the sites for the power house and the car house. The money for the rails and other materials has been appropriated from the first \$500,000 of bonds which were sold.

Complaints to Public Service Commission.—The Public Service Commission of the First District of New York reports that during 1910 a total of 1988 complaints was received, directed against 35 different operating companies. Of this number 1719 were either satisfied or otherwise disposed of, the others remaining open for further investigation or adjustment at the end of the year. In 1908, the first calendar year of the commission's existence, more than 3000 such complaints were received. For the year 1910 such complaints aggregated only 1988.

Headquarters of the Manufacturers' Association.—The American Electric Railway Manufacturers' Association has issued the following official announcement of the establishment of headquarters in New York: "We beg to announce the opening of the offices of this association at room 1002, 165 Broadway, New York City. This office will be the official headquarters of the association and all members are cordially invited to visit same. Out-of-town members will be welcome to use this headquarters for the receipt of their mail and to carry on correspondence, etc., while in the city. Very truly yours, Executive Committee, by George Keegan, secretary."

Parking Plan Approved.—The plan of the Coney Island & Brooklyn Railroad, Brooklyn, N. Y., to move its tracks from the east side of Coney Island Avenue to the center of the thoroughfare and to park the roadway from Prospect Park Circle, Brooklyn, to Coney Island, a distance of more than five miles, will be carried out. The plan was approved 18 months ago by the Board of Estimate, during the administration of Mayor George B. McClellan, but it was held up by the present board until recently, when it came up for final action. William N. Dyckman, vice-president of the company, says that it will cost more than \$300,000 to relocate the railroad and carry out the work which is proposed.

Pittsburgh Railways Re-employing Former Employees.—In October, 1910, the Pittsburgh (Pa.) Railways laid off 139 men employed in its shops because the special work for which they were engaged had been completed. Since then the company has re-engaged 39 of the men formerly in its employ and is said to have employed eight new men for special work. In this connection the company has issued a notice in which it has renewed the statement that "when men are needed in the shops preference will be given to the 139 men laid off when they are fitted for the positions open." The original explanation of the company in regard to the reduction in its working force was referred to in the *ELECTRIC RAILWAY JOURNAL* of Oct. 29, 1910, page 923.

Oklahoma Strike Settled.—The strike of the employees of the Oklahoma Railway, Oklahoma City, Okla., was declared off on March 13, 1911. It is understood that the question of reinstating a number of employees of the company whose discharge precipitated the strike will be submitted to a board of arbitration. The strike was declared on March 5. Recognition of the union which had been organized among the men was demanded. The men also demanded an increase in wages and revised working conditions. The attempts made by the company to operate cars resulted in such disorder that on March 9 Governor Cruce ordered out three companies of the State militia. On March 8 the negotiations for a settlement were entered into between the city authorities and officers of the company. The State Board of Arbitration also held several sessions on March 8 and finally adjourned until March 9 at the request of the attorneys of the company. Representatives of the strikers and of the company appeared before the board and made statements, but no evidence was taken. On the same day a meeting was held at the city hall at which representatives of the labor unions, officials of the company and city authorities were present.

LEGISLATION AFFECTING ELECTRIC RAILWAYS

ILLINOIS

The Rawleigh bill in the lower house of the Illinois Legislature giving the State Railroad & Warehouse Commission jurisdiction over public utilities in cities having less than 200,000 population is in charge of the municipal corporations committee, of which Representative L. I. Butts is chairman. The first hearing of the committee was held on March 7. I. C. Vopley, Aurora, president of the Western United Gas & Electric Company, and Frank J. Baker, Chicago, vice-president of the North Shore Electric Company, which serves a territory including 71 cities and villages, appeared among others to favor the bill. A representative of the Mayor's organization of Illinois opposed the bill on the ground that it would take even the control of municipal water works from the City Councils and vest it in the commission. Other hearings will be held.

INDIANA

During the 60 days the Indiana Legislature was in session the following bills were passed and have been signed by the Governor: Requiring interurban railways to maintain waiting rooms in cities with a population of more than 4800; requiring telephone and telegraph wires to be constructed 21 ft. above the tracks of railroads and interurban railways; authorizing railroads to hold the stock of interurban railways to facilitate the building of union terminals; requiring railroads to pay wages to discharged employees within 24 hours after discharge and to furnish a letter showing the cause of discharge; permitting electric railways to contract with hydraulic companies for power; compelling railroads to give advance notice of proposed increases of rates; compelling railroads to erect suitable stations in cities; requiring the examination of employees on section gangs of railroads and providing that at least two men in each gang shall understand the flagging system of the road; providing for the erection of suitable depots at all stops on railroads and prohibiting the use of box cars for depots; requiring steam railroads and interurban railways to maintain adequate highway crossing signs.

The following bills asked for by the Railroad Commission have been enacted into law: Making interurban railways amenable to the same law that governs the steam railroads in relation to the adoption of rules for the operation of their trains and compelling employees to submit to examination concerning the rules (a section of the law makes it a misdemeanor for any one engaged in operating steam or interurban cars to become intoxicated, and provides that should the commission on investigation find that an accident was due to the violation of the rules by employees it shall report such matter to the prosecuting attorney); extending the power of the commission in the matter of examining witnesses and requiring answers; a law requiring interurban cars to be equipped with hand brakes in addition to air brakes; a law providing that steam railroads and interurban railways shall install such block signal systems as the commission may approve. This last bill provoked long discussion on account of an attempt to amend the bill to allow railroads to install any one of three suggested systems.

KANSAS

The session of the Kansas Legislature was concluded on March 9, an extra day being added so that the work in hand might all be concluded. It was expected that the public utilities bill would not pass, but on March 7 the House appointed a committee to confer with the Senate committee on the public utilities bill. This joint committee reached an agreement, and the bill was reported to both houses on March 8. The Senate adopted the utilities bill by a vote of 35 to 3 and the House adopted the measure by a vote of 100 to 15. The bill is now before the Governor. The bill will become operative as soon as the Governor signs it. The present railroad commissioners, who were elected last fall, will be the first members of the new commission and will serve for the next two years. Their pay will remain at \$2,500 a year, but after the expiration of their term of office each commissioner will receive \$4,000 a year. The power to appoint the commissioners is vested with the Governor. An attorney is to be employed at a salary of \$2,500 a year, and \$5,000 is appropriated to retain an expert rate clerk.

MASSACHUSETTS

The committee on street railways recently gave a number of hearings upon bills before the Legislature relating to fares. The first bill considered required the Boston Elevated Railway to issue free transfers between its night cars good for a continuous ride from any station or transfer point to any other station or transfer point on the system, between the hours of midnight and 6 a. m. A. A. Ballantine, for the company, said the bill provided for the amendment of a chapter of the statutes already repealed by chapter 500 of the Acts of 1897. The chairman of the committee doubted the power of the Legislature to pass any transfer act in connection with the Boston Elevated Railway, and intimated that any relief sought by the petitioner should be secured through the Railroad Commission. Another bill heard on the same day provides that street railways be required to furnish special service for workmen and women between the hours of 5 a. m. and 8 a. m., instead of providing special service between 5 a. m. and 7 a. m., as at present. The present arrangements for special service in the evening would be retained. Bentley W. Warren opposed the bill on behalf of the Massachusetts Street Railway Association. He pointed out that the bill is unnecessary and probably unconstitutional. The granting of lower rates to workmen as a class appears to be entirely inconsistent with the duties of a common carrier. So-called workmen's tickets are in use in Massachusetts, but they are good for anyone's use in the hours specified.

Hearings have been given recently by the committee on metropolitan affairs in connection with the proposed repeal of the Riverbank subway act, under the terms of which the construction of a subway is authorized between Park Street, Boston, and the Charlesgate district of the Back Bay. Elaborate arguments for and against the construction of a subway system under Boylston Street have been heard, with considerable testimony of an engineering character submitted by residents of the territory concerned. The principal argument presented in favor of the Riverbank subway is that it will provide an underground route for incoming and outgoing cars at very moderate cost, with great benefit to suburban traffic. Advocates of the repeal desire a subway under Boylston Street on account of the growing importance of that section of the city as a retail business center. The committee on street railways has sent in adverse reports upon House bills 771, 1165 and 1367, each of which provides for the compulsory equipment of cars of street railways with lifting jacks. A similar report has been sent in by the same committee on House Bill 1368, providing for the compulsory use of fenders on street railways. The committee has reported leave to withdraw House Bill 1162, which provides for a compulsory investigation by the Railroad Commission of the fares in use on the Milford & Uxbridge Street Railway. A hearing was recently given by the committee on railroads and street railways sitting jointly, upon House Bill 1359, which provides that United States letter carriers be carried free by railroads and street railways. A. A. Ballantine, for the Boston Elevated Railway, and Bentley W. Warren, for the Massachusetts Street Railway Association, pointed out that letter carriers are employees of the government, well paid and have short hours of work, and that no logical reason exists for their free transportation. Police and firemen are carried free because they aid in maintaining order and the arrangement often is part of the franchise agreement.

The aim of the New York, New Haven & Hartford Railroad in relation to the proposed merger with the Boston, Revere Beach & Lynn Railroad was discussed at a hearing during the week ended March 11, 1911, before the committee on railroads. T. E. Byrnes, vice-president of the New Haven system, was the principal speaker. Included with the proposed purchase is the building of a tunnel under Boston Harbor to connect the Boston & Maine Railroad, Revere Beach Line and the New Haven systems, and to provide a means of operating electrified train service between the northern and southern suburban areas. Mr. Byrnes stated that if the Legislature authorized the purchase of the Revere Beach line and the construction of the tunnel work would be started immediately. The plans include the electrification of the Revere Beach property, including the Winthrop loop, the electrification of the newly restored line of the Boston & Maine Railroad from Revere Beach Junction to East Boston, the adaptation of the lower

level of the Boston South Station to the requirements of this service and the electrification of the main line of the Providence division between Boston and Readville. With the exception of the double-track tunnel under the harbor there will ultimately be a four-track electrified line from Readville to Beverly. Suburban traffic from Lynn and Salem will then be handled by electricity and brought into the heart of Boston, probably by a connection with the Boston Elevated Railway through the existing East Boston tunnel. It might be necessary to raise the fare 5 cents if the tunnel for electric trains was authorized, but no increase in fare was contemplated in connection with the operation of the electrified Revere Beach system and the present ferry service across Boston harbor.

MICHIGAN

In compliance with a request from the House the Michigan State Tax Commission has sent a communication to that body explaining the results of the ad valorem system of taxation and its advantages over the specific system. In addition to this information, the commission made the following recommendations: That the power of the State Board of Assessors to initiate assessments and review the work of the local assessors should be clearly defined; that the commission should be authorized to employ the necessary assistants and experts to insure the cash valuation of all property in the State; that the valuation of all public utility corporations in the State, such as street railway, lighting, heating and power companies, should be determined by the commission each year and serve as a basis for the local assessors; that the law of 1905 should be amended so as to include personal property within the meaning of the statutes. The first three of these recommendations are included in the Lord bill, which has passed the House. A bill has been introduced in the House which provides for condemnation of public utilities by municipalities and counties and placing public service corporations on the same plane with the individual in the matter of condemnation procedure.

NEW JERSEY

A substitute for the four public utilities bills already before the Legislature has been introduced in the Senate. The new measure was reported in the Senate by Senator Bradley. It would amend and supplement the original act to create a Board of Railroad Commissioners for New Jersey, approved in 1907. The measure gives the commission power to fix rates after complaint has been made to it that the charge for any service is unreasonable or unjustly discriminatory and to enforce the regulations which it makes. Power is also given the commission to direct any railroad or street railway to establish and maintain connections with other railroads and street railways. Public service corporations would be required to report all accidents which result in loss of life or serious personal injuries and to file with the board statements of every classification employed and every individual or joint rate charged. In the House on March 8 substitutes were reported by the municipal and corporations committee for Mr. Leveen's subway bill and the Military Park subway terminal bill introduced by Mr. McGowan, both of which measures affect Newark materially. The bill introduced by Assemblyman Simpson to furnish rapid transit for Hudson County has been reported and placed on second reading. The bill is practically the same as the one introduced on Jan. 23, except that an amendment has been incorporated which provides for a referendum before the rapid transit plan can be carried out. The Rapid Transit Commission, under which the work will be furthered, is to consist of four members to be appointed by the Supreme Court, one of whom is to be a director of the Board of Freeholders.

NEW YORK

The replacing of the two Public Service Commissions by two similar departments to be under Democratic control is provided for in a bill introduced by Senator Grady. The Public Service Commissions took the place of the State Railroad Commission, the State Commission of Gas and Electricity, the State Inspector of Gas Meters, the Bureau of Grade Crossings, and the Rapid Transit Commission. Since Governor Dix took office he has insisted that the commissions are too expensive. Senator Grady

has provided in his bill for a reduction in the number of members of each commission from five to three and for a reduction of the salary of each commissioner from \$15,000 to \$10,000 a year. Furthermore the Grady bill limits the annual expense of the New York City commission to \$650,000, and the annual expense of the up-State commission to \$160,000. The bill provides that one member of each commission shall be a Republican. Senator Grady says the expense of the up-State board last year was \$300,000, and of the New York City commission \$1,200,000.

OHIO

Senate Bill No. 181, introduced by Mr. Andrews, would require all city and interurban electric railways to equip their double-track cars "with an air or electric brake * * * capable of applying the maximum braking power for all of the * * * wheels of such car." Fifty per cent of such cars must be equipped prior to Jan. 1, 1912, 75 per cent prior to Jan. 1, 1913, and all cars by Jan. 1, 1914. This bill is introduced as an amendment of section 9149-1 of the General Code, passed May 10, 1910, which required all electric cars to be equipped with an electric device by which the braking pressure would be automatically reduced as the speed of the car decreased. It is understood that the existing law did not have the sanction of the Railroad Commission and that the commission has not considered it practicable to enforce this law. The present bill is understood to have the approval of the Railroad Commission.

PENNSYLVANIA

There is talk of concluding the Pennsylvania session about April 27. The public utilities commission bill is ready to be presented. Among the measures affecting transportation companies which were introduced during the week ended March 11, 1911, were the following: Providing that no railway or express company shall charge one person or firm a higher rate per pound or ton than another, with power to appeal to the Court of Quarter Sessions, which is empowered to order the books of the offending company brought into court for review; limiting to 30 years the period for which municipalities may grant public utility franchises with power to the municipalities to acquire, maintain and operate street railways and public utilities; giving counties similar power to acquire public utilities; requiring railroads to equip all their locomotives with electric power headlights of 1500 cp before April 1, 1915, the right being vested in the State Railroad Commission to relieve railroads from the operations of the act on small roads or branches where the commission deems such lights unnecessary; forbidding any street or electric railway to use in the "built-up" parts of any city a certain type of prepayment car or any car that will not permit free ingress and egress. The penalty for the violation of the last act would be \$100 fine, "each car and each day constituting a separate offense." A bill has also been introduced to abolish the offices of superintendent and assistant superintendent of the Bureau of Railways in the Department of Internal Affairs and to substitute therefor the offices of chief and assistant chief of that bureau.

A bill has been introduced which it is thought will adequately protect street railways from the ambulance chaser. The measure makes it a misdemeanor for a lawyer to solicit or induce a person who has sustained a personal injury to bring a suit to recover damages. A bill has been introduced to compel electric railways more than 10 miles long to equip their cars with water coolers and toilets and to provide similarly equipped stations at their terminals. The bill to fix \$5,000 as the penalty for making false statements in regard to the assets of a company has been amended so as to make the penalty \$1,000.

A bill has been introduced to give departments of public safety in cities of the first class the right to regulate traffic. Representative Hilton has introduced a bill which provides that holders of 10 per cent of the stock of a corporation can petition the Common Pleas Court for a reduction in the salary of any official of the corporation. The bill to tax express companies has been passed. The bill to require electric railways to provide suitable waiting rooms at terminal stations and to equip all cars on suburban lines with toilets and providing penalties for violation was up for third reading in the House on March 6.

Financial and Corporate

New York Stock and Money Market

March 14, 1911.

There was a slight increase in activity in the stock market to-day. The recent condition of the market can be understood when transactions amounting to 407,000 shares are regarded as showing activity. Prices during the week have been steady with an upward tendency. All of the happenings of the week were negative and the outside public was still apathetic. The demand for bonds and other investment securities continued to be excellent.

The money market is very easy and rates are cheap. Quotations to-day were: Call, 2@2½ per cent; 90 days, 2¾@3 per cent.

Other Markets

Traction shares were rather less active in the Philadelphia market last week than they were previous to the final settlement of the Rapid Transit financial plan. There is little desire to buy at present and no pressure to sell, so the market has turned to other interests. Prices have remained practically stationary.

In the Boston market Massachusetts Electric and Boston Elevated continue to be the only traction stocks in evidence. These are only moderately active and prices are unchanged.

Beyond fairly active trading in both the stock and bonds of the United Railways Company there was no trading in tractions in the Baltimore market last week.

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

	March 7.	March 14.
American Light & Traction Company (common).....	a299	a299
American Light & Traction Company (preferred).....	a106	a106
American Railway Company.....	a44	a44
Aurora, Elgin & Chicago Railroad (common).....	a44	a44
Aurora, Elgin & Chicago Railroad (preferred).....	a85¾	a85¾
Boston Elevated Railway.....	a128½	a128½
Boston Suburban Electric Companies (common).....	*16	15½
Boston Suburban Electric Companies (preferred).....	*71	72
Boston & Worcester Electric Companies (common).....	*90	90
Boston & Worcester Electric Companies (preferred).....	*40	41
Brooklyn Rapid Transit.....	78½	87¾
Brooklyn Rapid Transit Company 1st ref. conv. 4s.....	83¾	87¾
Capital Traction Company, Washington.....	a128	a128
Chicago City Railway.....	a200	200
Chicago & Oak Park Elevated Railroad (common).....	*3¼	*3¼
Chicago & Oak Park Elevated Railroad (preferred).....	*7¼	*7¼
Chicago Railways, pteptg., ctf 1.....	a92	a92½
Chicago Railways, pteptg., ctf. 2.....	a25	a24½
Chicago Railways, pteptg., ctf. 3.....	a9½	a9½
Chicago Railways, pteptg., ctf. 4.....	5¼	a5
Cincinnati Street Railway.....	130	a132
Cleveland Railway.....	a95	95
Colorado Railway & Light Company.....	100½	109½
Columbus Railway (common).....	93	a96
Columbus Railway (preferred).....	100½	100½
Consolidated Traction of New Jersey.....	a76	a76½
Consolidated Traction of N. J., 5 per cent bonds.....	a105	a105
Detroit United Railway.....	71	a75
General Electric Company.....	149	150
Georgia Railway & Electric Company (common).....	*149	a133
Georgia Railway & Electric Company (preferred).....	*87	a92
Interborough Metropolitan Company (common).....	187½	197½
Interborough Metropolitan Company (preferred).....	52	52½
Interborough Metropolitan Company (4½s).....	78½	78½
Kansas City Railway & Light Company (common).....	25	a25
Kansas City Railway & Light Company (preferred).....	a68	a70
Manhattan Railway.....	140	138¾
Massachusetts Electric Companies (common).....	17	a17¾
Massachusetts Electric Companies (preferred).....	a88	a88
Metropolitan West Side, Chicago (common).....	a22	a23½
Metropolitan West Side, Chicago (preferred).....	a67	a68½
Metropolitan Street Railway, New York.....	*15	*15
Milwaukee Electric Railway & Light (preferred).....	110	110
North American Company.....	70¾	71
Northern Ohio Light & Traction Company.....	a43½	a43¼
Northwestern Elevated Railroad (common).....	a23	a23
Northwestern Elevated Railroad (preferred).....	a64	a63½
Philadelphia Company, Pittsburgh (common).....	a53½	a53½
Philadelphia Company, Pittsburgh (preferred).....	a43½	a43½
Philadelphia Rapid Transit Company.....	a29½	a29½
Philadelphia Traction Company.....	a86	a84
Public Service Corporation, 5 per cent col. notes.....	a96½	a96½
Public Service Corporation, ctf. s.....	a105½	a105½
Seattle Electric Company (common).....	a112	a109½
Seattle Electric Company (preferred).....	a107½	a99½
South Side Elevated Railroad (Chicago).....	a70	a70
Third Avenue Railroad, New York.....	a10	a9¾
Toledo Railways & Light Company.....	10	a8½
Twin City Rapid Transit, Minneapolis (common).....	109½	a110
Union Traction Company, Philadelphia.....	a47¾	a47½
United Rys. & Electric Company, Baltimore.....	17¾	17¾
United Rys. Inv. Co. (common).....	46	46
United Rys. Inv. Co. (preferred).....	73½	73
Washington Ry. & Electric Company (common).....	a3¼	a35¾
Washington Ry. & Electric Company (preferred).....	a88	a87½
West End Street Railway, Boston (common).....	a92½	91
West End Street Railway, Boston (preferred).....	a103½	a102½
Westinghouse Elec. & Mfg. Co.....	67	67
Westinghouse Elec. & Mfg. Co. (1st pref.).....	a120	a120½

a Asked. * Last sale.

Annual Report of the Washington Railway & Electric Company

The comparative income account of the Washington (D. C.) Railway & Electric Company and subsidiary companies for the year ended Dec. 31, 1910, with comparisons, is as follows:

	1908.	1909.	1910.
Gross earnings from operation.....	\$3,720,573	\$4,080,063	\$4,123,559
Operating expenses.....	1,856,170	2,110,578	2,151,828
Net earnings from operation.....	\$1,864,403	\$1,969,485	\$1,971,731
Miscellaneous income.....	37,525	10,602	23,310
Gross income less operating expenses.....	\$1,901,928	\$1,980,087	\$1,995,041
Fixed charges:			
Taxes.....	\$183,385	\$200,027	\$210,780
Interest.....	994,106	1,030,265	1,056,439
Miscellaneous.....	13,179
Total.....	\$1,177,491	\$1,230,292	\$1,280,398
Surplus.....	\$724,437	\$749,795	\$714,643
Percentage of operating expenses to gross earnings.....	49.89	51.73	52.18

The net income of the whole system for the year ended Dec. 31, 1910, was \$714,643, of which \$104,401 was applied directly by the subsidiary companies without passing through the profit and loss account of the Washington Railway & Electric Company. The surplus of this company on Dec. 31, 1909, was \$941,484, and its net income for the last year was \$610,242, making a total of \$1,551,726. Against this sum there were charged \$51,847 for depreciation in equipment retired or sold during the year, \$1,540 for removal of abandoned tracks, \$425,000 dividends on preferred stock and \$130,000, or 2 per cent, dividends on the common stock. The final surplus as of Dec. 31, 1910, was \$943,339.

The increase in gross earnings from operation was 1.07 per cent, in operating expenses 1.95 per cent and in net earnings from operation 0.11 per cent.

Clarence F. Norment, the president, states in his report in part:

"It will be seen that the increase in gross earnings is far below the normal average. This may be attributed, among other causes, to the heavy traffic during the spring of 1909 on account of the inauguration and the special session of Congress.

"Operating expenses have increased in a somewhat higher proportion than gross earnings. Liberal expenditures for maintenance of track and roadway, buildings, electric lines and equipment have been made and charged to operating expenses, with the result that the physical condition of your properties is steadily improving."

"Depreciation on the equipment of the railways was provided for by charges aggregating \$60,000, the same figure as in 1909, deducted from surplus earnings.

"The surplus revenue, after deducting fixed charges for the year ended Dec. 31, 1910, was partially applied to the needs of the several companies in which it originated without being carried to the profit and loss account of the Washington Railway & Electric Company. The application is stated briefly as follows:

"Potomac Electric Power Company, to sinking fund requirements, \$64,520; to loss on second-hand equipment sold during the year, \$6,680; total, \$71,200.

"Other subsidiary companies: To depreciation on equipment, \$8,152; to removal of abandoned tracks, \$18,561; to credit of profit and loss, net, \$6,487; total, \$33,200.

"Washington Railway & Electric Company: To depreciation on equipment, \$51,847; to removal of abandoned tracks, \$1,540; to payment of 5 per cent dividend on preferred stock, \$425,000; to payment of 2 per cent dividend on common stock, \$130,000; to credit of profit and loss, \$1,855; total, \$610,242.

"During the year \$20,000 additional Washington Railway & Electric Company 4 per cent consolidated mortgage bonds were issued and used in the acquisition of additional shares of stock of subsidiary companies.

"The Potomac Electric Power Company issued \$600,000 additional of consolidated mortgage 5 per cent bonds. The above bonds, together with \$49,000 bonds in the treasury of the company at the beginning of the year, were sold at par and interest, and the proceeds thereof were applied to the obligations of the company and its capital require-

ments for extensions, betterments and improvements. No change was made during the year in the securities received from the reorganization committee to be used for the purposes of the new company, heretofore set aside as a depreciation reserve.

"The year's requirements for the sinking fund of the Potomac Electric Power Company consolidated mortgage amounted to \$64,520. This sum was deducted from surplus earnings and invested in the company's consolidated mortgage bonds. The total amount so invested is now \$149,000.

"On May 1, 1910, in accordance with an act of the Maryland General Assembly, the number of fare zones on the Washington & Rockville Railway Company was reduced from four to three. Application was made in the United States Circuit Court for the District of Maryland for an injunction against the enforcement of this law. A temporary injunction was issued so far as the law related to the sale of commutation and school commutation tickets. The litigation is still pending."

The passenger revenue of the companies decreased 3.10 per cent in 1910 as compared with 1909.

A condensed balance sheet as of Dec. 31, 1910, shows a depreciation reserve of \$516,290, and a reserve for settlement of damage claims and renewals of \$69,882.

Leases at Trenton Approved

The Board of Public Utility Commissioners of New Jersey has given conditional approval to the leases of the Trenton Street Railway, Trenton, Hamilton & Ewing Traction Company, Mercer County Traction Company and the Trenton, Pennington & Hopewell Street Railway to the Trenton & Mercer County Traction Corporation. The terms of the leases submitted for approval provide that the Trenton & Mercer County Traction Corporation is to pay the interest charges, taxes and insurance, all operating expenses, proper maintenance charges and definite sums as rentals, these sums to increase during a period of about 15 years. In approving the leases the board said:

"The board, therefore, hereby approves the several leases so submitted to it, but such approval is conditioned upon the formal acceptance by the lessors, respectively, and the lessee of the additional terms and modification of terms now contained therein, as follows:

"(1) That the lessee accept and covenant to comply in all particulars with the mandatory provisions of the order issued by this board to the Trenton Street Railway, under date of March 3, 1911; (2) that the lessee covenant to set up and maintain during the period that the lease remains in force a depreciation fund; (3) that the lessee covenant to pay into such fund annually, for a period of two years, a sum that shall not be less than 5 per cent of its gross income; (4) that within two years from the date hereof the lessee submit to this board (or any board succeeding to its powers and duties) a proposed rule to govern and regulate the maintenance of a depreciation fund by it thereafter; (5) that the lessee covenant to abide by and conform to the action of such board upon the rule so submitted to it, provided that such action does not require the payment into such fund of a sum in excess of 15 per cent of the gross income of such lessee.

"The conditions so imposed are intended to meet somewhat unusual circumstances which have developed in the course of the hearings, not only on this application, but also upon the complaint of the City of Trenton of the present maintenance of unsafe and inadequate service; upon which complaint the board has made an order requiring a large amount of work in repair and reconstruction to be done within a comparatively short period of time.

"The moneys required in this work cannot, in view of the necessity of meeting fixed charges, be wholly met out of the current earnings of the company, and some of the work required by such order is of such a nature that it may fairly be contended that the expenditures therefor should be charged to capital account. The conditions imposed must, therefore, not be taken as indicating the general policy of the board as to depreciation accounts. The leases provided for an issue by the Trenton Street Railway of mortgage bonds in the sum of \$500,000. The board will, therefore, when formal application is made to it, approve

this proposed issue of bonds, subject to the terms of conference order No. 7."

Earnings of Interborough Rapid Transit Company for Seven Months

The Interborough Rapid Transit Company reports earnings as follows for the seven months ended Jan. 31, 1911:

	1911.	1910.
Gross operating revenue.....	\$16,946,641	\$16,512,299
Operating expenses.....	7,017,922	6,349,577
Net operating revenue.....	\$9,928,719	\$10,162,722
Taxes	1,080,528	985,663
Income from operation.....	\$8,848,191	\$9,177,059
Non-operating income.....	199,695	258,945
Gross income.....	\$9,047,886	\$9,436,004
Charges, including guarantee to Manhattan Ry. 6,222,329		6,159,074
Net corporate income.....	\$2,825,557	\$3,276,930
Dividends for six months, at rate of 9 per cent. per annum.....	1,575,000	1,575,000
Surplus	\$1,250,557	\$1,701,930

The percentage of operating costs was 41.41, against 38.45 in the previous period. The company states that the increase in operating expenses was due largely to extraordinary expenditures, the result of changes in subway equipment made necessary in connection with the operation of 10-car express and 6-car local trains.

The number of passengers carried in the seven months was 328,862,042, against 320,560,226 in the corresponding period of the previous year, an increase of 8,301,816 passengers.

The company reports earnings as follows for January:

	1911.	1910.
Gross operating revenue.....	\$2,659,952	\$2,587,487
Operating expenses.....	1,091,390	969,769
Net operating revenue.....	\$1,568,593	\$1,617,719
Taxes	157,053	151,885
Income from operation.....	\$1,411,541	\$1,465,836
Other income.....	25,248	30,956
Total income.....	\$1,436,789	\$1,496,791
Interest, rents, etc., including Manhattan Railway guarantee.....	888,463	886,142
Net corporate income.....	\$548,326	\$610,649

Annual Report of the Fonda, Johnstown & Gloversville Railroad

The annual report of the Fonda, Johnstown & Gloversville Railroad, Gloversville, N. Y., for the year ended June 30, 1910, compares as follows:

	INCOME ACCOUNT.		
	RAILWAY OPERATING REVENUE—YEAR ENDED JUNE 30.		
	Miles Operated.	1910.	1908.
Freight revenue.....	84.36.	\$227,752	\$215,814
Passenger revenue, steam division.....	1909.	64,165	66,045
Passenger revenue, electric division.....	1908.	474,720	468,376
Mail revenue.....		3,286	3,289
Express revenue.....		15,403	14,732
All other revenues from transportation..		5,453	5,197
Revenue from operation other than transportation		25,882	4,021
Totals operating revenue.....		\$904,751	\$777,474
Railway Operating Expenses. Per Cent.		46.59	51.25
Maintenance of way and structures.....		\$80,990	\$79,095
Maintenance of equipment.....		49,284	46,517
Traffic expenses.....		7,268	5,929
Transportation expenses.....		227,926	232,971
General expenses.....		56,054	31,852
Totals operating expenses.....		\$421,522	\$373,317
Net operating revenue.....		\$483,229	\$419,342
Outside operations (Sacandaga Park) deficit		6,266	4,716
Totals net revenue.....		\$476,963	\$414,626
Taxes accrued.....		36,491	34,341
Operating income.....		\$440,472	\$380,285
Other income.....		30,352	22,890
Gross corporate income.....		\$470,824	\$410,811
Deductions from gross corporate income.....		353,650	369,607
Net income (available for dividends)..		\$117,174	\$41,204
Dividends on preferred stock.....		\$30,000	\$3,750
Dividends on common stock.....		50,000
Total dividends for year.....		\$80,000	\$3,750
Balance to profit and loss.....		\$37,174	\$37,454

J. Ledlie Hees, the president, says in the report in part: "Sacandaga Park, which is owned by the company, has con-

tinued to grow in popularity for many years, as evidenced by increasing business. During the season of 1909, 86,585 passengers were carried to the park, with a total revenue of \$48,147. This was the record season in its history. Of the 72 excursions run during the season, 27 came from the New York Central Lines, carrying 14,027 passengers.

"The company has recently been granted a 50-year franchise in Amsterdam, under very satisfactory conditions, to double-track East Main Street, superseding the single-track franchise expiring within a few years, and to build a single-track extension from intersection of East Main Street and Vrooman Avenue through the Eighth Ward to Rockton, which will connect with the Haganan Line at that point, forming a belt line in the east end of the city. This franchise adds considerable value to the property, and it is expected that the new line, when built, will not only greatly relieve traffic conditions in Amsterdam, but will show considerable increase in revenue from local lines in that city."

Boston & Worcester Street Railway, Boston, Mass.—Hayden Stone & Company, Boston, Mass., are offering 2970 shares of 6 per cent preferred stock of the Boston & Worcester Street Railway, recently approved by the Railroad Commission, at 117½, at which price the yield to the investor is about 5 per cent.

Dubuque (Ia.) Electric Company.—L. D. Mathes, who has been general manager of the Dubuque Electric Company for five years, has been elected a director of the company to succeed Hinsdill Parsons, New York.

Forty-second Street, Manhattanville & St. Nicholas Avenue Railroad, New York, N. Y.—Judge Lacombe in the United States Circuit Court has signed an order postponing the date of the sale of the property of the Forty-second Street, Manhattanville & St. Nicholas Avenue Railroad until May 19, 1911, under the decree of foreclosure of a mortgage dated July 1, 1885, to secure a bond issue of \$1,800,000. Edward H. Childs, special master, has been directed to advertise the sale of the property.

Havana (Cuba) Electric Railway.—The Havana Electric Railway has decided to redeem at 110 and accrued interest, on Jan. 1, 1912, or earlier, its outstanding first mortgage 5 per cent gold bonds. The company has sold to Speyer & Company, New York and London, \$1,846,000 of its consolidated mortgage 5 per cent gold bonds due Feb. 1, 1912. Of these consolidated mortgage bonds \$1,146,000 are issued to retire the first mortgage bonds of the company outstanding and \$700,000 bonds for improvements, etc. On Jan. 1, 1912, the consolidated mortgage bonds become a first and only lien on the property of the company.

Lewiston, Augusta & Waterville Street Railway, Lewiston, Maine.—The Portland & Brunswick Street Railway has come into control of the Lewiston, Augusta & Waterville Street Railway through acquiring \$152,500 of the outstanding \$225,000 of bonds. The sale was made through United States Senator Charles F. Johnson, treasurer of the company, and the purchaser was represented by John R. Graham, president of the Lewiston, Augusta & Waterville Street Railway. The Portland & Brunswick Street Railway will be operated as part of the Lewiston, Augusta & Waterville Street Railway, with which it connects at Brunswick.

Metropolitan Street Railway, New York, N. Y.—Judge Lacombe in the United States Circuit Court in New York signed an order authorizing Adrian H. Joline and Douglas Robinson, as receivers of the Metropolitan Street Railway, to issue certificates of indebtedness, to be known as "tax payment certificates," to the amount of \$2,750,000, to pay the principal of tax payment certificates issued in compliance with an order of the court in June, 1910.

Milwaukee Northern Railway, Cedarburg, Wis.—Devitt, Tremble & Company, Chicago, Ill., and Philadelphia, Pa., offer for subscription at 95 and interest \$500,000 of first mortgage 5 per cent gold bonds of the Milwaukee Northern Railroad dated April 1, 1911, and due April 1, 1931, but optional at 105 and interest on any interest payment date. The First Savings & Trust Company, Milwaukee, Wis., is trustee of the issue.

Northwestern Railways Company, Meadville, Pa.—The

Northwestern Railways Company has taken over the Meadville & Conneaut Lake Traction Company, the Meadville Traction Company and the People's Incandescent Light Company of Meadville, the property of which was sold under foreclosure recently. H. W. Thornton, assistant superintendent on the Long Island Railroad, has been elected president of the company; Thomas D. Rhodes, late vice-president of the New York, Westchester & Boston Railroad, has been made vice-president, and Charles F. Fahr, president of the First National Bank of Meadville, treasurer. F. J. Lisman and William Good, New York, and George A. Garton, Cleveland, are directors. There is one vacancy on the board of directors. The new company will issue \$550,000 of first mortgage 5 per cent bonds, which will represent the new capital put into the enterprise. The company will also issue \$500,000 of preferred 5 per cent stock and \$1,000,000 of common stock. The bondholders of the companies whose property was taken over will be paid 50 per cent in preferred and 50 per cent in common stock.

Worcester (Mass.) Consolidated Street Railway.—The Worcester Consolidated Street Railway has petitioned the Massachusetts Railroad Commission for authority to acquire the Marlborough Westborough Street Railway, the Worcester & Blackstone Valley Street Railway, the Worcester & Southbridge Street Railway and the Worcester & Holden Street Railway.

Dividends Declared

Capital Traction Company, Washington, D. C., quarterly, 1½ per cent.

Chattanooga Railway & Light Company, Chattanooga, Tenn., quarterly, 1¼ per cent, preferred.

Chicago (Ill.) City Railway, quarterly, 2½ per cent.

Houghton County Traction Company, Hancock, Mich., 3 per cent, preferred; 2½ per cent, common.

St. Joseph Railway, Light, Heat & Power Company, quarterly, 1¼ per cent, preferred.

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

Syracuse (N. Y.) Rapid Transit Railway, quarterly, 1½ per cent, preferred.

Toronto (Ont.) Railway, quarterly, 1¼ per cent.

United Traction & Electric Company, Providence, R. I., quarterly, 1¼ per cent.

West End Street Railway, Boston, Mass., \$1.75, common.

West India Electric Company, Ltd., Kingston, Jamaica, quarterly, 1¼ per cent.

West Jersey & Sea Shore Railroad, Camden, N. J., 2½ per cent.

MONTHLY ELECTRIC RAILWAY EARNINGS

BROOKLYN RAPID TRANSIT COMPANY.						
Period.	Revenue.	Expenses.	Revenue.	Charges.	Income.	
Im., Nov. '10	\$1,804,669	\$1,070,720	\$733,949	\$628,827	\$105,121	
FORT WAYNE & WABASH VALLEY TRACTION COMPANY.						
Im., Dec. '10	\$1,526,587	\$840,851	\$685,736	\$544,832	\$140,904	
1 " " '09	1,414,526	821,723	592,804	521,350	71,453	
GALVESTON-HOUSTON ELECTRIC COMPANY.						
Im., Dec. '10	\$115,123	\$68,985	\$46,137	\$25,642	\$20,495	
1 " " '09	100,867	58,482	42,385	23,059	19,326	
12 " " '10	1,312,986	796,743	516,243	290,223	226,026	
12 " " '09	1,206,544	709,034	497,510	263,899	233,611	
HUDSON & MANHATTAN RAILROAD.						
Im., Nov. '10	\$302,094	\$98,116	\$203,970	\$209,205	†\$5,227	
KANSAS CITY RAILWAY & LIGHT COMPANY.						
Im., Jan. '11	\$656,607	\$355,487	\$301,120	\$188,071	\$113,049	
1 " " '10	611,919	324,451	287,468	169,632	117,836	
8 " " '11	5,170,197	3,056,665	2,113,532	1,511,316	602,217	
8 " " '10	2,720,656	2,720,656	2,064,960	1,378,754	686,206	
LEWISTON, AUGUSTA & WATERVILLE STREET RAILWAY.						
Im., Jan. '11	\$35,151	*\$26,831	\$8,317	\$13,107	†\$4,790	
1 " " '10	35,077	24,425	10,562	14,744	74,092	
7 " " '11	328,136	*197,126	131,010	91,845	39,165	
7 " " '10	328,165	*185,565	142,600	101,438	41,162	
TAMPA ELECTRIC COMPANY.						
Im., Dec. '10	\$47,255	\$26,215	\$21,039	\$6,252	\$14,787	
1 " " '09	56,389	32,495	23,894	4,816	19,078	
12 " " '10	592,964	327,963	265,001	64,638	200,363	
12 " " '09	596,303	346,104	250,199	55,968	194,231	
TWIN CITY RAPID TRANSIT COMPANY.						
Im., Jan. '11	\$618,939	\$336,794	\$282,145	\$140,079	\$142,066	
1 " " '10	583,962	302,632	281,331	140,229	141,102	
					*Includes taxes. †Deficit.	

Traffic and Transportation

Court Decision in Rensselaer Fare Case

The Appellate Division of the Supreme Court of New York has handed down a decision unanimously affirming the order of the Public Service Commission of the Second District of New York directing the Cohoes Railroad, which constitutes the Rensselaer branch of the United Traction Company, to charge a 5-cent fare instead of a 6-cent fare between Albany and Rensselaer. The company will appeal to the Court of Appeals. If the court continues the stay the company will continue to give slips to passengers riding between Albany and Rensselaer, on each one of which 1 cent can be redeemed in case the company loses its suit.

The company carried the case to the Appellate Division under a certiorari proceeding. An opinion on the decision of the Appellate Division was written by Justice Betts, and all concurred. It was held in the opinion that in collecting the extra cent the company was not acting as an agent for the Greenbush Bridge Company, whose bridge it crosses in going over the river. The 6 cents are collected as its own fare, said the judge, and the 1 cent that is paid to the bridge company is an operating expense like any other expense. Justice Betts held that the Barnes act of 1905 is constitutional and that being so the company is bound to charge only a 5-cent fare. During the hearings before the commission Patrick C. Dugan, the company's attorney, argued that the Barnes act is unconstitutional and was contradictory to the company's franchise, which fixed the fare at 6 cents. He also held that in charging the extra cent the company was acting as an agent for the Greenbush Bridge Company and that if it were not permitted to charge the 6 cents it could not pay its operating expenses, let alone dividends. These are the grounds upon which the appeal will be made to the Court of Appeals.

The Trenton No-Seat-No-Fare Ordinance

Brief mention was made in the *ELECTRIC RAILWAY JOURNAL* of March 11, 1911, of the appeal of the Trenton (N. J.) Street Railway to the Board of Public Utility Commissioners against the "No-Seat-No-Fare" ordinance which was passed by the Trenton Common Council in April, 1910. This ordinance follows:

"Section 1. It shall be the duty of all corporations operating a line or lines of street railway within the city limits, between the hours of 6 and 9 a. m. and 5 and 7 p. m. of each day, to furnish and run a sufficient number of cars to provide a seat for each passenger from whom a fare is demanded.

"Section 2. That persons desiring transportation thereon shall not be kept waiting longer than 10 minutes.

"Section 3. Any corporation violating the foregoing provision shall forfeit and pay a penalty of \$50 for each offense."

This ordinance was approved by the Mayor on April 9, 1910.

In its appeal to the Board of Public Utility Commissioners the Trenton Street Railway refers to the terms under which its franchise was granted and submits a copy of the no-seat-no-fare ordinance. It concludes its appeal to the board as follows:

"The Trenton Street Railway, being joined herein by the Trenton & Mercer County Traction Corporation, appeals to this honorable board from the ordinance passed by the said Common Council above set forth, and complains that the said ordinance is (1) unreasonable and unjust; (2) in contravention of the rights of the said Trenton Street Railway and the Trenton & Mercer County Traction Corporation; (3) that it is impossible to comply with the directions of the said ordinance, or with the direction of either the first or second section thereof; (4) that it is impracticable for said companies to operate their cars in the manner required by said ordinance; (5) that the practice of passengers standing on the rear and front platforms and in the aisles of the cars has been followed so long as to have become a fixed custom which the said company cannot disregard; (6) that passengers in a hurry to reach their destination are willing to stand on front or rear platforms or in

the aisles of the cars rather than wait for the following car, and such persons have a right to do so which these companies under the provisions of the said ordinance cannot restrain or violate; (7) because any effort on the part of the said companies to comply with the directions of said ordinance and to remove passengers from the cars who refuse to pay their fare would cause a serious inconvenience to the public and perhaps cause disorder; (8) that the Common Council of Trenton had no legal authority to pass the said ordinance or to require the said companies to carry any passengers without the payment of a fare; (9) that to require said companies to carry passengers without the payment of a fare is a violation of the constitution of the State, which forbids the taking of private property for public use without just compensation.

"Therefore, the said Trenton Street Railway and the Trenton & Mercer County Traction Corporation respectfully pray that your honorable board hear said appeal and determine that said ordinance is unfair and unjust and in contravention of the rights of the said companies, and therefore void; and that your honorable board shall make such order in the premises as may seem just and reasonable."

Despite the fact that the no-seat-no-fare matter had been carried to the commission the company on March 10, 1911, was convicted in three instances of violating the ordinance. Justice Harris imposed a fine of \$50 in one case and suspended sentence in the others. Counsel for the company announced that an appeal would be taken. The complaints were made by Councilman Everett Townsend, who is responsible for the ordinance, and by two patrolmen.

The Value of Politeness and Courtesy.

J. S. Moulton, of the Interborough Rapid Transit Company, has contributed to the *Interborough Bulletin* an article, "Keep Your Temper—Make Few Arrests," addressed in particular to the employees of the subway division of the company. The article, however, contains the following advice which is pertinent to employees in general:

"Politeness and courtesy are essential to every business, whether it be a railroad or not, and it is no more trouble to be courteous to a person than it is to be gruff and impolite.

"It is not necessary to lose your temper or speak or act uncivilly toward passengers because they think, rightly or wrongly, that everything should go along smoothly. There should be nothing but the kindest and politest answers to both sane and foolish questions. It is not expected that employees should raise their hats every time a question is asked of them, but it is certainly possible to be courteous and polite in every instance.

"An employee of a railroad is no different from any other human being, and even if a foolish or impertinent question is asked by a passenger he need not reply along similar lines; but he can and should be firm and polite in making his reply. Aggravations are constant, but at the same time an employee in any branch of the service knows when he accepts his position, no matter what it is, that he will meet all sorts of people, and it is not necessary, even in extreme cases, for him to be discourteous.

"Employees should always remember that insults come from ignorance or arrogance. Employees stand a great deal more abuse from the public than the public will stand from them, and this is a condition of the employment accepted at the time they entered the service. Surliness is worse, perhaps, than impoliteness, and goes far toward inciting the public's resentment.

"Another important factor is the neatness of person. It is just as easy to be neat about one's self as it is to be slouchy. When in your opinion you are insulted or harried by a passenger, let the old saying come into your mind, 'When angry count 10 before you speak, and if very angry count 100.' You will find that a civil answer in 9 cases out of 10 will be received by a passenger in the right spirit, and if that passenger does not receive it in the right spirit it is not up to you to argue.

"Another very important thing is the care of the passengers in trains and on stations. A judge has recently said: 'It has been decided that the employees of a railroad are to a very large degree peace officers in charge of that train,

because it has been held that a guard or an employee in uniform of a railroad must see to the safety and comfort of the passengers of that railroad under any and all circumstances.

"Many times employees find themselves in trying situations because of the unreasonable and insulting course of passengers; but if they will remain calm and unruffled they will get out of them with a minimum of annoyance and difficulty. No matter what your provocation, be courteous and civil; speak softly and use your best judgment—make an arrest only when persuasion has failed.

"If an emergency arises demanding quick judgment on a train, for instance, where a passenger is threatened with an assault, it is the guard's duty to protect the peaceful passenger or passengers, if he is convinced that violence or disorder is imminent. Under such circumstances the guard must do all in his power to stop the disorder, and finding himself unable to do so must have such unruly passenger arrested. See to it, then, that you are justified by the facts when you make an arrest, or cause one to be made."

To Enforce Rule Against Smoking.—Conductors of the Gardiner, Westminster & Fitchburg Street Railroad, Gardiner, Mass., have been instructed to enforce rigidly the rule of the company which prohibits smoking on the rear platform of the cars of the company.

Good Accident Record in Ohio.—According to reports filed with the State Railroad Commission of Ohio only one death resulted from accidents on electric railways in February, 1911. Steam roads reported 67 fatalities, of which 27 were to employees, 35 to trespassers, 4 to highway travelers and 1 to a passenger.

Reduction in Speed Recommended.—At the request of the Railroad Commission of Indiana the Evansville & Mt. Vernon Electric Railway, Evansville, Ind., has reduced the speed of its trains between Evansville and Mt. Vernon until certain improvements to the track which are now being carried out are completed.

Service Stripes in Chattanooga.—The Chattanooga Railway & Light Company, Chattanooga, Tenn., has introduced the use of service stripes as a means of recognizing faithful service. Each stripe will indicate two years of service. After a man has served 10 years stars will be used to show the term of service.

City Island Railroad Ordered to Renovate Cars.—The City Island Railroad, which operates between Bartow station, on the New York, New Haven & Hartford Railroad, through Pelham Bay Park, has been ordered by the Public Service Commission of the First District of New York to renovate its horse cars within 30 days from March 3, 1911, so as to make them "rainproof and comfortable."

Souvenir Postals.—The Central California Traction Company, Stockton, Cal., has published for gratuitous distribution a picture postcard which shows a view of the company's reinforced concrete bridge over the Mokelumne River with a Stockton-Sacramento vestibuled train passing over the structure. The span is 110 feet and the bridge is said to be the longest single-span structure of the kind in the Far West.

Complaint Against Oneida Railway.—A complaint has been filed with the Public Service Commission of the Second District of New York against the Oneida (N. Y.) Railway in which it is alleged that the terminal facilities for the city line in Oneida are inadequate; that insufficient cars are operated to accommodate the passenger traffic between Sherrill and Oneida Main Street, and that the arrangement of schedules necessitates long waits at transfer points.

Hudson & Manhattan Railroad Reduces Running Time.—The Hudson & Manhattan Railroad, operating under the Hudson River between New York and New Jersey, has revised its train schedules so that service between Jersey City and Hoboken and points in New York is one minute faster than heretofore. The time between the Lackawanna station at Hoboken and Thirty-third Street, Herald Square, has been cut down from 15 minutes to 14 minutes, and the time from Hoboken to Cortlandt Street from 10 minutes to 9 minutes.

Special Rewards in Memphis for Efficiency.—E. W. Ford, general superintendent of the Memphis (Tenn.) Street

Railway, has announced that the year will be divided hereafter into two periods, the first running from Dec. 1 to May 30 and the second from June 1 to Nov. 30. This year, however, the first period is from March 1 to May 31. Every conductor and every motorman who has a clean accident record and against whom there has been no complaint of inattention or impoliteness or violation of the rules will be paid a bonus of 1 cent an hour for every hour's service during the period. Mr. Ford says that the plan is part of the company's campaign for better and safer service. The first award of prizes will be made on June 15, 1911.

Red Lights at Grade Crossings in Indiana.—The Railroad Commission of Indiana addressed the following circular on March 8, 1911, to all steam and interurban railroads: "The Railroad Commission calls your attention to the stop signal for railroad crossings at grade where there is no interlocking plant in use by the Pennsylvania Railroad and Baltimore & Ohio Railroad and some other companies. This stop signal is a red light placed on the right-hand side for an approaching train, showing about five feet above the ground. This light to be used in connection with the stop sign. It can be maintained with very little expense and will be especially useful at grade crossings of railroads out in the country where there is nothing at night to call the engineer's attention to the fact that he is approaching a crossing. The commission hereby requests and directs that railroads operating trains over railroad grade crossings in this State shall adopt and use this light, and that you will report your action in this behalf to the commission."

Accident Record of the Chicago & Milwaukee Electric Railroad.—Brief mention was made in the *ELECTRIC RAILWAY JOURNAL* of the letter on accidents addressed to the *Chicago Record-Herald* by E. E. Downs, general manager for the receivers of the Chicago & Milwaukee Electric Railroad, Highwood, Ill. In his letter Mr. Downs said: "I have read with considerable interest the editorial in your issue of Feb. 15, 1911, stating that the Harriman lines had operated their system during 1910 without a fatal accident to a passenger. This, of course, must be very gratifying to the traveling public and a source of satisfaction to every one connected with those lines. These comments by the *Record-Herald* will do a lot toward inspiring public confidence in the management and operation of our great railroads. I notice particularly one paragraph in your editorial referring to the fact that if a small line could operate a year without a fatal accident to a passenger, the result would be considered in itself purely accidental. I do not agree with you in this statement. The Chicago & Milwaukee Electric Railroad has been in operation 13 years and the records of E. H. Vivian, the claim agent, who has been with the company during the entire period, show that during that time we have carried between 75,000,000 and 100,000,000 passengers without a single fatal accident to a passenger."

Ruling by Wisconsin Commission on Fare Case.—Through the courtesy of Thomas Higgins, vice-president and general manager of the Manitowoc & Northern Traction Company, Manitowoc, Wis., this paper has been put into possession of some additional facts in regard to the recent decision of the Supreme Court of Wisconsin in the fare case in Manitowoc against the Manitowoc & Northern Traction Company, reported on page 353 of the issue of Feb. 25, 1911. The history of the case follows: The company first appealed to the Railroad Commission of Wisconsin for permission to increase its rate of fare. The commission replied that the law gave the company permission to establish its own rate of fare, but in case complaint was made to the commission about the rate being excessive or discriminatory the commission would investigate and fix a just and reasonable rate. On the strength of this the company changed its rates and was enjoined by the City of Manitowoc, which claimed that the franchise fixed the fare to Two Rivers and that the Railroad Commission had no jurisdiction in the matter. The Supreme Court held that the commission had jurisdiction, but had not exercised that jurisdiction by fixing a just and reasonable rate and until it did so the old rate of 10 cents must stand. The commission immediately fixed the rate and the company has been charging 15 cents as a just and reasonable rate subject to a future hearing in the case.

Personal Mention.

Mr. E. H. Vivian has resigned as claim agent and traffic manager of the Chicago & Milwaukee Electric Railroad, Chicago, Ill.

Mr. E. E. Downs has resigned as general manager of the Chicago & Milwaukee Electric Railroad, Chicago, Ill., effective April 1, 1911.

Mr. J. B. Duke has been elected president of the Greenville, Spartanburg & Anderson Railway, Greenville, S. C., to succeed Mr. W. J. Thackston, resigned.

Mr. F. E. Brooks has resigned as chief engineer and superintendent of construction of the Oakland & Antioch Railway, Oakland, Cal., the first section of which was placed in operation recently.

Mr. H. M. Winter, who has been connected with the Seattle office of the General Electric Company, has been appointed general sales manager of the lighting department of the Seattle Electric Company.

Mr. A. C. Adams, superintendent of motive power of the Spokane, Portland & Seattle Railway, has also been appointed superintendent of motive power of the Oregon Electric Railway and the United Railways, Portland, Ore.

Mr. John M. Hood, Jr., chief engineer of the United Railways & Electric Company, Baltimore, Md., has sailed for Europe in the interest of the Crown Cork & Seal Company, Baltimore, of which he was recently elected secretary. Mr. Hood expects to be gone about six weeks.

Mr. Charles Murray has been appointed general manager of the Northwestern Railways Company, Meadville, Pa., which has taken over the Meadville & Conneaut Lake Traction Company, the Meadville Traction Company and the People's Incandescent Light Company, of Meadville.

Dr. Johannes Puppe, who was appointed by the German Street & Interurban Railway Association and the rail manufacturers of Germany to study the causes of rail corrugation, is visiting this country to investigate this subject and to pursue special studies for the Siemens-Schuckert Company. The itinerary of Dr. Puppe will include the principal steel and electro-chemical centers as far West as Chicago. He will visit Detroit, Philadelphia, Boston and New York in connection with his investigation into the causes of rail corrugation.

Mr. Sidney Ossoski, who has been secretary of the finance committee of the Chicago (Ill.) Railways of the last three years, has been appointed general claim agent of the company. Mr. Ossoski was born in 1874 in Hornell, N. Y., and was graduated from the Hornell High School and in 1893 from Cornell University. Afterward he was graduated from the Columbia Law School in New York. He also attended the University of Berlin for a year. Mr. Ossoski was admitted to the bar in 1897, at Rochester, N. Y., and practised in New York. He specialized in corporation law until he entered the service of the Chicago Railways.

Mr. J. C. Rockwell has resigned as superintendent of the Charleston Interurban Railroad, Charleston-Kanawha, W. Va., to go to Manila, Philippine Islands in the interests of J. G. White & Company, Inc., New York, N. Y., where he will be connected with the operating staff of the Manila Electric Railroad & Light Company, with the title of superintendent of transportation or general superintendent. Mr. Rockwell was graduated from Cornwell in 1904 and from 1904 to 1906 was with the Hurley Tracklaying Machine Company, Chicago, Ill. From 1906 until the end of 1908 he was assistant to the general manager of the Syracuse, Lake Shore & Northern Railroad, Syracuse, N. Y., and since January, 1909, he has been superintendent of the Charleston Interurban Railroad.

Mr. John L. Sullivan has been appointed assistant general freight agent of the Fort Dodge, Des Moines & Southern Railroad, Boone, Ia., with headquarters at Chicago, Ill. Mr. Sullivan entered the service of the Chicago & Northwestern Railroad 25 years ago and remained with that company for nine years. He next accepted service with the Chicago & Great Western Railroad. After seven years' service with that company he resigned to assist in building the Manchester & Oneida Railway and was general manager of that short line for three years. He returned to the

Chicago & Great Western Railroad as traveling freight agent with headquarters at Fort Dodge, Ia., which position he resigned to become connected with the Fort Dodge, Des Moines & Southern Railway as assistant general freight agent, with headquarters at Chicago.

Mr. Henry W. Thornton, assistant general superintendent of the Long Island Railroad, Long Island City, N. Y., has been elected president of the Northwestern Railways Company, Meadville, Pa., which has recently taken over the Meadville & Conneaut Lake Traction Company, the Meadville Traction Company and the People's Incandescent Light Company of Meadville. Mr. Thornton will retain his connection with the Long Island Railroad. He was born on Nov. 6, 1871, and was educated at the University of Pennsylvania. He entered railway service in 1894 as a draftsman with the Pennsylvania lines west of Pittsburgh. From that time until November, 1899, he was consecutively assistant engineer on construction for the Cleveland & Marietta Railway, topographer attached to the chief engineer's office of the Southwest system of the Pennsylvania lines, assistant in the engineers' corps of the Pittsburgh division of the Pennsylvania lines; assistant engineer in field work attached to the chief engineer's office of the Southwest system; supervisor of yards at Columbus, Ohio; assistant engineer of the Cincinnati division and assistant engineer assigned to special work. From November, 1899, to March, 1901, Mr. Thornton served as engineer of maintenance of way of the Erie & Ashtabula division of the Northwest system of the Pennsylvania lines west of Pittsburgh, and from March, 1901, to May, 1902, he was superintendent of the Marietta division of the Northwest system. From May, 1902, to Dec. 23, 1903, he was superintendent of the Cleveland, Akron & Columbus Railway. Subsequently he served as superintendent of the Erie & Ashtabula division of the Northwest system of the Pennsylvania lines west of Pittsburgh.

Mr. William F. Ham, comptroller Washington Railway & Electric Company, was presented on March 15 by the American Electric Railway Accountants' Association with a testimonial of its appreciation of the valuable services which he has rendered to the association for many years past as chairman of the committee on the Standard Classification of Accounts and in other ways. The committee appointed by the Accountants' Association to make the presentation consisted of Messrs. W. B. Brockway, W. H. Forse, Jr., and H. L. Wilson, and the gift consisted of a handsome silver salad bowl which was engraved as follows: "William F. Ham, from American Electric Railway Accountants' Association. In appreciation, March 15, 1911." The gift was accompanied with the following letter from President Forse of the Accountants' Association: "It is my great pleasure to report to you the action taken by the executive committee of the American Electric Railway Accountants' Association last January, when it was unanimously resolved that the association should present you with a token of its appreciation. The silver bowl which this letter accompanies is the association's birthday present to you. Your services to the association, and through it to the electric railways of America and to the individuals connected with the industry, have been incalculable. No gift can suitably express their value. As an officer of the association and as chairman of the committee on a standard classification of accounts you have been a loyal and efficient executive. Speaking for your associates on the committee, I desire to express their appreciation of your wise counsel, unfailing good nature and broad knowledge of accounting. In the words of Jefferson, 'May you live long and prosper.'" March 15, the day upon which the bowl was received by Mr. Ham, was the anniversary of his birthday.

OBITUARY

William J. Calder, the first president of the East Harrisburg Passenger Railway, Harrisburg, Pa., and secretary and treasurer of the Central Pennsylvania Traction Company, Harrisburg, since its organization, is dead. He was 58 years old. Mr. Calder was elected president of the East Harrisburg Passenger Railway, which is a part of the Central Pennsylvania Traction Company, in 1886, and served in that capacity until 1889, when he became general manager and treasurer. In 1891 he was elected secretary and treasurer of the Central Pennsylvania Traction Company.

Construction News

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

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

RECENT INCORPORATIONS

***Westchester & Northern Railway, New York, N. Y.**—Incorporated in New York to build an electric railway from the White Plains terminal of the New York, Westchester & Boston Railway northward to Brewster and Danbury. A branch will also be built to Lake Waccabuc and Lake Maliopac. Surveys have been made.

***Erie & Suburban Railway, Erie, Pa.**—Application for a charter has been made in Pennsylvania by this company to build an electric railway between Millcreek and Harborcreek. Incorporators: J. M. Sherwin, W. F. Burgess, Dorman Weaver, H. Schuwerk and Frank Brown.

***Lock Haven & Jersey Shore Railroad, Lock Haven, Pa.**—Incorporated in Pennsylvania to build an electric railway to connect Lock Haven and Jersey Shore, via Dunnstable, Pine Creek, Charlton, Woolrich and Avis.

***Steubenville, Wellsburg & Weirton Railway, Charleston, W. Va.**—Incorporated in West Virginia to build an electric railway from the West Virginia end of the Steubenville (Ohio) bridge to Weirton, W. Va. Capital stock, \$10,000. Incorporators: Frank D. Sinclair, Albert G. Lee, J. G. Wheaton and Michael Keene, all of Steubenville.

FRANCHISES

Contra Costa, Cal.—The Oakland & Antioch Railway, Oakland, has asked the County Council for a franchise to build its railway from Concord to Castle Rock, at the base of Mount Diablo.

Oakland, Cal.—The Oakland Traction Company has asked the City Council for a 35-year franchise to extend its tracks 2 miles on East Sixteenth Street to the Boulevard in Oakland.

Watertown, Ill.—The Moline, East Moline & Watertown Railway, Moline, has asked the Board of Trustees for a 20-year franchise to extend its tracks in Watertown.

Gary, Ind.—The Chicago, South Bend & Northern Indiana Railway, South Bend, has received a franchise from the Board of Public Works to operate its cars into Gary over the New York, Chicago & St. Louis Railroad.

Sheridan, Ind.—The Carmel & Delphi Traction Company has received a 50-year franchise from the Council to build its tracks in Sheridan. This line, when built, will connect with the Logansport division of the Indiana Union Traction Company at Carmel.

Iola, Kan.—D. H. Siggins, president of the Union Traction Company, has received a 20-year franchise from the City Commissioners to build an electric railway in Iola. [E. R. J., March 4, '11.]

Waltham, Mass.—The Boston & Western Electric Railway has asked the City Council for a franchise to build its railway in Waltham. [E. R. J., Jan. 7, '11.]

Lake City, Minn.—The St. Paul Railway Promotion Company, St. Paul, has received a franchise to build its railway through Lake City. This proposed line will connect St. Paul, Park, Hastings, Red Wing and Lake City. W. L. Sonntag, 709 Metropolitan Opera House Building, St. Paul, general manager. [E. R. J., Jan 21, '11.]

***St. Louis, Mo.**—T. G. Portis, Chas. F. Vogel and E. R. Kinsey have received a franchise from railroad commissioners to build an electric railway in the southwest part of St. Louis, independent of the United Railways.

Brookhaven, N. Y.—The Suffolk Traction Company, Patchogue, has received an extension of time of its franchise from the Town Board of Brookhaven in which to complete its two routes between Brookhaven and Blue Point and Patchogue and Port Jefferson.

Cicero, N. Y.—The Syracuse & South Bay Electric Railway, Syracuse, has received a franchise from the Town Board and Town Superintendent of Highways to build its tracks through Cicero for its proposed extension to Brewerton and Central Square. This company will now ask for a franchise to build its railway through Hastings.

Pleasantville, N. Y.—The Hudson River & Eastern Traction Company, Ossining, has received a franchise from the Board of Trustees to build its track through Pleasantville.

Chillicothe, Ohio.—The Sciota Valley Traction Company, Columbus, Ohio, has accepted the franchise recently granted by the Council at Chillicothe. Work on the construction of the line to the business section of Chillicothe will begin at once. In return the company will erect a depot.

Middletown, Ohio.—The Ohio Traction Company has asked the City Council for a 25-year franchise to build its railway in Middletown.

Toronto, Ont.—The Toronto Suburban Railway has received a 1-year extension of time from the railway committee of the Legislature in which to construct its line from Lambton to Brampton, with an extension from Guelph to Preston and Hespeler, also to Berlin and Hamilton.

Corpus Christi, Tex.—The Corpus Christi Street & Interurban Railway has received a franchise from the City Council to build an extension to suburban parts of Corpus Christi.

Salt Lake City, Utah.—The Utah & Salt Lake Electric Railway, Salt Lake City, will soon ask the County Commissioners and City Councils for franchises to build its proposed 70-mile railway between Salt Lake City and Payson, via Sandy, Draper, Murray, Lehi, Provo, Spanish Fork and Springville. S. Bamberger is interested. [E. R. J., July 23, '10.]

Wheeling, W. Va.—The Pan-Handle Traction Company, Wheeling, has received a franchise from the County Commissioners to build a third rail from the northern limits of Wheeling to Fourth Street, Glenova.

Bellingham, Wash.—The Nooksack Valley Traction Company has received a year's extension of time on its franchise in which to begin work on its railway in Bellingham. It will connect Bellingham, Sumas, Ferndale, Lynden and Blaine. Samuel Alsop, Bellingham, is interested. [E. R. J., March 4, '11.]

South Bend, Wash.—J. O. Cray, representing the Twin City Electric Railway, has accepted the franchise recently granted by the City Council to build its railway through South Bend and extend it to Raymond. [E. R. J., Jan. 28, '11.]

TRACK AND ROADWAY

Birmingham & Edgewood Electric Railway, Birmingham, Ala.—About three miles of track will be built by this company during 1911. It will connect Birmingham, Rosedale, Edgewood, Oak Grove and Shades Cliff.

Tidewater Development Company, Birmingham, Ala.—This company has begun work near Corey on its line to connect East Lake with Bessemer and which will pass through the business section of Birmingham.

Bakersfield & Ventura Railroad, Bakersfield, Cal.—About 10 miles of track will be constructed by this company during the year.

Bakersfield & Kern Electric Railway, Bakersfield, Cal.—This company will build seven miles of new line in Bakersfield during 1911.

Los Angeles (Cal.) Railway.—This company has completed and placed in operation the extension of its Main Street line in Los Angeles from Garvanza to Eagle Rock Park.

The Los Angeles-Pacific Railway, Los Angeles, Cal.—This company has leased from the Southern Pacific Company that portion of the latter company's steam road which extends west from Clements Junction to the city limits of Los Angeles, and has requested the City Council for permission to operate it by electricity.

Connecticut Company, New Haven, Conn.—This company is considering plans for building a four-mile extension to Staffordville.

Shore Line Electric Railway, Saybrook, Conn.—About 14 miles of track will be built by this company to connect Guilford and New Haven via North Branford, Totoket and Foxen during the year.

Atlanta Northern Railroad, Atlanta, Ga.—This company is said to be considering plans to build an extension from Marietta to Cartersville via Acworth, Kennesaw, Emerson, Allatoona, Elizabeth, Bartow, Huga, Lena and other stations, thereby making a direct electric line from these points to Atlanta.

Belleville & Mascoutah Traction Company, Belleville, Ill.—About 12 miles of track will be constructed by this company during 1911.

Northern Illinois Electric Railway, Chicago, Ill.—This company will build 25 miles of new line during this year.

Kankakee (Ill.) Electric Railway.—This company will build two miles of new track in Kankakee during 1911.

Moline, East Moline & Watertown Railway, Moline, Ill.—This company will build about three miles of new track in Moline during 1911.

Creston-Winterset Interurban, Creston, Ia.—This company advises that it will only build this year the Creston-Macksburg section of its proposed 23-mile railway to connect Creston and Des Moines. It is expected to begin work in June. It will operate gasoline motor cars for passenger service and steam for freight. Capital stock, authorized, \$500,000. Bonds authorized, two-thirds of capital stock. Officers: R. Brown, Creston, president; Clarence Wilson, Macksburg, vice-president; A. S. Lynn, Arient, secretary; W. W. Walker, Macksburg, treasurer, and C. B. Judd, electrical engineer. [E. R. J., Feb. 25, '11.]

Tri-City Railway & Light Company, Davenport, Ia.—This company has awarded the contract to J. G. White Company for building the line between Davenport and Muscatine via Blue Grass, Pleasant Prairie and Sweetland, a distance of 28 miles.

Forest City & Mason City Railway, Forest City, Ia.—Colonel Baldwin, of the firm of Foults & Baldwin, Mason City, it is said, will finance the proposed railway to be built from Mason City to Forest City via Fertile. [E. R. J., Jan. 21, '11.]

Salina Street & Interurban Railway, Salina, Kan.—This company will build about two miles of track in Salina during the year.

Portland, Gray & Lewiston Railroad, Lewiston, Maine.—This company will resume construction on its extension between Portland and Lewiston as soon as conditions will permit.

Lewiston, Augusta & Waterville Railway, Lewiston, Maine.—Herbert M. Heat, chief counsel for this company and the Rockland, Thomaston & Camden Street Railway, Rockland, announces that it is the intention to build a line in the near future from Togus to Warren, affording direct connection from Augusta to Rockland. This line was given a preliminary survey some years ago and since then local lines have been built from Augusta to Togus, five miles, and from Thomaston to Warren, a distance of six miles. The distance from Augusta to Rockland by the proposed route will be about 39 miles.

Winnipeg, Man., Can.—The Municipal Council of Springfield has decided to construct an electric street railway system and operate it as a municipal system. Work will start in April.

***Winnipeg, Man., Can.**—The Municipality of St. Vital, having failed to come to an agreement with the Winnipeg Electric Railway, will construct and operate a municipal electric railway. Work will be begun this spring.

Boston & Worcester Street Railway, Boston, Mass.—This company will finish double tracking its railway through Framingham during the next few weeks. This will complete the double tracking of its entire line from Park Square, Boston, to City Hall, Worcester. Contracts for all required material have been placed.

Benton Harbor-St. Joe Railway & Light Company, Benton Harbor, Mich.—This company will build 10 miles of new track during the year between Eau Claire and Dowagiac, thereby completing the line from Benton Harbor and Dowagiac.

St. Paul Railway Promotion Company, St. Paul, Minn.—W. L. Sonntag, general manager of this company, advises that surveys have been completed and rights-of-way are being secured for building this proposed railway to connect

St. Paul, Hastings, Red Wing and Lake City. The line to be constructed will be known as the St. Paul Southern Electric Railway. [E. R. J., Jan. 21, '11.]

Kansas City, Olathe, Ottawa & Iola Railway, Kansas City, Mo.—This company will build about 106 miles of new line between Iola and Kansas City during 1911.

Mountain Railway, West Orange, N. J.—About two miles of new track will be built by this company during the present year in West Orange.

Elmira Water, Light & Railway, Elmira, N. Y.—About five miles of track will be rebuilt and one mile of new track will be constructed by this company during 1911.

Lima & Honeoye Electric Light & Railroad Company, Lima, N. Y.—About 43 miles of track will be constructed by this company during the year.

Penn Yan, Keuka Park & Branchport Railway, Penn Yan, N. Y.—This company will place a contract at once for building an 80-ft. trestle on its main line at Branchport. Wm. J. Tylee, Penn Yan, purchasing agent.

Elmira, Corning & Waverly Railroad, Waverly, N. Y.—This company will construct 12 miles of track during this year.

Southern Power Company, Charlotte, N. C.—This company has awarded the contract to Stewart & Jones, Baltimore, to build from Charlotte to King's Mountain, a distance of 35 miles, which is the first link in the interurban line to be constructed. The contract for the next link, from Greenwood to Greenville, S. C., a distance of 90 miles, will be awarded in the near future. Eventually the line will connect Concord, Salisbury, Greensboro and Durham. W. S. Lee, vice-president. [E. R. J., Jan. 21, '11.]

Price Hill Inclined Plane Railroad, Cincinnati, Ohio.—This company has placed a contract for building 500 ft. of trestle work. Construction will begin the latter part of this month. Geo. T. McDuffie, secretary.

Hocking-Sunday Creek Traction Company, Nelsonville, Ohio.—This company has purchased material for electrifying its railway. This 13-mile railway will connect Nelsonville, Gloucester and Athens. Power will be furnished by the Nelsonville Electric Light Company. The capacity of the old plant is being increased by the addition of new equipment. [E. R. J., Dec. 10, '10.]

Hamilton, Waterloo & Guelph Railway, Hamilton, Ont.—This company will build 140 miles of new line to connect Hamilton, Galt, Preston, Berlin, Waterloo, Guelph and various villages during 1911.

Portland Railway, Light & Power Company, Portland, Ore.—This company will build a five-mile extension from West Oregon City to near Oswego and a four-mile extension up the Clackmas River from Cazadeso to site of its new power plant during the present year.

Lehigh Valley Transit Company, Allentown, Pa.—This company has completed the surveys for its extension from Quakertown to Perkasio on the Philadelphia line.

Southwestern Street Railway, Philadelphia, Pa.—This company has completed and placed in operation its new line between Market Street Square, Philadelphia, and Eddystone.

The Jackson Railway & Light Company, Jackson, Tenn.—This company is reported to be considering plans for building extensions to West Jackson and Bemis, suburbs of Jackson, as well as to the West Tennessee experiment station.

Johnson City (Tenn.) Traction Company.—About one mile of new track will be constructed in Johnson City by this company during the year.

Tennessee Rapid Transit Company, Nashville, Tenn.—This company advises that it will soon begin construction on its projected 110-mile railway to connect Nashville, Nolensville, Clarksville, Lewisburg and Springfield. It has organized by electing the following officers: Richard T. Wilson, Nashville, president; Robert L. Burch, vice-president, and Joseph Frank, Nashville, secretary. [E. R. J., Jan. 7, '11.]

Beaumont (Tex.) Traction Company.—This company will place contracts during the next few weeks for building about 2 miles of double track through the business section of Beaumont. C. H. Kretz, general manager.

Denton (Tex.) Traction Company.—This company will place contracts during the next few weeks for building about 2 miles of new track in Denton. R. J. Wilson, general manager.

Galveston-Houston Electric Railway, Houston, Tex.—The Pearson Company is building for this company a 1900-ft. steel and concrete viaduct over the Santa Fé Railroad tracks about four miles out on the Leeland Road from Houston.

San Antonio & San José Interurban Railway, San José, Tex.—This company advises that it has begun construction on its proposed 5-mile electric railway to connect San Antonio and San José. The company will operate 2 cars and it will purchase power from the San Antonio Traction Company. Bonds authorized, \$20,000. Bonds issued, \$20,000. Officers: A. D. Powers, San José, owner; J. D. Powers, Jr., San Antonio, purchasing agent, and G. W. Nock, San Antonio, chief engineer. [E. R. J., Jan. 21, '11.]

Citizens Railway, Waco, Tex.—This company is now building two concrete bridges and two miles of railway in Waco.

Utah Light & Railway Company, Salt Lake City, Utah.—This company will build 5 miles of single track from Salt Lake City to Holliday. The company will do its own work and will not let any contracts.

Rutland Railway, Light & Power Company, Rutland, Vt.—This company which is now building an extension from its Fair Haven to Rutland line, will extend its railway nine miles from Fair Haven to Whitehall. In preparation for this the company is building up the Carver's Falls power plant in Whitehall to furnish power for this extension.

Graham (Va.) Electric Railway.—It is reported that this company is making preliminary arrangements for building its proposed railway in Graham and has organized by electing the following officers: J. F. Dudley, president; C. W. Keister, vice-president; R. B. Williamson, secretary, and John Gose, treasurer, all of Graham. [E. R. J., July 9, '10.]

Roanoke Railway & Electric Company, Roanoke, Va.—This company has begun work on its 1½-mile extension to Raleigh Court, a suburb of Roanoke.

Twin City Light & Power Company, Centralia, Wash.—About 10 miles of track will be constructed through the Chehalis and Big Balton section by this company during this year.

Morgantown & Dunkard Valley Railroad, Morgantown, W. Va.—A three-mile extension will be built by this company through Asage during the year.

SHOPS AND BUILDINGS

Los Angeles (Cal.) Railway.—Revised plans have been completed by this company for its new car houses to be built in Los Angeles. The structure will be one story, 350 ft. x 625 ft., of reinforced concrete construction.

Rockford & Interurban Railway, Rockford, Ill.—This company will build during the next few weeks a fireproof operating car house at Rockford.

Indiana Union Traction Company, Anderson, Ind.—This company is preparing plans to build a one-story and basement brick interurban depot at Winchester. The cost is estimated to be about \$10,000.

Evansville Suburban & Newburgh Railway, Evansville, Ind.—A new passenger and freight station will be built by this company in Newburgh. Contracts will be awarded during the next six weeks. G. Muhlhausen, Evansville, general manager.

Indianapolis & Cincinnati Traction Company, Indianapolis, Ind.—This company is considering plans for building a two-story brick passenger and freight station at Shelbyville. Charles L. Henry, Indianapolis, general manager.

Louisville & Interurban Railway, Louisville, Ky.—This company has placed in service its new freight depot at Brook Street and Green Street in Louisville. The building is 300 ft. x 40 ft., of fireproof construction and contains four tracks. This relieves the main depot on Jefferson Street, between Third Street and Fourth Street, of congestion, and also terminates the use of the old depot of the Louisville & Eastern Company, which was recently taken over by the Louisville & Interurban Railway.

Muskegon Traction & Lighting Company, Muskegon, Mich.—This company has closed a 10-year lease for a waiting room and four suites of offices in the Houseman Building in Muskegon.

Twin City Rapid Transit Company, Minneapolis, Minn.—This company will build a new car house within the next few weeks. The work will be done with its own force.

Sciota Valley Traction Company, Columbus, Ohio.—This company will build its new depot at Chillicothe as soon as the title for the site can be secured. The structure will be of brick and stone, fireproof, with train sheds. The estimated cost of the building and land is \$40,000.

Hummelstown & Campbellstown Street Railway, Hershey, Pa.—This company is considering plans for building a car house in Lebanon.

Utah Light & Railway Company, Salt Lake City, Utah.—This company expects to complete during the summer its new car house, machine shops, carpenter shops, paint shops and store house. The contracts are all let and much of the work is completed.

POWER HOUSES AND SUBSTATIONS

Augusta-Aiken Railway & Electric Company, Atlanta, Ga.—This company has purchased from the Westinghouse & Electric Manufacturing Company, through the J. G. White Company, one switchboard and several transformers for its power plant in Augusta.

Connecticut Valley Street Railway, Greenfield, Mass.—This company expects to purchase within the next few weeks one 500-kw rotary for its power house in Greenfield.

Worcester Consolidated Street Railway, Worcester, Mass.—This company has completed and placed in operation its new power station in Millbury. The full development of the new plant is 5500 kw.

Gulfport & Mississippi Coast Traction, Gulfport, Miss.—This company will place contracts during the next two weeks for building a 15-mile, three-phase, high-tension transmission line, 13,200-volt. W. F. Gorenflo, Gulfport, general manager.

New York & Long Island Traction Company, Hempstead, N. Y.—This company is in the market for one 750-kw rotary converter and three transformers.

Portland Railway, Light & Power Company, Portland, Ore.—This company has placed an order with the General Electric Company for six 1000-kw motor generator sets. Four of these will furnish power to the railway and each will consist of a 1060-hp, 10,000-volt, 3-phase synchronous motor connected to a 1000-kw, 600-volt, direct-current generator. The other two will furnish power for lighting. This company has just installed a 500-kw frequency changer at its Portland power house.

Hummelstown & Campbellstown Street Railway, Hershey, Pa.—This company is considering plans for constructing a power plant in Lebanon.

Beaumont (Tex.) Traction Company.—This company expects to purchase during the next few weeks one 250-hp boiler for its power house in Beaumont. C. H. Kretz, general manager.

Galveston-Houston Electric Railway, Galveston, Tex.—This company has begun the erection of its subsidiary power station at South Houston. The steel superstructure of the main power station at La Marque is finished and the other work on the plant is making good progress.

Citizens' Railway, Waco, Tex.—This company is now installing a 2000-kw turbine, a 300-kw rotary, a 4500-lb. surface condenser and is in the market for storage battery and a 500-600-lb. water tube boiler.

Graham (Va.) Electric Railway.—A power plant will soon be built by this company in Graham. Plans are being considered for the development of water power near Burkes Garden. J. F. Dudley, Graham, president. [E. R. J., July 9, '10.]

Milwaukee Electric Railway & Light Company, Milwaukee, Wis.—The power plant of this company at Racine was recently destroyed by fire, causing a loss of about \$125,000. It is expected that power for the present for operating the system will be secured from the plant of the company in Milwaukee.

Manufactures & Supplies

ROLLING STOCK

Denton (Tex.) Traction Company is in the market for two new cars.

Rockford & Interurban Railway, Rockford, Ill., is in the market for trucks for four rebuilt cars.

San Francisco, Oakland & San José Railway, Oakland, Cal., is in the market for 25 passenger cars.

Oklahoma (Okla.) Railway, through J. G. White & Company, has issued specifications for 10 center-entrance steel cars.

Buffalo & Lackawanna Traction Company, Buffalo, N. Y., has ordered 10 Brill 39-E trucks from The J. G. Brill Company.

Carolina Power & Light Company, Raleigh, N. C., has ordered five 12-bench open motor car bodies from The J. G. Brill Company.

Municipal Street Railway, Regina, Sask., has ordered a number of passenger cars from the Brush Company, Loughborough, England.

United Railroads of San Francisco, San Francisco, Cal., will reconstruct the cars of all its Market Street lines to the pay-as-you-enter type.

Alton, Jacksonville & Peoria Railway, Jerseyville, Ill., has ordered five motor cars and 10 Brill 27-MCB-2 trucks from the American Car Company.

Atchison Railway, Light & Power Company, Atchison, Kan., has ordered one 18-ft. 3-in. semi-convertible car body and one Brill 21-E truck from the American Car Company.

Hudson & Manhattan Railroad, New York, N. Y., has ordered for the Newark extension six additional GE-212 four-motor equipments, with type M control, from the General Electric Company.

New York, Westchester & Boston Railway, New York, N. Y., noted in the ELECTRIC RAILWAY JOURNAL of Feb. 25, 1911, as being in the market for a number of cars, has placed an order with the Pressed Steel Car Company for 30 all-steel passenger cars.

Boston & Worcester Street Railway, Boston, Mass., has received from the Osgood-Bradley Car Company five closed cars, mounted on Standard trucks and equipped with GE-219 motors. This company also reports that it has placed an order for eight more sets of trucks with the Standard Motor Truck Company.

Portland (Maine) Railroad has recently ordered three closed motor cars and three 12-bench open cars from The J. G. Brill Company, for which the following details have been specified:

Closed cars:	
Seating capacity.....36	Couplers Brill
Weight (body)....12,000 lb.	Curtain fixtures,
Length of body.....28 ft.	Curtain Supply Company
Over platforms.....38 ft.	Curtain material...Pantasote
Width over sills...7 ft. 5 in.	Destination signs4-sided
Width over all...7 ft. 7½ in.	Gongs Dedenda
Height, rails to sills..32¼ in.	Journal boxes.....Brill
Body Wood	MotorsG.E.-80
Interior trimMahogany	Registers Inter.
HeadliningOak veneer	SandersBrill "Dumpit"
Roof Monitor	Seatslongitudinal
Underframe Wood	Seating materialplush
Axles Brill	Springs Brill
Bumpers Brill	Trolley catchersWilson
Car trimmings Bronze	Trucks, type..... 27-GE1
Open cars:	
Seating capacity60	Car trimmingsBronze
Weight (body)12,000 lb.	Couplers Brill
Bolster centers...22 ft. ¾ in.	Curtain fixturesAcme
Length over platform,	Curtain materialduck
34 ft. ¾ in.	Destination signs4-sided
Width over sills...7 ft. 7½ in.	Gongs Dedenda
Height, rail to sills..30½ in.	Journal boxes Brill
Interior trim.Cherry and ash	Motors GE-80
HeadliningOak veneer	Sanders.....Brill "Dumpit"
Roof Monitor	Springs Brill
Underframe Wood	Trucks, type..... Brill 39-E

TRADE NOTES

Union Spring & Manufacturing Company, Pittsburgh, Pa., has removed its offices from the Farmers' Bank Building to the Oliver Building.

B. M. Rollins Company, Kankakee, Ill., has received an order from the Durham (N. C.) Traction Company to install one No. 3 coaster at its park at Durham.

Consolidated Car-Heating Company, New York, N. Y., has received an order from the Hudson & Manhattan Railroad to equip 36 new cars with panel type and cab heaters.

McKeen Motor Car Company, Omaha, Neb., has received an order from the Sand Springs Interurban Railway, Tulsa, Okla., for one 70-ft. motor car. Three 70-ft. motor cars have just been shipped to the Southern Pacific Railroad under their own power.

Western Electric Company, New York, N. Y., has issued a report for the first two months of 1911, which shows a marked increase in business. The gross business in February alone was more than 20 per cent larger than the corresponding month last year.

The J. G. Brill Company, Philadelphia, Pa., has made a shipment of 10 Brill 21-E trucks to the Yokohama Electric Railway, Yokohama, Japan, and also another shipment of 10 Brill 21-E trucks to the Compagnie Générale des Tramways Electriques de Rosario, Argentina.

Kennicott Company, Chicago, Ill., has equipped its works at Chicago Heights, Ill., for the manufacture of all-steel structural freight cars, steel underframes for freight and passenger equipment, steel reinforcements for wooden cars, steel tank cars, trucks and special steel construction of all kinds.

A. B. Sanders, Philadelphia, Pa., announces that he has severed his connection with John B. Watson, as manager of the electrical department, and has established a business under the name of A. B. Sanders & Company, engineers and brokers, with offices in the Witherspoon Building, Philadelphia, Pa.

National Association of Credit Men, New York, N. Y., has issued a pamphlet containing an address by W. L. Brownell, treasurer of the Crocker-Wheeler Company, entitled "Should Terms of Payment Be Enforced?" This address was delivered before the Newark (N. J.) branch of the association.

Pawling & Harnischfeger Company, Milwaukee, Wis., at a recent meeting of its board of directors elected S. H. Squier a director and secretary of the company. W. H. Hassenplug, sales manager, was elected a director and second vice-president, and F. P. Breck also associated with the company for many years was elected a director.

National Brake & Electric Company, Milwaukee, Wis., has appointed W. H. Beattys western district manager of the company, with offices in the First National Bank Building, Chicago, Ill. The territory covered by this office is from Detroit, Mich., to the Pacific Coast. Mr. Beattys was formerly connected with the Westinghouse Electric & Manufacturing Company.

Union Swith & Signal Company, Pittsburgh, Pa., called a meeting of the stockholders for March 14, 1911, to vote on the question of authorizing the directors to set aside \$100,000 of the \$500,000 of unissued common stock of the company authorized by the shareholders on Dec. 14, 1910, for subscription by present and future employees on terms to be fixed by the directors.

Consolidated Concrete Tie Company, Cairo, Ill., has been organized to manufacture concrete ties under the Cowan and Sneed patents. The capital stock of the company is \$100,000, and the officers are: J. R. Sneed, president; A. E. Reader, first vice-president; D. W. Heilig, second vice-president; H. B. Eshleman, secretary and treasurer, and R. J. D. Cowan, general manager.

H. W. Johns-Manville Company, New York, N. Y., has placed on the market a line of cements for use in furnace settings of various types, cupolas, lining brass furnaces, assayers' crucibles, oil burning, tilting and rotary furnaces, and for patching and facing bricks in place in the fire zone under various conditions. These cements are rated to resist a temperature as high as 3000 deg. Fahr.

Wilmington Institute Free Library, Wilmington, Del., writes that it has perfected arrangements for filing and cataloging trade catalogs and that it would be glad to receive such catalogs from all manufacturers. The library proposes to maintain a collection of catalogs similar to the one in the Newark Public Library, Pratt Institute Free Library and others throughout the country.

Cambria Steel Company, Johnstown, Pa., has issued its annual report for the fiscal year ended Dec. 31, 1910, which shows earnings, after all expenses had been deducted, of \$5,461,336 in 1910, as compared with \$3,329,849 in 1909. The net income in 1910 was \$4,553,332, as compared with \$2,538,087 in 1909. In 1910 the dividends paid out were \$2,250,000, as compared with \$1,800,000 in 1909. The balance in 1910 carried to profit and loss was \$113,294.

Albert B. Bowman, St. Louis, Mo., announces that G. H. Blackman has become connected with the business, the new name of the firm to be Bowman-Blackman Machine Tool Company. The firm also reports that it will continue the manufacture of boring and turning mills, pulley lathes, bolt cutters, milling machines, planers, sharpeners, drill presses and grinders, cold saws, punches and shears, steam hammers, forging and air riveting machines, electric and hand cranes, hydraulic presses, foundry cupolas and equipment, etc.

Warren Electric & Specialty Company, Warren, Ohio, recently shipped a carload of incandescent lamps to the Interborough Rapid Transit Company, New York, N. Y. The aggregate number of lamps in the shipment was 41,000, of which 15,000 were series-burning Mazda lamps, and 26,000 were of the carbon filament type. The Mazda lamps, which are all of the 40-watt, unskirted base type, will be chiefly used in the lighting of subway stations, while most of the carbon filament lamps, which were of the 64-watt and 115-watt types, will be used for car lighting.

Hale & Kilburn Manufacturing Company, Philadelphia, Pa., has elected F. H. Greene president of the company, to succeed Henry S. Hale. Mr. Greene was born April 3, 1868. At the age of 17 he entered the employ of the Grand Trunk Railroad. Since then he has been consecutively chief clerk in the general stores department of the Chicago & Northwestern Railroad, secretary to the superintendent of motive power and traveling auditor in charge of material and supplies. In July, 1899, he accepted a position as secretary to the superintendent of motive power of the Lake Shore & Michigan Southern Railroad. From 1900 to 1906 he was purchasing agent of the Lake Shore & Michigan Southern Railroad, the Lake Erie & Western Railroad and the Indiana, Illinois & Iowa Railroad, with offices at Cleveland, Ohio. At this time Mr. Greene accepted the position of general purchasing agent for the New York Central & Hudson River Railroad, which he held until a short time ago, when he was elected president of this company.

Ackley Brake Company, New York, announces the formation of its German company under the name of "Deutsche Ackley Bremsen Company m. b. H.," with registered offices at Krausenstrasse 42-43 Berlin S. W. 19. The object of this new company is to control the Ackley brake patents in Germany, Russia, Austria-Hungary, etc. The demand for Ackley brakes in these countries is so great as to necessitate suitable arrangements being made for the manufacture of the brakes in these countries in order that the trade be properly supplied. All these arrangements have been completed and with the launching of the new company manufacturing has been commenced on a large scale. Eugen Eichel, who has acted as consulting engineer of the company for Continental Europe during the past year, has been appointed managing director of the new company with offices at the above address. Mr. Eichel's wide knowledge and experience in tramway and railway matters especially fits him to the post to which he has been appointed and the success of the Deutsche Ackley Bremsen Company m. b. H. under his management is practically assured.

ADVERTISING LITERATURE

Hall Signal Company, New York, N. Y., has issued a catalog on relays for use in signal work.

Strong, Carlisle & Hammond Company, Cleveland, Ohio, has issued a small catalog describing the Strong steam traps.

Railway Improvement Company, New York, N. Y., has issued a large post card giving several reasons for using the coasting time recorder.

Bayonne Casting Company, Bayonne, N. J., has issued a small catalog describing "Monel Metal," the forms in which it is sold, its uses and physical properties.

MacGovern, Archer & Company, New York, N. Y., have issued their list of electrical and steam machinery, power-house equipment, cars, etc., for March, 1911.

Electric Service Supplies Company, Philadelphia, Pa., has issued the "Keystone Traveler" for March, 1911, containing articles on "The Transition Point," "Garton-Daniels Arresters," "Protected Rail Bonds" and "Pay-Within Cars."

Pettingell-Andrews Company, Boston, Mass., discussed in the March issue of *Juice* the following, among other subjects: "Long Leaf Southern Pine Cross-Arms," "Insulator Specifications," "Economy in Flaming Arc Maintenance," "Entrance Cut-Outs for National Code Fuses," "Opalux Glassware" and "Mueller Insulated Clips."

Under-Feed Stoker Company of America, Chicago, Ill., has published "The Publicity Magazine" for March, 1911, which is devoted to the interests of the Jones stoker. It contains views and descriptions of several recent installations of the Jones stoker in large office buildings, and also a coal curve plotted to show the relation of per cent of fixed carbon per pound of combustible, dry and free from ash, to the b.t.u. per pound of combustible.

Westinghouse Electric & Manufacturing Company, Pittsburgh, Pa., has issued circular No. 1028, describing the new self-starting rotary converters, supplied with mechanical oscillators and speed-limit devices. The circular contains a view of a Westinghouse 3000-kw rotary converter, installed in a substation of the Interborough Rapid Transit Company, mentioned in the *ELECTRIC RAILWAY JOURNAL* of Jan. 14, 1911, page 83, and shows a portable substation for the Ft. Wayne & Wabash Valley Traction Company.

De Laval Steam Turbine Company, Trenton, N. J., has published a catalog containing a discussion of the practical thermodynamics of the steam turbine and of the bearing of various types of construction upon ultimate efficiency. There are also numerous illustrations of the several applications of steam turbines in driving a.c. and d.c. generators for belt and rope drives, etc., and a chapter on low-pressure and mixed-flow turbines for the utilization of exhaust steam and of low-pressure vapors from industrial processes.

E. R. Stout, financial secretary of the Louisville Railway Relief Association, reports that for the year ended Dec. 31, 1910, the association paid out a total of \$3,725. Sick claims amounting to \$2,555 were paid to members and death claims for the year amounted to \$875. The general expenses of the association amounted to \$102, and the salaries of the two secretaries amounted to \$192. The total receipts for the year were \$5,516.87, of which \$3,780 was collected as dues, \$126.87 interest on reserve fund, \$10 was donated by Prof. B. B. Huntoon, \$600 by the Louisville Railway, and \$1,000 by J. B. Speed.

The Board of Public Utility Commissioners of New Jersey on March 21, 1911, in Trenton, will hear the case of the South Englewood Improvement Association, which has requested that the fares over the line of the New Jersey & Hudson River Railway & Ferry Company, from Edgewater Ferry to Englewood be reduced from 10 to 5 cents. The Public Service Corporation, which controls the New Jersey & Hudson River Railway & Ferry Company, replied as follows to the request for the reduction in fare: "This respondent, New Jersey & Hudson River Railway and Ferry Company, is not obligated to answer the above complaint because it avers that it is not charging any unauthorized or unlawful fee for the transportation of passengers over the section of road specified in the above-named complaint, and, therefore, this commission has no authority in the law to grant the prayer of said petition or to investigate the complaint therein made."