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The Municipal Ownership Vote in Chicago.

The vote favoring municipal ownership in Chicago, as announced in last week's issue, has aroused such general comment among street railway men over the country, and so many have asked, "What does it really mean?" and, "What will be its practical effect?" that it is in order to reply to these inquiries as far as they can be answered at the present time. First of all, the only question of any immediate legal bearing on the situation that was decided by the people of Chicago at last week's election, was the adoption of the Mueller law. By the adoption of this law the citizens of Chicago have empowered the municipality of Chicago to become an owner of street railways. By adopting this law they have simply availed themselves of the powers given by the last Illinois Legislature, which passed the Mueller law mainly because great pressure was brought upon it by citizens of Chicago. It was practically certain before the election that the Mueller law would be adopted for Chicago. However, an act giving the city the legal right to own street railways and the actual acquirement of these properties are two very different matters.

In addition to adopting the Mueller law, the people of Chicago expressed themselves as favoring the licensing of the present companies until such time as the city can acquire the properties. Although nothing more than an expression of the sentiment or opinion of the voters, this expression may have much to do with the method of settling the present franchise controversy. Franchise negotiations had already dragged along to such length before election without settlement, that it had been suggested that some kind of a license plan providing for purchase by the city might be a quick solution that would overcome the present apparent deadlock.

As to why the vote resulted so strongly for municipal ownership there are a number of explanations. In general it may be said that it is to be taken more as a kind of public protest against existing conditions than as an indication of careful study of the situation by the voters. In fact, the vote shows that the more the people think about it, the less favorable they are to municipal ownership. Two years ago when a similar vote was taken, the results showed a larger majority favoring municipal ownership than at this last election. The majority of voters in Chicago have a rather misty idea of the exact status of the franchise question. They simply know that the service is bad, without knowing why, and that a franchise controversy has been going on for the past three years. By a very simple process of reasoning they have concluded that since the service is bad, and there is private ownership now, it might be better to change to municipal ownership, and almost any change from existing conditions would be welcome. They do not stop to consider that the reason the service is so inadequate is primarily the lack of right to invest more capital in improving the service. This right the companies would be only too glad to get and act upon, but it has been constantly denied them by the city. Part of the vote is also due, of course, to the industrious municipal ownership agitation that has been carried on in Chicago. It is perhaps also needless to say that, independent of any other consideration, the city has not the borrowing power sufficient to acquire the properties, as it is very near its constitutional debt limit. Whatever may be the opinion about or results obtained with municipal ownership of street railways in Europe, every fair minded student of American municipal policies must admit that the general constitutional provision against the creation of an excessive debt has been one of the wisest provisions that has ever been adopted in city government in this country.

Single vs. Double Enders

The use of what is known in common street railway parlance as the single ender car, viz., the car with a controller only at one end, has increased considerably in the past seven years. In spite of the fact that many thousand cars are now equipped with controllers only at one end, there are still many managers who are violently opposed to this principle for service in a large city. This opposition is based mainly on the impossibility of turning cars back at a cross-over when the street is blocked by fires, parades or other causes beyond control, and the impossibility of using stub terminals. The sin-

gle ender must have a Y or a loop to turn on, and if it can not be turned in the case of a blockade, it is a case of keep on, or shut down until the blockade is cleared, or else of backing the cars for some distance. The larger the city the more formidable do these difficulties become, and it is probably for this reason that single ender cars are found mainly outside of the very large cities. It is also usually much easier to secure Y's or to make use of cross town routes for switching in a small city than in a large. On the other hand, each intersecting cross town line, if provided with proper curves, and cross-overs to join it to the main line, can be made a turning point, and these cross town lines are most frequent in large cities. Blockades occur more frequently in large cities, so that it is of greater importance to have frequent points where cars can be turned back. That so many systems are successfully operated with single ender cars is due simply to the fact that ample precautions have been taken for turning cars, or that controllers have been provided for emergency use on the rear platforms.

The tendency toward single enders has been due partly to a desire to save the cost and maintenance of one controller, but more especially to the wish to provide the motorman a vestibule by himself, and to have a large and convenient rear platform for passengers. The large platform can be obtained whether the car be double or single ender, but if the large platform is used with a double ender car, and if passengers are to be kept off the front platform, considerable platform space is wasted. It is also usually necessary to provide a vestibule for the front platform, and if the car is a double ender, both platforms must be vestibuled, whereas with single ender cars the rear platform can be left open, to the great convenience of all concerned.

One compromise is to plan the car for single ender operation ordinarily, and to provide a controller on the rear platform for emergency use. But to make this arrangement of much practical value, the usual single ender arrangement of having no steps on the front platform must be changed and a part of the advantages of single ender design thereby thrown away.

Vibration of Motor Coils

The short article elsewhere on rebuilding of a certain type of motor field coil at St. Louis serves to call attention to a fact that seems to be none too well known among motor repair shop men, namely, that vibration or lost motion between the turns of a motor coil of any kind is fatal to insulation. The nearer we can come to a coil that is solid clear through, without the least play or chance for vibration between the turns of wire, the longer our coils will last on electric railway motors. We have known of several cases where this has been conclusively proved. There are probably two reasons for this. One is that vibration between the conductor wires or straps tends to wear the insulation; but the main reason is that a coil that is not mechanically solid gives a chance for moisture to work in when moisture is present, and moisture is sure to be present at times in electric railway service. Of course, a coil might be mechanically solid without being moisture proof, but as a matter of practice, the process of making the coil mechanically solid consists in applying insulating material in such a way that the coil is made both mechanically and electrically solid at one and the same time. Master mechanics that are having an undue amount of trouble with motor armature and field coils, should ask themselves at once whether the coils they are using are so constructed and

so fixed in place on the motor that they are solid mechanically and free from openings which will allow moisture to creep in. If they are not it is time to start a reform in the shop. Very often what would appear to be a very solid construction mechanically is one which permits considerable vibration between turns of wire. This is especially the case with field coils wound permanently on a brass shell, and if this construction is adhered to, special precautions must be taken to make the coil solid in the shell, with no chance for motion between the turns or between the coil and shell, and furthermore, the shell itself must be fastened to the pole piece in such a way as to prevent it working loose in time.

Fortunately, insulating material is of itself sufficiently elastic, so that once the turns of a coil are solidly embedded in it and the whole coil is covered with it, we can clamp the coil in place, and by bringing the right pressure to bear on the coil the elasticity of the insulation will serve to prevent lost motion for a long period of time. This is assuming, of course, that the clamping pressure is just sufficient to hold it firmly and sufficiently even not to crush insulation.

An Unwarranted Extension of the Liability Principle

An interesting example of the growing tendency of the public to attempt to hold street railway companies liable for damages on all possible or impossible occasions was illustrated recently in Boston, when a woman living in Mattapan sued the railway company for \$2,000 damages, alleging that she caught cold in an open car on a rainy day, and was thereby incapacitated for six weeks. The plaintiff stated that she boarded an open car on Sept. 5, last, when it was raining, to come to town; that the curtain on the left side of the car was fastened down, but that on the right side was only half down; that the rain blew in, and after five minutes she asked the conductor to pull down the curtain. He complied, but did not fasten it, because passengers had to enter and leave the car from that side. The woman still complained, and the conductor advised her to get off and wait for a box car, but she chose to remain, and thus caught cold.

The question of the liability of a company to passengers for injuries of this kind is extremely interesting and one which, if carried to its logical conclusion, would make the company responsible for pretty nearly every disease to which the human frame is susceptible. Undoubtedly a company can be obliged by municipal enactment to provide cars which are properly adapted to the season, but open cars are suitable for September weather, and the woman's own admission showed that the company did its utmost to make her comfortable, up to the point of sacrificing the convenience of the other passengers, as long as she remained in an open car, and that she could have taken a closed car if she had so desired, by a short wait.

We cannot make use of the machinery of civilization without exposing ourselves to some form of danger, whether we take an elevator in shopping expeditions, ride in a steam train from New York to Denver; or burn gasoline in an automobile. The risk may be minimized by careful operation, watchful maintenance and good construction, but the smaller hazards of physical fatigue, loss of time through delays and slight indispositions like "car sickness," or even sea sickness, cannot be reduced to a basis of compensation on the part of the company in whose care we place ourselves. It is a hopeless impossibility to suit every passenger alike, and it will remain so as long as human temperaments and constitutions do not sink to the dead level of being absolutely alike in reference to the barom-

eter, hygrometer, thermometer, anemometer and weather vane. It seems to be inherent in human nature for each person to believe that the conditions which suit him best are those which are, or ought to be, satisfactory to the majority of his fellow citizens. It is impossible to suit everyone, and conductors who are asked by one passenger to close the ventilators, and by the next to open those that are shut, realize this as well as, if not better than, anyone.

Centralized Management of Railway Properties

Year by year the number of engineering firms and companies which make a business of managing street railway properties in different parts of the country is increasing. This class of business seems to be one which is peculiar to the last few years. The methods employed are various, and in some instances the managing firm is not identical with the owners, although, of course, very closely identified with the latter, and has been selected for managing the properties partly on account of its facilities for conducting the engineering work for the properties and partly because it has made a specialty of management.

The engineering and managerial firm is essentially a development of the system of financial syndicates which is a feature now so common in both street and steam railroad work. Twenty years ago there were in existence comparatively few financial syndicates controlling electric railway properties in the country, and these syndicates were composed of a few men only who were associated together quite as much by personal considerations as by business ties. The number of such syndicates, however, has been steadily increasing, and, as a rule, the basis has been financial considerations rather than those of an engineering nature. As the size and importance of the properties controlled by these syndicates increased it was but a natural step to secure the services or affiliation of a competent engineering firm to undertake the construction engineering of the different properties. The next step was the extension of the field of the engineering firm or company already referred to, to include the management of the properties controlled by the financial syndicate on account of the confidence of the capitalists in its engineering and executive ability. Still another variation is the combination by the engineering firm of facilities for financing properties, by means of their association with several syndicates. In this case the part taken is more than that of a financial expert only, as the properties are often discovered, purchased, reorganized and developed on the initiative of the firm, and are then held for permanent investment or marketed on the basis of their earnings.

There are, of course, certain arguments which can be presented against this form of ownership and management. Chief among these is the popular sentiment, which for the most part is only a sentiment, that when a road is owned by capitalists living in the city in which the road operates, local pride and a knowledge of local conditions tends toward the maintenance of a better service than if the road is owned and its policy directed from a distance. We believe, however, that this sentiment on the part of the general public is gradually disappearing with the greater diffusion of wealth. Corporation securities in one form or another, are now such a favorite form of investment among all classes of people having a little money to invest, that it no longer seems as important from a public standpoint to have all, or the greater part, of local enterprises owned in the city or county in which they do business. On the other hand, a great many economies result from centralized management, and it would seem that there is a

growing field for this class of consolidation, particularly among the smaller electric railway companies.

It is well known that electric railways of moderate size frequently suffer as much from lack of good management as from anything inherent in the conditions under which they operate. Larger companies have revenues which will keep them out of financial trouble, even with indifferent supervision. With the smaller companies it is only by good management that any profits can be realized, yet it is just this element which they are most likely to lack, and which can be secured by centralized direction. Very often the lack of true economy is due to ignorance on the part of the local owners of the property who are not acquainted with progressive methods, and are not aware of the shortcomings in the operation of their properties. For all such roads the assumption of management by some engineering concern of recognized ability would be the realization of the best results of which the property is capable. The management of the smaller properties is naturally not as attractive to engineering concerns as that of larger corporations, but for those who will make a special study of these smaller propositions, there would seem to be a good opportunity.

The Sightliness of a Company's Work

People are judged by the clothes they wear until we know them sufficiently to obtain another basis for judgment. A prominent street railway manager recently expressed some views to the writer in regard to the sightliness and general appearance of a company's work in a community, and which are worth considering by every public service corporation.

This manager believes that whatever his company does in the way of the erection of buildings or any other similar construction should represent the highest standard of work to be found in the vicinity. This does not necessarily imply that all the new buildings which a company finds it necessary to erect should be extravagantly decorated or unnecessarily expensive, but it does mean that what work the company does should be of a solid, substantial, first-class character, second to nothing of a similar class of work in the community. The manager just referred to believes that the same principle should not apply to buildings only, but that so far as possible all improvements should be of a permanent character so that from the character of its buildings and other work the public would understand that the company was in the community to stay, and that it was investing much of the money made by it in permanent improvements in the community instead of simply spending what was absolutely necessary to keep the road in operation with the expectation, as he put it, of getting "kicked off the streets" any day.

There is much sound judgment in this view. Many companies do not need to have it brought to their notice, but it is well for those who maintain that money spent in improving the appearance of a company's property does not pay dividends, to stop and consider the moral effect of a public sentiment which a first-class appearance of all the company's property has. Of course, there are a few citizens who will argue that a company able to maintain the most substantial structures found in a city, is making undue profit, but the great majority have an added respect for the corporation which is "well dressed," and is inclined to add to rather than detract from the general appearance of a city. As regards the rolling stock, it is, of course, that portion of the company's property which is most in evidence, and it has long been realized that nothing has a better effect upon public sentiment than good cars, well-uniformed and alert employees and regular service.

ENGAGING AND EXAMINING MEN ON THE BOSTON ELEVATED RAILWAY

All men who enter the elevated train service of the Boston Elevated Railway are engaged first as brakemen, and work on the rear cars of trains and open side doors on station platforms.

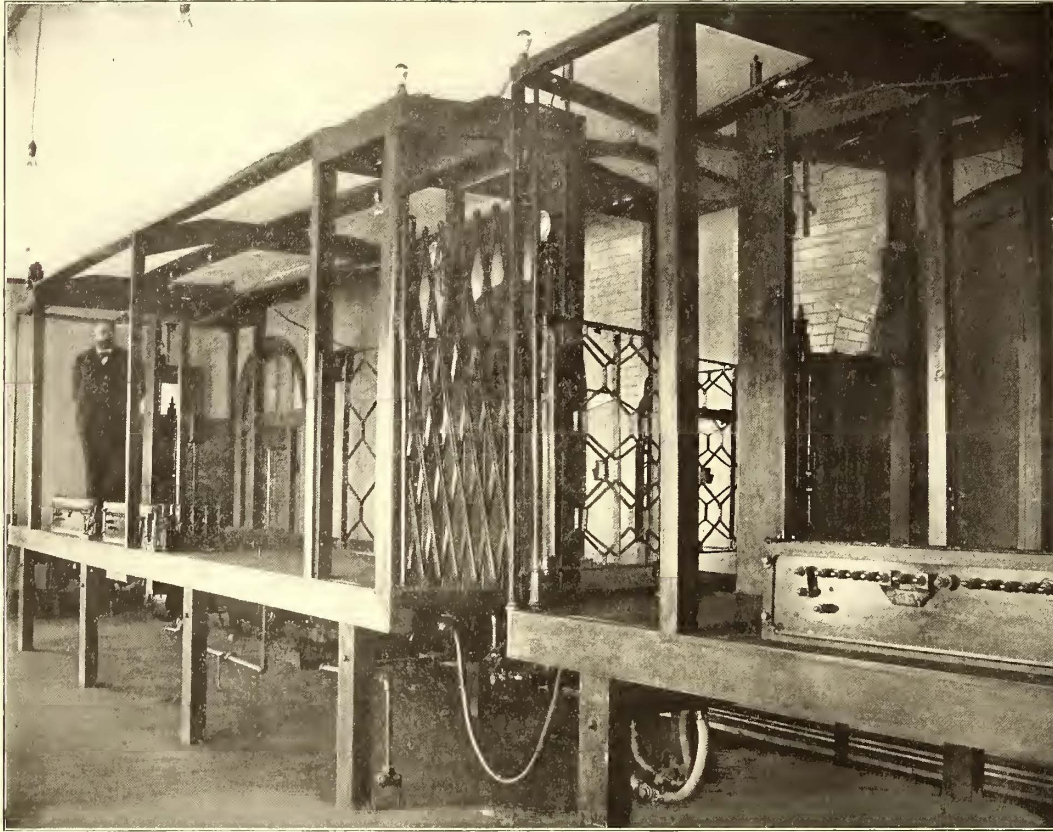


FIG. 1.—SKELETON OF TRAIN USED FOR INSTRUCTION OF MOTORMEN AND GUARDS

From brakemen they are promoted to guards, who are in general charge of the train and are directly responsible for the first two cars, and from this position employees are promoted to that of motormen, all promotions being made in the order of rating, provided the men qualify for the higher grade. The wages paid are: Brakemen, 18½ cents an hour; guards, 21 cents an hour; motormen, 23 cents an hour for the first year, 24 cents an hour during the second year, and 25 cents an hour thereafter. In addition to these wages the men receive what is known as "service-stripe pay." For each five years that a man has been in the employ of the company he is required to wear a "service stripe" on his sleeve, and for each stripe up to three thus worn he receives 5 cents per day in addition to that called for in the schedule mentioned above.

All men to be accepted in the elevated train service of the company must be not less than 21 years or more than 35 years of age, although on the surface division the maximum limit of age is 45 years. Applicants must also be not less than 5 ft. 6 ins. in height, and must be able to read and write the English language intelligently. The application for employment which the man who wishes to enter the service of the company is required to fill out, calls for a statement as to where he has been employed during the previous five years, his reasons for leaving that employment, as well as other questions which are usually included in a form of this kind. This statement has to be sworn to as true, to the best of the man's knowledge and belief, before a notary public.

After his references have been looked up and have been found satisfactory, he is given a physical examination by the company's surgeon, to determine whether he has any constitutional or organic defects which might interfere with the efficient discharge of his duties. About 12 per cent of the

men examined by the physician are rejected, the usual cause of trouble being in either the kidneys, heart, lungs or feet. The applicant is then examined for eyesight, color perception and hearing, as will be described in detail later in this article. If this examination is passed successfully, and only about 25 per cent of the total number of men who apply for positions on the elevated division succeed in passing all of the examinations so far described, a certificate of physical completeness is furnished him by the medical examiners. The examinations are, as a whole, more severe than for the surface divisions of the company, and are in charge of H. A. Pasho, superintendent of the elevated lines.

After being accepted for employment the applicant is instructed as to his duties in three ways: orally, by instruction on a model train, to be described later, and in actual service on an elevated train. The school room, shown in Fig. 1, is equipped with a skeleton three-car, full-sized model train as shown, equipped with all of the apparatus used in the elevated service except the trucks, but with the controllers, air and hand brakes, gates and all other parts of a complete train. Here the men are taught by G. H. Benjamin, train master of the Boston Elevated Railway Company, or by one of his assistants, how to couple up cars, make the necessary electrical connections, give and respond to the various signals, operate the gates, etc.; in fact, to carry out the entire duties of the position which they are to fill. In the same room men who have been promoted to motormen are instructed in the manipu-

BOSTON ELEVATED RAILWAY COMPANY.

BUREAU OF ELEVATED LINES.

RECORD OF EXAMINATION OF SIGHT, COLOR-SENSE AND HEARING.

Name	Occupation	No.	Date														
SIGHT.																	
Acuteness of Vision, without Glasses,	Right Eye	Left Eye	Both Eyes Open														
Distance in feet at which standard test type are read,	Reading Test, Both Eyes Open,																
Smallest line of standard test-type read correctly,	Size of reading test type read correctly,																
Smallest line of standard test-type read correctly,	Written train orders read correctly (Yes or No)																
Vision with TEST GLASSES was _____ satisfactory																	
Position Signal Test, without Glasses.																	
Distance in feet at which card with semaphore arms can be read correctly,	Right Eye	Left Eye	Both Eyes Open														
COLOR SENSE.																	
Test Skein Submitted	Numbers on the Skeins in Standard Holmgren Color Set, selected as similar to Test-Skeins.																
A Green																	
B Rose																	
Selection was HESITATING PROMPT.																	
Testing Lantern, two lights.	Size of opening used.	Number shown	1	3	2	4	3	5	4	6	5	7	6	8	7	9	
		Name given															
		Number shown	8	10	9	11	10	12	11	13	12	1	13	2	1	3	
Standard Testing Lantern, One Light.	Size of opening used.	Number of color shown	1							2	3	4	5	6	7		
		Name given															
		Number of color shown	8							9	10	11	12	13	1		
		SMALL.															
		Name given															
HEARING.																	
Number of feet at which numbers or words can be repeated correctly when spoken in a conversational tone.			Right Ear	Left Ear													
Number of feet at which ratchet acrometer can be heard.			Right Ear	Left Ear													

FIG. 2.—FORM OF RECORD KEPT OF EXAMINATION OF SIGHT, COLOR-SENSE AND HEARING

lation of the controller, cut-outs and the rest of the electrical apparatus.

The first period of duty of the new employee on an actual train is as an "extra" on the front platform of the second car, in company with the regular guard, who also acts as instructor. Here the learner performs the actual duties of a guard, and is taught by the instructor the practical work of a brakeman. No man is finally put in service as a brakeman until he has completed the required course of instruction, both on the platform and in the school room, and has passed an examination upon both courses of instruction and also upon the rules. No brakeman is promoted to guard until he has taken further instruction in the school room and has passed the proper examination for this position. The promotion from guard to motorman follows a similar rule.

A reference has been made to the physical examination for eyesight, hearing and color blindness, and as tests of this kind are more infrequent on electric railway systems than are those for physique, some particulars of the methods followed may be of interest. The tests are given not only to all new men who apply for work, but all men in the elevated train service are re-examined yearly, and a careful record is kept of the results of the tests on a form, a reproduction of which is shown in Fig. 2.

The first test is that of reading the standard oculist charts. The employee is seated at a distance of 20 ft. from the printed chart, as shown in Fig. 3, and the size of type which he is able

As shown in the blank upon which the results of this examination are kept, all statistics of this sight test are recorded, together with the ability of the man examined to read written train orders correctly.

The next test is that of color perception, which is conducted in two ways, viz., by small skeins of worsted of different colors and by colored lantern lights. In the worsted test, shown in Fig. 4, Professor Holmgren's system for testing defective color

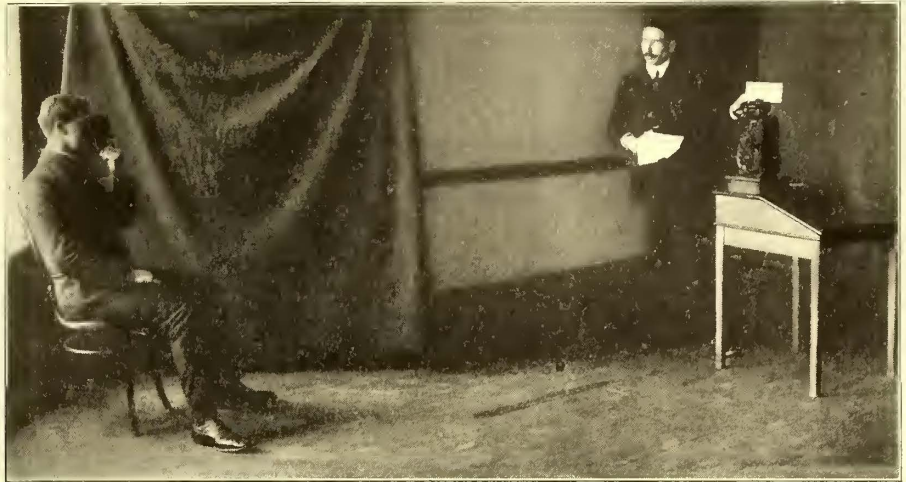


FIG. 3.—EXAMINATION FOR SIGHT

perception is used. It consists of showing the employee about 125 small skeins of worsted of various colors, all tagged and numbered, also three large skeins, one light green, one rose and one red. The man who is being examined is given one of these large skeins, and is asked to pick from the collection of small

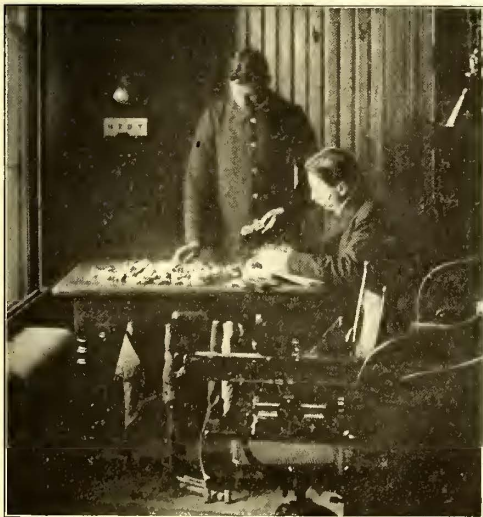


FIG. 4.—EXAMINING FOR COLOR SENSE

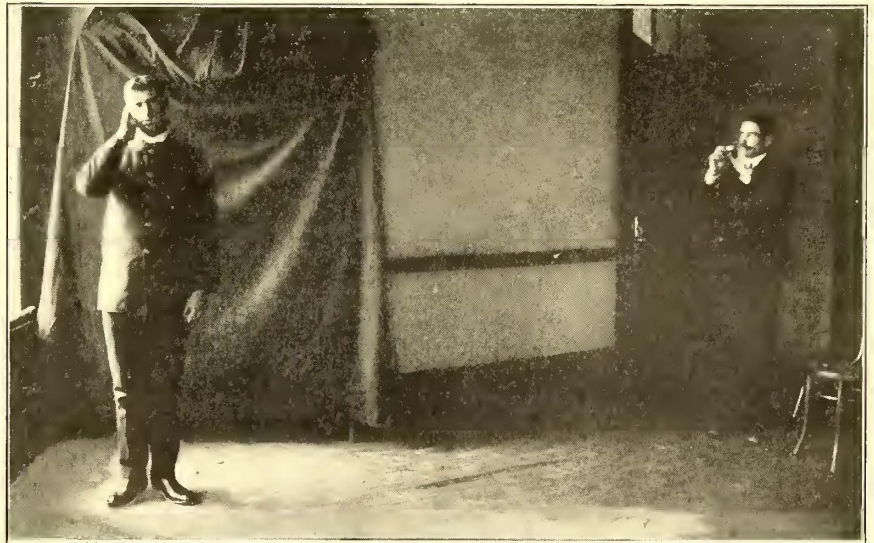


FIG. 5.—EXAMINING FOR HEARING

to read with the right eye and left eye separately, and with both eyes together is recorded. A record is also made of the smallest test type which can be read correctly at a distance of 20 ft. when using a pair of test glasses, which have been secured from an oculist, and which show whether the applicant will have trouble with nearsightedness as he grows older. The standard of the company is that if he can read the letters on a No. 20 test chart with both eyes together, and with at least one eye, and can read the No. 30 chart, which has larger letters, with the other eye, he is accepted. In the yearly re-examination of men who are already in the train service of the company this test is applied with a little more leniency than in the case of new applicants, and in some cases if the employee can read the No. 30 test chart with each eye separately he is passed.

skeins all those of the same general color, irrespective of shade. The numbers on the tags on the different colors selected by him are recorded in the blank under the heading, "Color Sense," as well as whether the selection was made in a hesitating or prompt manner. In applying this test it is found that occasionally some men with good color perception get confused over this test, not knowing just what is required. In cases of this kind it is the practice of Mr. Rideout, who has this matter in charge, to show the man what is desired by making a half-dozen selections himself. The skeins are then again mixed up and the man asked to match the colors. To those who are not color blind, it might be said that a person thus afflicted can distinguish between light and dark shades, but that the skeins appear to be all one color. The same effect can be secured by

an ordinary person by looking at the collection of worsteds through green-colored glasses.

The next test is that with the lanterns. For this purpose the company uses a lantern made by Peter Gray, and containing thirteen combinations of colored lights, arranged to show through different sized openings. The colors are called by the applicant when seated in a darkened room and facing the lantern, which is at a distance of 20 ft. As the color of each light is called, it is entered in the record book. Any serious mistake in calling colors in either the lantern or worsted test is sufficient to cause rejection.

The lantern is arranged to show colored lights through three sizes of opening, and is also fitted with a third lens, which is darkened to simulate the appearance of a semaphore light when dimmed by fog or smoke.

Minor mistakes made during this examination, that go to show that the applicant is simply not an expert on color names or shades, do not affect his selection; but if the mistakes are radical, such as calling red green or green red, it is properly believed that the man could not be entrusted to perform his railway duties with safety.

The final test is that on hearing, and is illustrated in Fig. 5. The hearing test consists in having the applicant repeat words

NAME		APPOINTED	
OCCUPATION		RATE	
		BADGE No.	
Date of Examinations for Color Perception, Sight and Hearing.			

FIG. 6.—UPPER PART OF CARD USED FOR KEEPING RECORD OF DATES OF EXAMINATION FOR COLOR PERCEPTION, SIGHT AND HEARING

spoken to him in ordinary conversation as well as count the ticks from an acoumeter, held at a distance of 20 ft. The acoumeter is simply a ratchet ticker, which is turned by the examiner. The results of this test are also recorded in the blank used for this purpose and shown in Fig. 2.

It is interesting to note that of the new applicants about 8 per cent are rejected for defective color perception, 10 per cent for unsatisfactory vision, 4 per cent for failing to pass satisfactorily with the test glasses, and 1 per cent for defective hearing. From the opening of the road, on June 10, 1901, up to Oct. 21, 1903, about 400 men of the staff have also been re-examined, and of this number 300 have been twice re-examined. Out of this number only two have failed on account of defective color perception, one only on account of defective hearing, and two, who were brakemen, failed to qualify for promotion on account of defective vision.

The date of examination of each man is kept on a card catalogue, a reproduction of which is shown in Fig. 6. This card gives his name, occupation and badge number and the dates of his last examination for color perception, sight and hearing.

MOVING THE PUBLIC FORWARD

Often when all the seats on a car are occupied, and a few people are standing up in the aisle or on the back platform, some loud-mouthed individual will board the car, stand in everybody's way when he could easily move to the front of the car, and if the conductor requests him to move up a trifle, he will remark in a loud tone that the public is being insulted. As a universal rule, standing passengers remain either on the rear platform or near the rear end of the car even when there is plenty of room in the front end of the aisle. This gives the car the appearance of being packed, and some people standing on the street and seeing both ends crowded, refuse to board the car. This involves a serious loss to a company, which if that vacant space could be utilized would be very beneficial.

One way that could be utilized to keep people moving forward in a car, would be by compelling passengers to enter by the

rear platform and leave by the front platform. Another would be by obliging them either to get their transfers from the motorman or have them stamped with the time by him. In the latter case the conductor would give out only blank transfers. When the car reached the transfer point, the passengers would hand the transfer to the motorman, and he would stamp the time with a rubber stamp or punch, or the transfer could be run through a dating machine. This would insure a correct time stamp, and a conductor on another line would be justified in refusing to accept a late transfer.

Another means of making passengers move forward would be to keep the hand straps at the rear end of the car out of reach until those in front were occupied. This would not be a difficult matter.

The blocking of passageways in a car is very detrimental, and, as a general thing, the people who do so are the ones who are the loudest in their denunciation of the company. Means should be employed to stop it, even if the aid of the Police Department has to be invoked.

HOTEL ACCOMMODATIONS AT ST. LOUIS

In view of the meeting of the American Street Railway Association in St. Louis on October 12 and 13, of this year, a great deal of interest centers in the hotel accommodations in that city. A number of new hotels are under construction, and among them is "The Inside Inn," which is being built within the grounds of the Exposition, and which will have accommodations for a large number of people. The older and permanent hotels, located in the city of St. Louis, will, however, accommodate a very large proportion of the visitors to that city during the World's Fair, and by many will be preferred to any of the hotels close to or within the grounds.

The two largest hotels in St. Louis, the Southern Hotel and the Planters' Hotel, have adopted uniform rates, which will be in force during Convention Week, and in fact throughout the greater part of the Exposition period. These rates are \$10 and \$15 per room per day, on the American plan, for one, two or three persons. That is, the rate will be \$5 per day per person, but if the room is large enough to accommodate two or three persons and is occupied by a smaller number, the rates are no less than if it was occupied up to its capacity. The Jefferson, which is also a good sized hotel, has the same rates. The St. Nicholas and the Lindell will be conducted on the European plan, the rates of the St. Nicholas being from \$5 to \$10 per day, and that at the Lindell \$5 per day. It will be advisable to engage hotel accommodations early, and the executive committee of the Association recommend that rooms be engaged by June 1. Several of the hotels have also adopted the rule that all rooms must be paid for two days in advance of Convention Week, but if these rooms are not occupied by the persons who engage them and the hotel can rent them to other persons during the period for which they are engaged, the amount so paid in advance will be rebated by the hotel.

In addition, there will be, of course, a very large number of temporary hotels and rooms which will be prepared to offer accommodations to visitors during the Exposition. Before the convention the secretary of the American Street Railway Association will mail to each member a pamphlet giving the names and addresses, with the rates charged for these accommodations.

Another field for creating traffic during the winter seems to have been discovered by the Muskegon Traction & Lighting Company, of Muskegon, Mich. That company has recently acquired an interest in a dancing academy, and is now giving free dancing parties every Tuesday and Thursday evening. The dancing master of the company's summer dancing pavilion at Fruitfort acts in the same capacity in the new academy.

OPERATING FEATURES OF THE LOS ANGELES RAILWAY COMPANY

The Los Angeles Railway Company has worked out some interesting and valuable features in its method of handling men and in the operation of its cars, much credit for which is due to John J. Akin, superintendent of the company, and his able assistants. It is the object of this article to describe some of these features. The points treated include the employment and instruction of the trainmen, descriptive system, assignment of

twenty-five and forty years of age. One of the first questions asked a man is whether he is or has been a member of the Amalgamated Association of Street Railway Employees. No one is ever hired or kept in the employ of the company who has ever had any affiliation whatsoever with this association. It is the company's firm and established policy to allow no union or indication of any to exist among its employees. The men are plainly given to understand this fact, and that any participation in anything of this sort means immediate dismissal. On the other hand, the employees are assured fair and impartial

Form 212—2M-9-03.

Los Angeles Railway Company

APPLICATION FOR EMPLOYMENT

Los Angeles, Cal., 190

To the Los Angeles Railway Company:

I hereby make application for a position with the Los Angeles Railway Company pledging myself if employed to faithfully and honestly discharge the duties of the position to the best of my ability, and strictly comply with the Company's Rules and Regulations

- 1. Age next birthday? Married or Single?
2. Where born? Town County State or Country
3. Description? Height Weight lbs. Color of Eyes Color of Hair
4. Complexion? Physical Defects?
5. Name of Parents? Residence of Parents?
6. Are any persons dependent on you for support (if so whom)?
7. Name and residence of nearest relative or friend to whom communication can be addressed in case of sickness or injury?
8. Were you ever injured, if so when? What Road? Extent of injury?
9. Are you engaged in any other business or occupation, if so state nature?
10. Are you in debt? For what amount?
11. Do you use intoxicating liquors?
12. Do you chew tobacco?
13. How long have you resided in Los Angeles?
14. State fully in following schedule where and how you have been employed since leaving school, each year must be fully accounted for.

Table with 7 columns: FROM (MONTH, YEAR), TO (MONTH, YEAR), WITH, AT, AS, WHY DID YOU LEAVE

REFERENCES

Table with 2 columns: NAME, PLACE OF BUSINESS OR RESIDENCE

15. No. letters enclosed? Witness (Sign your name in full, no initials)

Instructions:—Heads of departments will require all applicants, except laborers, before entering the service of this Company to write answers to the above interrogatories in their own handwriting; if applicant is transferred to another department a copy of this application must be sent to the head of that department.

FIG. 1.—APPLICATION BLANK

runs, dispatching system, time schedules, inspector system and the claim and accident department.

EMPLOYING TRAINMEN

The method used by the Los Angeles Railway Company in employing trainmen is not unusual, but has some interesting details. An applicant is first interviewed by the assistant superintendent, and if, upon general observations and impressions, the man seems desirable, he is required to fill out in his own handwriting a blank form, Fig. 1, giving general description, age, parentage, and other information. The back of this blank has a printed statement, showing the number of the application and other details necessary for filing purposes. Full data is required as to employment since leaving school, and the applicant names four references. No man is hired who is under 5 ft. 6 ins. in height, and the applicant has to be between

LOS ANGELES RAILWAY COMPANY

EDWARD B. MURPHY, General Manager
JAMES J. CROFT, Superintendent
L. A. BENTON, Assistant

LOS ANGELES, CAL.

Mr.
Dear Sir:
Mr.
has applied for a position as _____ with this Company and refers to you as to his general character, ability, etc. By replying to questions below you will be conferring a favor to him. Any information will be appreciated and considered confidential.
Yours truly,
Superintendent
How long have you known applicant?
Are you related to him, and in what manner?
What employment has he followed during your acquaintance with him?
Has he ever been discharged from any position and under what circumstances?
When did your acquaintance with applicant cease?
What is his general character and standing in the community?

FIG. 3.—LETTER SENT TO REFERENCES

Form 264—2M-9-03.

Los Angeles Railway Company

PERMIT FOR EXAMINATION

Department 190

Table with 4 columns: Name, Actual Employee as, Applicant for position as, At

DR. F. K. AINSWORTH
DR. H. G. CATES - ROOMS 310-314 DOUGLAS BLOCK, 3RD AND SPRINGS STS.

This will be presented to you by the above named party. I have noted thereon the necessary information as to his employment. Will you please examine him in the manner specified in the Company's instructions, sending regular Certificate of such examination.

Signature of Party to be examined
Age Years Months Nativity
Color of Eyes Color of Hair
Complexion Weight Height

NOTE—Descriptive part should be filled out by party issuing permit and Signature written in his presence.

FIG. 2.—SURGEON'S PERMIT FOR EXAMINATION

treatment with courteous attention to all grievances, and as a result, the company has a very competent and loyal set of men.

After the man fills out his application, he is given a permit for physical examination, Fig. 2, which he takes to one of the company's surgeons. After a thorough physical examination the physician's certificate is returned to the superintendent's office. To each of the four parties whose names are given as references, is sent a letter form, Fig. 3, signed by the superintendent, requesting information as to the applicant's general character, ability, etc. These replies, which are treated confidentially, have been found of great value in determining an applicant's standing and the desirability of employing him.

When all the information concerning a man is at hand, and it is desired to add more men to the force, he is interviewed

by the superintendent, who at the same time carefully goes over the written application, surgeon's certificate, reports from persons given or references and any general letters of introduction or recommendation which the applicant may present. The superintendent considers the man's handwriting, observes his

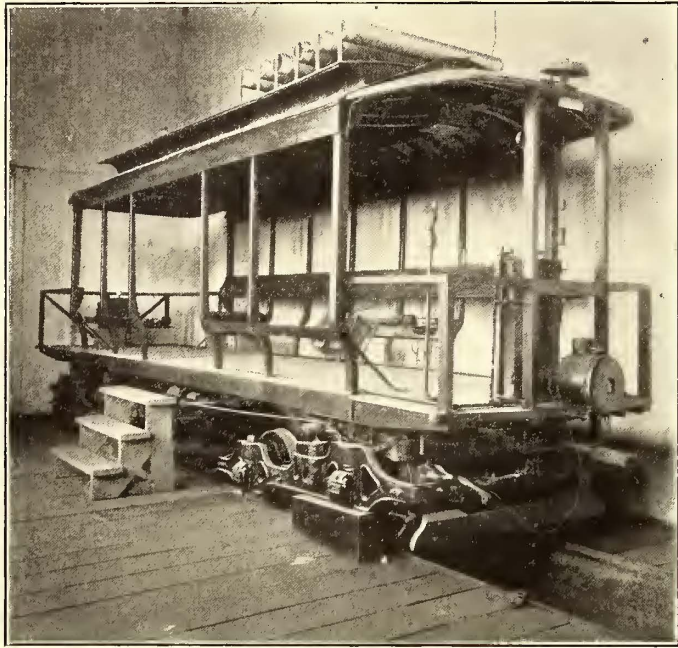


FIG. 4.—INSTRUCTION CAR USED BY THE LOS ANGELES RAILWAY COMPANY

personal appearance and sizes him up in general. If his face is disfigured, if he has lost a finger, has crossed eyes or other general defects, which in the opinion of the superintendent would tend to impair his usefulness or make an unpleasant impression on the traveling public, he is not employed. The super-

control when approaching switch points, stopping at all steam road crossings, etc. This interview is not long, but it gives the superintendent a chance to meet personally every man before he is employed, and also impress upon the latter certain fundamental principles as to his conduct and duties.

The men are then turned over to the assistant superintendent, who gives them a rather lengthy talk, in which the nature of the bond they are required to give the company is explained, as well as other important features, such as uniforms, badges, rules, etc. Each man is given copies of the two rule books the company issues. Mention will be made of these later. Each man is required to sign a contract, his photograph is put on file, and then he is ready for detailed instruction as to his duties in operating a car. The bond is given by a surety company for \$500. This costs \$5, half of which is paid by the trainman and half by the railway company. The surety company looks up a man's record and character on its own account independently of the investigation by the railway officials.

STUDENT INSTRUCTOR

Instruction on the equipment and in the operation of cars is given the candidates accepted for service by a "student instructor," an experienced trainman, who devotes his entire time to this work. After the men are turned over to him, and until they have passed a rigid examination and have been placed on the extra list of the company, they are designated as "students." These students are taught in groups of from six to twelve, from forty to sixty students receiving instruction each month. Last year a total of 650 students was instructed and examined.

The instructor's first task is to explain the working list, car-board, schedules of runs, running points and other features of operating the cars. The necessity of being prompt in reporting for duty, and in the entire discharge of their duties, is constantly impressed upon the men. The instructor then sees that each student has a good time-piece, and is provided with a uniform cap before the instruction is carried further. The next step is a day or two's car instruction on the special car

Form 267-100, 17/03

EXAMINATION For Student Motormen

1. Give route of University line
2. Name of all rights of way
3. Location of circuit breakers.
4. Switches, crossovers, relief point and time points.
5. Give same information of all other lines.
6. Explain canopy switch.
7. Automatic "overhead."
8. Explain the meaning of circuit breaker.
9. What is the meaning of voltage? Watts?
10. What is meant by ampere?
11. What is a commutator?
12. Explain compound windings.
13. Explain the diverter
14. What are the fields of a motor?
15. Explain the necessity of the fuse
16. What is the meaning of horse power?
17. Explain the necessity of insulation.
18. Explain the necessity of the lightning arrester.
19. Explain the purposes of a magnetic blow out.
20. What is the meaning of resistance?
21. What is a choke coil?
22. What are the poles or pole pieces?
23. What is series connections?
24. Explain parallel or multiple connections.
25. What causes sparking?
26. If a telephone wire was broken and hanging across your trolley wire, or if your trolley wire was broken and down on the ground, what would be your action?
27. Explain how you examine your car before leaving car house
28. How many types of controllers have you used?
29. Explain the motor cut-outs of each.
30. Explain the meaning of the pulling points of the controller?
31. Explain the running points.
32. What causes controller to arc, and how prevent it?
33. What would cause your controller to lock when applying current, and how remedy?
34. What would be your action if controller should lock, preventing you from throwing handle to off point?

35. If you were to run onto an insulated rail (grounded rail) and then feed up to three or four notches as car started, and then throw to off point, what will be the result?
36. What are your instructions when running over section of track when rails are under water, or dirt or sand on rails?
37. What is the meaning of slugging a car?
38. Explain the reason for always keeping the left hand on wooden handle of controller when current is on.
39. How does the fast feeding of current show on your controller?
40. What is liable to be the result of feeding controller to parallel on grade?
41. What is the result of throwing to off point from the first point in series? What from first point in parallel?
42. What would be the result if you were to reverse current when brakes were applied?
43. How many different types of motors have we in service? Name the horse power of each.
44. What are the motor leads?
45. What leads connect with brush holder?
46. What would be the result if brushes were to wedge or stick in holders?
47. What the result if brush springs were left up from brushes?
48. What the result if brush holders were to become loose and come in contact with the armature? What would be your action?
49. What the result if insulation was off a motor lead or wire and it was to come in contact with other metal substance? How remedy?
50. What causes open circuit in your armature?
51. What is the meaning of short circuit? Give example of short circuit in field coils.
52. What is the result of fast feeding on armature bearings?
53. What is the result on the fields?
54. What the result if armature bearings were low so armature would come in contact with pole pieces?
55. What would be your action?
56. If your car lights burn but motors will not respond to current, how locate trouble?
57. Explain how you oil your trolley.
58. If your trolley tension rods were to break and let pole down on top of car, how get car into barn?
59. Explain the different bearings on a car? And trucks?
60. Explain the motor suspension?
61. Explain the difference between drivers and idler wheels?
62. What is the tread of a wheel?
63. What the result if flange was broken on a wheel?
64. If car was derailed, what action would you take to replace?
65. What causes a locked gear?
66. What would be the result, and what your action?
67. What is the meaning of stripped pinion?
68. What is the meaning of pounds pressure of air on car?
69. What are the pressures carried on cars?
70. What would be your action should air gauge show more than regulation pressure?
71. Describe the different types of air valves in service.
72. What is the running position on the motorman's valve?
73. What is the meaning of lap?
74. Explain the service application.
75. Explain the use of emergency and its action on brake equipment.
76. What is the reduction from the reservoir for a service stop?
77. What would be your action if, when applying the air, your wheels were to slide?
78. What would cause your wheels to slide with amount of pressure used?
79. Why is it not advisable to run into curves or over switch or special track work with brakes applied?
80. If your pressure was reduced to thirty pounds or less, how would you locate the trouble?
81. If you hear air escaping from rear of car, what is the cause?
82. What the result if, when running in damp or rainy weather, water should get into air reservoir?
83. Why is it not advisable to leave handle of valve on lap at end of line or when stopping on a grade for a short time?
84. What make of air pumps or compressors are in service?
85. What is the horse power of each?
86. What is the revolution of armature per minute?
87. Explain the action of the governor
88. Why is it necessary to use air economically?
89. What the result if piston from main cylinder should force the floating bar past center?
90. What is the usual travel of the piston?
91. What the size wire and material used for fuse on car equipped with two 50 H. P. motors?
92. What size for two 25 H. P. or car with one or two 20 H. P. motors?
93. Explain the different types of motor fuse?
94. What ampere fuse used for air pump?
95. What ampere fuse is used for arc lights?
96. What ampere for governor or inside lights?
97. What does a red flag or light signify?
98. What a green flag or light? A white flag or light?
99. What are the different lantern signals used by switchmen at First and Main? First and Spring, etc.?
100. What are the bell signals between motorman and conductor?
101. Do you understand that you must bring your car to a full stop at all steam railway crossings and all switches?
102. Do you know that it is your duty to see that your car leaves the terminus on time?
103. Through what part of the city must cars be run at half speed?
104. Over what streets must screens be used on the headlights at night?
105. In what section of the city are motormen permitted to use stools?
106. What is your position at all times when the car is in motion?
107. Do you understand that you are not to enter into unnecessary conversation with a passenger?
108. What is a rule for riding on cars when off duty?
109. What is your duty when passing another car which is discharging or receiving passengers?
110. What is your duty when passenger boards front end of car?
111. Explain the importance of always sounding gong when approaching a curve, another car or cross streets.
112. In what position must you leave controller handles when turning car into barn?
113. Do you understand making report on condition of cars when turning in?
114. What lines carry U. S. mail?
115. Name location of all U. S. mail stations.

FIG. 6.—MOTORMAN'S QUESTION CARD (TWO SIDES)

intendent gives the men a general talk on the more important matters affecting their duties, impressing upon the conductors the necessity for being always courteous and polite. The motormen are advised as to their duties and general behavior in case of accidents, and are cautioned as to the observance of what might be called iron-clad rules, such as having the car under

fixed up in one portion of the car house. This instruction car, which is illustrated in Fig. 4, will be described later. All motormen are given copies of "The Motorman and His Duties." Student motormen and conductors are given separate lists of questions which are to be asked them upon examination. The conductors' question card, Fig. 5, deals principally with the

routes of cars and transfers, and students are required to answer practically all the questions satisfactorily before being passed. Many of the questions on the motormen's card, Fig. 6, are technical in nature, and the applicant is not expected to be able to answer all of them.

About the second or third day the students are assigned by the instructor to different runs with regular men. The student is kept on the first run for four or five days, when he is generally proficient enough to be transferred to another line. If he has not shown the proper ability in that time, he is generally regarded as hopeless and is allowed to resign as a student. On the second line he is kept for two or three days, and is then transferred successively to all the lines in the division. As a rule it requires about fourteen or fifteen days to give a student the proper car instruction and break in on all the lines of one division. When he is assigned for the runs, he is required to report at the car house at 5 a. m., so as to take the first run out, and the instructor is always on hand at that time to see that all his men are properly assigned, and also to check up the tardy ones. Each student is given a card, Fig. 7, showing the date, run number, car run, car number, line and name of regular man for each of the lines. When the student has spent the designated time on a line, the regular man signs the card, and notes the time on, time off and total time. The instructor keeps a private report card, Fig. 8, for each student, on which he enters the runs of the students, and after he interviews the regular man, enters on this card the substance of the latter's report on the work of the student. By means of these private cards the instructor is able to keep close track of each student and of the work he is doing on the different lines. Considerable care is exercised by the instructor in se-

are naturally sensitive at first, and if laughed at by the regular men whom they are supposed to look to for advice and instruction, they become discouraged and either drop out entirely

LOS ANGELES RAILWAY CO.

Table with columns: DATE, RUN NO., CAR RUN, CAR NO., LINE, INSTRUCTED BY, I, A, M, P, M, TOTAL TIME, NAME OF REGULAR. Includes lines like Cummings, Vernon, Washington, Pico Heights, etc.

FIG. 7.—STUDENT'S REPORT CARD

QUESTION CARD STUDENT CONDUCTORS

NOTICE:—The questions below in regard to transfers must not be interpreted as meaning that you can get a passenger to the point on one transfer. The object is to find out if the student understands how to transfer a passenger who wishes to reach that point.

QUESTIONS

- 1. What is the route of University line from Agricultural Park? Name each street the cars go on. Direction when turns are made; time for round trip, headway, where do trips end, where are reliefs made?
2. Give same information as above of each of the other lines.
3. Where is Elysian Park?
4. Where is Echo Park?
5. Where is Central Park?
6. Where is St. James Park?
7. Where is Santa Fe Depot?
8. At what other points can a passenger take Santa Fe trains?
9. Where is S. P. Arcade Depot?
10. At what other points can a passenger take S. P. trains?
11. What lines of cars reach Main Santa Fe Depot?
12. What lines of cars reach Arcade Depot?
13. Where are the principal theatres?
14. How issue for W 7th St?
15. How issue for Vernon?
16. How issue for San Pedro St?
17. How issue for E 9th St?
18. How issue for Westlake Line?
19. How issue for Arcade Depot?
20. How issue for Santa Fe Depot?
21. How issue for Belt Line?
22. How issue for Central Park?
23. How issue for Maple Ave?
24. How issue for Vernon?
25. How issue for Main St?
26. How issue for Chutes Park after passing Temple Block?
27. How issue at 9th St?
28. What lines do you issue to at 9th and Main Sts?
29. How issue to Maple Ave or San Pedro St?
30. How issue to Brookline Ave?
31. How issue to Vernon line?
32. How issue to Southern Pacific Depot?
33. How issue to Westlake line and N Broadway?
34. How issue to Vernon?
35. How issue at 9th St?
36. How issue to Maple Ave?
37. How issue to Arcade Depot?
38. How issue to Belt Line?
39. What cars transfer East at 9th and Broadway?
40. How issue to Main St car?
41. How issue for Spring St south of 9th St, or Post Office?
42. How issue for 7th and Grand Ave?
43. How issue for San Pedro St?
44. How issue to 1st and Olive Sts?
45. How issue to Vernon?
46. How issue to Vernon when West bound?
47. How issue to Vernon when East bound?
48. How issue to E 9th St?
49. How issue for Main St car?
50. How issue for Post Office stopovers?
51. How many points you issue to on Spring St with Main St transfers, where do you issue and to what lines?
52. Can a passenger boarding a north bound San Pedro St car at 7th, and San Pedro St, reach the Chutes Park on a transfer?
53. If a passenger boards a north bound Grand Ave car at 3rd, and Broadway, how issue for 9th, and Central Ave?
54. To what lines do south bound Grand and Downey Ave cars issue at 1st and Spring Sts, and Central Ave?
55. What lines accept transfers punched and Spring S' that are issued from the car which operates between Santa Fe Depot and ind. and Spring S?
56. Transfers punched Temple Block S' are good on what lines?
57. When on Chutes Park going north on Spring St with Main St transfers, where do you issue and to what lines?
58. Can a passenger boarding a north bound San Pedro St car at 7th, and San Pedro St, reach the Chutes Park on a transfer?
59. If a passenger boards a north bound Grand Ave car at 3rd, and Broadway, how issue for 9th, and Central Ave?
60. To what lines do south bound Grand and Downey Ave cars issue at 1st and Spring Sts, and Central Ave?
61. What lines accept transfers punched and Spring S' that are issued from the car which operates between Santa Fe Depot and ind. and Spring S?
62. On what lines are Vernon transfers good that are punched and and Spring S?
63. Do you issue from Vernon cars to cars south bound at Main or Spring S?
64. Vernon transfers punched and Central E' are good on what lines?
65. When do S. P. Depot cars issue to San Pedro St?
66. When do S. P. Depot cars issue to Main St?
67. How can W. 9th St car west bound issue to reach Pico and Flower?
68. What is your understanding of 'Stoppage' on transfers?
69. Name all points where transfers are good after walking one block.
70. What lines carry mail carriers free?
71. Between what hours are they permitted to ride free?
72. Who are carried free?
73. What are the bell signals between motorman and conductor?
74. What are the lantern signals?
75. What are the flag signals?
76. If a package may give you to deliver, what is your duty?
77. What is the rule:
78. About lost property?
79. About carrying dogs?
80. Have you received instructions about reporting mail carried?
81. What is your duty in case of accident?
82. Are you permitted to call on any one injured on your car?
83. What is your duty in case any one besides an official of the company should ask you about an accident, whether occurring on your car or some other car?
84. Would you allow any person to lift a switch for you or do any other work that you should perform?
85. What would be your action in case your lights failed to burn?
86. What is the rule in regard to reporting for duty?
87. What is your position on the car when nothing out of its car house?
88. What is your first duty on arrival at a blockade?
89. Is there anything in the rules permitting you to leave a train without calling up dispatcher?
90. By what line are the cars operated?
91. Have you a good watch?
92. Have you a full uniform?

FIG. 5.—CONDUCTOR'S QUESTION CARD

LOS ANGELES RAILWAY CO.

Table with columns: DATE, RUN NO., CAR RUN, CAR NO., LINE, INSTRUCTED BY. Includes lines like Vernon, Main, Washington, Pico Heights, etc.

FIG. 8.—STUDENT INSTRUCTOR'S PERSONAL REPORT BLANK

lecting the regular men whom he desires to instruct the students. As a rule, the older men, both in years and time of service are selected, and especially those who take an interest in the students and in their instruction, and who will not be apt to ridicule them or jest at their mistakes.

As a rule the applicants who make the best trainmen are those who come from country districts or small towns, but they

employed by railways in other cities, because they have certain ideas on ways of doing their work, to change which in conformity with the methods in use in Los Angeles, is harder than it is to teach unexperienced men the work fresh from the start.

As has been mentioned before in these columns, the trainmen employed on all the railway systems of Los Angeles are

well educated, and are said to be above the average in politeness and general qualities. One of the reasons given for this is the absence of the union spirit and union agitators so often found inharmonious on systems of many eastern cities. Young men of good characters and good families who have come west to grow up with the country, find that they can get steady employment at good wages with the railway companies, and when they find that the trainmen stand high in the estimation of the citizens, they are content in the work.

The employment of a student instructor has proved very successful with the Los Angeles Railway Company. He not only instructs the men in their duties as outlined above, but in reality acts as their confidential friend and adviser. He is regarded as one of their own number, and the men are made to feel that he is always at their disposal to answer questions, explain the equipment and give general pointers as to their conduct and duties. While the superintendent and assistant superintendent are always courteous to the men and willing to hear a grievance from any one of them, the men frequently

long ago. The present incumbent of the position of student instructor is Al. A. Crank.

INSTRUCTION CAR

For the instruction car above referred to, and illustrated in Fig. 4, an old cable trailer was fitted up. The seats and windows were removed, leaving nothing but the floor, roof and skeleton frame. The car was mounted on two old trucks, each of which is equipped with a No. 3 Westinghouse motor. The motor wheels are blocked above the floor, so that they may be revolved without removing the car, and the action of the motor is observed through trap doors. At one end is a G. E. K-2 controller, although the car is wired as if for a K-10 Westinghouse controller. The car is equipped with a Christensen automatic air brake system, with brake-valve stands at the controller end. For convenience in inspection, the air compressor, governor and storage tank are mounted on the platform of the car, as are also the resistances, choke coil and fuses. The cable with motor, controller, light and compressor leads is open, and the wires are spread out on a board along one side of the car. Each lead is tagged so that its function may be explained. A regular arc headlight is provided on one end of the car, and the interior lighting is represented by a series of five lamps controlled by a standard plug switch. An Ohmer fare register of the new recording type is mounted inside with rod and cord. For con-

Form 275, 8-10-24

Los Angeles Railway Company.

To Superintendent

The teacher has served as student in capacity of conductor on all lines. He is able to look after himself and is competent to perform the duties of such employment in the regular service. I have examined him as to his knowledge of transfer rates, time for making trip, and headway on each line, and find

Provided with good temperance

Has purchased uniform

Remarks

Student Instructor

FIG. 9.—STUDENT INSTRUCTOR'S REPORT TO SUPERINTENDENT FOR CONDUCTORS

Form 276, 8-10-24

LOS ANGELES RAILWAY CO.

Los Angeles, Cal., 1911

TO THE SUPERINTENDENT:

has served as student in the capacity of an all lines. He considers himself equipped to perform the duties of such employment in the regular service.

I have examined him on points as follows:

On nature of using controller, he is

On electrical construction of a car, he is

On car construction, he is

On location of circuit breakers, he is

On rights of way, he is

On running time on all lines, he is

From his observation and conversation with him I consider

STUDENT INSTRUCTOR

FIG. 10.—STUDENT INSTRUCTOR'S REPORT TO SUPERINTENDENT FOR MOTORMEN

Form 280, 1-10-24

Badge No.

On as Student Turned in

Date	OFFENSE	By

Age next birthday * Married or Single * Where born * Town

Country State or Country * Description—Height Weight lbs

Color of Eyes * Color of Hair * Complexion * Physical Defects *

Date	OCCURRENCE	No.

FIG. 11.—DISCIPLINE RECORD CARD (TWO SIDES)

go to the student instructor first and get his advice. In this way many matters are often settled without reaching the superintendent and taking up his time.

After the students have passed through the proper instruction they are examined thoroughly by the instructor, not only the printed questions being used, but any other that may seem necessary. If he passes the examination, the instructor makes a report to the superintendent on form Fig. 9, for conductors, and form, Fig. 10, for motormen, noting his competency for the performance of his duties. About 25 per cent to 30 per cent of all the applicants fail as students and are frequently not reported back to the superintendent. After examination the men are put on the extra list.

To a certain extent the student instructor is held responsible for the conduct of the trainmen. If a man is reported by an inspector as negligent in the performance of part of his duties, he is generally remanded to the instructor for further instruction. When not actually engaged in giving instructions, the instructor rides over the different lines, observing the work of his students, and also inspecting the regular men.

The instructor is also required to inform himself thoroughly in all new apparatus adopted in the system, and to see that all men, students, extras and regulars are instructed in its use. Examples of such new apparatus are the magnetic brakes recently placed on the Westlake line, and the Ohmer recording fare register, placed on two other lines as an experiment not

venience in inspection the trolley arm and base are mounted on a separate stand in another part of the room. The entire car equipment is a working exhibit. In order to reduce the regular railway voltage so that the motors will not operate at too high a speed without the load, resistances are mounted on top of the car, as shown in the illustration.

With the aid of this car the instructor gives the students practical and detailed instruction on the operation and functions of all the apparatus. Prospective conductors, as well as motormen, are given car instruction, though their's is not so thorough as the motormen's. But it is sometimes necessary for a conductor to handle the car, and it is advisable for him to have a fairly good acquaintance with its equipment. After the apparatus on the instruction car is explained the students are taken into the shop, where they are shown motor, controller and cars undergoing repairs, and are then taken to the car house where the location of equipments on a standard car is explained.

The instruction car is soon to be moved to a new and larger room which will be provided with an exhibit of every class of equipment used on the system. Exhibits will also be displayed of burnt brushes, damaged armature and field coils and other damaged apparatus, so that the instructor will be able to call attention to the results of improper handling of the car.

Student motormen are required to be able to trace the course of the current through all of the car equipment, and to

describe the uses of the car equipment. They must also name and describe the different types of motors, their general appearance, horsepower, field coils, suspensions, bearings, case, commutator, armature, brushes and holders. In the case of the brakes they describe the shoe-hangers and locate the goose-neck, adjusting rods, brake beams, floating bar, equalizing bar, piston, air compressor and governor, and explain what gain, travel, etc., mean.

RULES AND RULE BOOKS

The railway company issues, for the use of its trainmen, two rule books. One of these is a collection of the permanent rules and regulations governing the duties of conductors and motormen, and in it are given all the rules which are not subject to change during the year. In the other book, which is revised and issued annually, are included all the rules that are subject to change, such as transfer rules, names of cross streets for the different lines, and rights-of-way rules for street crossings, curves and intersections of other tracks. In this book are also printed the location of all the postoffice stations in the city, and the location of the company's private telephones,

carelessness and similar offenses which result in accidents are generally punished by discharge. Also, if a man fails to report for duty three times, he is given to understand that it means dismissal. When any number of days suspension is marked up against a man, he is not actually laid off. The suspension stands against him, but he continues to work, and consequently does not lose his wages. Merit marks are also regulated in multiple of five days, and of course, offset demerits. The fact that the record can be inspected by the men creates a desire to have as clean records as possible. Bulletins posted on the first of every month in a frame especially provided for the purpose, record all the offenses and demerits, as well as credits given, without, however, mentioning places or names. Notices of demerits or credits are always mailed immediately to the men.

For the superintendent's use a private record is kept in a large ledger, the page number corresponding to the trainman's badge number, thus affording a ready means of referring to any case. Every offense reported against the men is recorded in this book, and every time a secret inspector rides with a man

Working Man	Car Run	Week Days - Relief Point Temple Block.	On	Off	On	Off	Time
42	1	West 9th Street	5:25	10:50	12:55	5:47	10:57
43	4	"	5:40	11:05	12:50	6:02	10:57
44	7	"	5:45	12:10	1:05	6:17	11:57
45	9	"	5:55	12:50	1:15	6:27	11:57
Week Days - Relief Point Car House.							
46	2	Vernon	5:50	11:32	12:32	4:50	10:20
47	4 (Owl)	"	4:50	10:58	12:14	5:14	10:48
48	7	"	5:50	12:52	2:08	6:49	10:22
49	11	"	5:45	11:00	12:58	5:56	10:21
50	13	"	5:55	12:14	2:02	6:04	10:21
51	15	"	6:05	11:02	12:44	6:02	10:18
Relief Point Arcade Depot?							
52	5	Depot Line	5:55	11:22	12:42	6:02	10:47
53	6	"	6:00	11:27	12:47	6:07	10:47
54	8	"	6:10	11:57	12:57	6:17	10:47
Relief Point Temple Block.							
55	1	San Pedro	5:55	11:08	12:25	3:05	10:25
56	5	"	5:40	12:18	1:42	3:26	10:22
57	7	"	5:55	10:54	12:11	6:47	10:55
58	6	"	6:00	11:01	12:18	5:54	10:57
Relief Point 2d & Spring.							
59	3	Westlake.	5:30	10:48	12:02	5:04	10:19
60	5	"	5:45	11:41	12:46	5:18	10:25

FIG. 12.—SAMPLE PAGE OF WORKING LIST

FIG. 13.—CAR BOARD IN CAR HOUSE

which are used in the dispatching system. Bulletins affecting the ordinary routine of train operation are posted from day to day in bulletin books in the trainmen's rooms at the headquarters of the two divisions. When a bulletin affects a rule in either rule book, the change is made by the men in their books.

MERIT SYSTEM

For the discipline of the trainmen, the company employs a modified form of the Brown system. Large cards, like that reproduced in Fig. 11, made out, one for each man, are arranged alphabetically in a case so that they may easily be inspected by the men. Each offence is noted on the card with the record or demerit, and in case of meritorious services, credits are given. The smallest demerit mark is a reprimand, the next is five days' suspension, and other suspensions are made in multiples of five. The card has on one side the man's name, badge number, time taken on as a student, time turned in for service and blank space for offenses. On the reverse side are given his age, whether married or single, when born, height, weight, color of eyes and hair, complexion, physical defects, and blank space for credits.

Unlike the regular Brown system, discharges are not dependent upon certain number of demerits. Gross disregard of rules,

a record is made with relation as to whether the man was "O. K.," was one or more fares short, or whatever else was noticed by the inspector. For economy of space, abbreviations are made for certain offenses, as "I F. S.," means one fare short, etc., and numerals are also used to designate other breaking of rules and discipline. Every accident is also recorded by a number, which is given to the accident by the claim department. Record of good deeds in the operation of the service is also made. In this way a complete record is kept of every trainman employed by the company, notation also being made of date of entering service and date of leaving the service, and whether by resignation or discharge. In case of a man leaving and another taking his badge, both records are made on the same page.

The merits or demerits are generally determined by the superintendent or assistant superintendent, although for small offenses such as tardiness, the operating foremen at the car house are empowered to give the reprimand or punishment. For some small offenses, such as conductors punching transfers incorrectly, the student instructor reprimands the men, no record being made, however, in such case. As a rule the disciplining is done by the superintendent or his assistant, and all the records are kept in his office.

WAGES, UNIFORM AND BENEFITS

The same wages are in effect as those on the Pacific Electric Railway Company's system, viz.: Extra men 22 cents an hour; regular men, during first five years, 22½ cents an hour; after five years, 23½ cents; after ten years, 24½ cents; after fifteen years, 25½ cents. The runs are arranged so that the men work from nine to eleven hours a day, the average being about ten hours and forty minutes. No premiums are given the men. However, at the time of the recent agitation by some visiting

RUNS

In order to proportion the length and desirability of the runs as nearly equal as possible, there are provided day, night and swing runs, each having an aggregate length of from ten to eleven hours. The day runs are the first ones out of the car houses in the morning. They have from an hour to two hours for lunch at noon, and leave work between 5 and 6 p. m. The night runs go on duty between 11 a. m. and 1 and stop work for the day between 11 p. m. and 1 a. m. They,

Schedule No. 28
In effect commencing December 24, 1903
9 Cars 7 A.M. to 6:00 P.M. w/100 P.M.
20 " 7 A.M. " 1:00 P.M. w/3:18 P.M.
10 " 6 A.M. " 3:18 P.M. w/6:18 P.M.
9 " 7 A.M. " 6:18 P.M. w/7:42 P.M.
6 " 6 A.M. " 7:42 P.M. w/8:18 P.M.

SAN PEDRO ST. LINE

20 Car Schedule (for Mondays & Thursdays only)

Table with columns for 'AT SLAUSON AVE.', 'In', and 'SAN PEDRO ST. LINE AT TEMPLE BLOCK.' containing numerical run schedules.

Working Runs - Daily except Sundays & Saturday Night Swings (Reliefs at 54th St. Barn N. Bound.)

Table with columns for 'Day Runs', 'Night Runs', and 'Swing Runs' showing various run numbers and times.

FIG. 15.—DISPATCHER'S LOOSE LEAF TIME SCHEDULE

"delegates," who endeavored to form a union and were unsuccessful, the men who were loyal to the company were advanced two years in service, meaning a raise in all their wages. About thirty men who were implicated in the movement were summarily discharged.

The men are required to buy their own uniforms before being put to work, but they are allowed to choose between four or five clothing houses. All are furnished with badges which they are required to wear on the outside of the coat upon the left side. Conductors are supplied with punches, a record of the punch marks being kept in the superintendent's office, since each man has a different punch. Screw-drivers and pliers are given to the motormen, and they are also required to see that each car is equipped with a monkey-wrench, a fuse and oil can.

The men are each required to pay 50 cents a month for the hospital fund, which entitles them to all medical and surgical attention. As a matter of convenience, the company also makes collections from the men for accident insurance, which is carried by one company. This insurance is not compulsory, and continues in force as long as the premiums are paid.

The company has about 700 men in its service, including about 200 extra men.

of course, bring the last cars into the car house. The swing runs report early in the morning with the day runs, have from three to five hours off during the middle of the day, and close their day's work between 7 and 10 p. m., bringing the first cars into the houses as a rule. On its two divisions the company, at present, has seventy day runs, ninety-eight night runs and eighty-six swing runs, making two hundred and fifty-four regular runs. There are fifteen extra men on trippers, which principally take care of the Ascot Park racing travel in the afternoon.

Los Angeles has no need for putting on the heavy tripper service that is generally required in the morning and evening in all large cities, and even in other places of the same size. Los Angeles has few manufacturing enterprises to necessitate such a service, and, on the other hand, on account of the large number of tourists and transients that are always in the city traveling back and forth between the parks, depots and places of amusements, there is a large traffic scattered throughout all hours of the day. This makes an ideal load for a street railway company to handle, as it can maintain regular service all day, and count on a very even distribution of passengers.

WORKING LIST

For the designation of the runs the company issues a "work-

ing list," or time list of runs, which possesses some interesting features. The list is typewritten and fills about fourteen pages. It is divided into day, night, swing, Sunday and extra runs or trippers. At the top of the list for each line is given the relief point, and in columns are placed the number of the work-

ing the schedule time for leaving the terminal points for each trip during the day, the relief times being underscored in red ink.

The lists work out in the following manner: Suppose a crew is assigned to working run No. 49 on the Vernon line. By

Grand & Downey Avenue Line.																												
Grand & Downey Ave at Jefferson St.														Grand & Downey Ave at East Lake Park														
Car	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Out.	5:20	5:25	5:30	5:35	5:40	5:45	5:50	5:55	6:00	6:05	6:10	6:15	6:20	6:25	6:30	6:35	6:40	6:45	6:50	6:55	7:00	7:05	7:10	7:15	7:20	7:25	7:30	7:35
In.	12:25	10:25	1:00	12:40	1:12	1:20	1:25	1:30	1:35	1:40	1:45	1:50	1:55	2:00	2:05	2:10	2:15	2:20	2:25	2:30	2:35	2:40	2:45	2:50	2:55	3:00	3:05	3:10

Grand & Downey Ave at Temple Block, South Bound.														Grand & Downey Ave at Temple Block, North Bound.													
1	7:00	7:05	7:10	7:15	7:20	7:25	7:30	7:35	7:40	7:45	7:50	7:55	8:00	1	6:20	6:25	6:30	6:35	6:40	6:45	6:50	6:55	7:00	7:05	7:10	7:15	

Day Runs.														Night Runs, Contd.														Swing Runs.													
11	4	Orand & Downey Ave.	5:35	10:35	12:10	5:44	10:34	109	6	Grand & Downey.	10:45	4:19	5:44	10:40	10:30	210	1	Grand & Downey	5:20	11:09	3:05	7:50	10:13																		

FIG. 16.—TIME SCHEDULE

ing run, which is in reality the crew number; the number of the car runs, the line, the times on and off for both portions of the day's work, and the total time of the run. When a crew, after relief, takes a run on another line, it is noted in the column containing the name of the lines. The sample page of the working list, shown in Fig. 12, will explain its nature. Copies of this working list are posted in each car house. There are also posted time schedules of each line, giving

reference to the working list, the crew finds that its first car run is No. 11, leaving the car house at 5:45 a. m., and being relieved at the ear house at 11:08 p. m., when the night crew, having working run No. 141, takes the car. The first crew has a relief until 12:38 p. m., when it assumes car run No. 8, taking another car this time from swing run No. 237. At 5:36 p. m., after ten hours and twenty-one minutes work for the day, the crew goes off duty, turning the car over to night run No. 139.

After the crew determines the numbers of its car runs, by reference to the time schedule for the Vernon line, the men note the schedule times for leaving the terminals for both runs. Another list gives the running time for each line, and then by referring to the car board, Fig. 13, they find that the car for

racks containing cards for the trainmen, arranged according to seniority. Each card bears the man's name and date of his employment. Every six months there is a "shake-up" or re-assignment of runs according to the men's choice. Typewritten copies of the seniority lists are posted every three months, so the men may keep informed of their relative rank. Nothing affects their seniority except vacancies by reason of discharge or resignation.

EXTRAS

The company keeps about 200 men on its extra list, these being the men who have just been turned over for work by the student instructor. The extras are assigned to work in rotation, the first man given a run on any one day being next in rank than the last man assigned to a run on the previous day. Whenever possible the extras are given their choice of taking the runs assigned to them or not. If they do not take it, they, of course, lose their opportunity to work until it is their turn again. No extra man is kept on one run longer than a week as a rule.

It has been found that the extras work on the average about twenty-five days out of the month. They report daily for roll call at 10 a. m. and 5 p. m. Fifteen crews are required to show up in the morning fifteen minutes before starting time of the first car out, so as to cover all runs. One crew is always kept at each car house all the time for emergency work.

DISPATCHING SYSTEM

The Los Angeles Railway Company was one of the first companies in the country to install a telephone dispatching system, and the office of dispatcher has grown to be a very important one in the actual operation of the road. For the use of the dispatchers, eight circuits enter the office, and the company's thirty-four private telephones are located on those circuits. Each conductor is required to report each trip to the dispatcher through telephones placed in boxes at terminals

Form 202

LOS ANGELES RAILWAY COMPANY

SUPERINTENDENT'S DAILY REPORT

TO THE MANAGER:

I have to report for the 24 hours beginning at 5 o'clock a. m., 190... as follows

Table with columns: LINES, MILEAGE (MOTOR CARS, TRAIL CARS), REMARKS. Lists various lines like University, Westlake, Santa Fe, etc.

FIG. 17.—SUPERINTENDENT'S DAILY REPORT OF MILEAGE, ETC.

run No. 11, of the Vernon line, is No. 319, and is located on track No. 19.

CAR BOARD

This car board is divided into twelve columns for the different lines, and the run numbers are painted in silver on a red strip under each line. Two blank columns are left for chalking up the car and track numbers after each run. This board is kept up by the car house foreman, who is under direct supervision of the master car builder. After the cars come in at night they are carefully inspected, and if it is

Form 203

LOS ANGELES RAILWAY COMPANY

BOARD NO. SHEET NO.

TO THE SUPERINTENDENT

DISPATCHER'S OFFICE.

190

The following statement shows the cars reported out of order, nature of trouble, delays in traffic, and other matters connected with the Operating Department on this Date.

Dispatcher on duty from a m. to m. from to p. m.

Dispatcher

on duty from m. to p. m. from p. m. to m.

Table with columns: CAR NO, LINE, N. S. E. W., TIME FROM TO MIN, PLACE, NATURE OF TROUBLE, SWITCHED BACK AT, REPLACED BY CAR NO., FROM, N. S. E. W., TO HOUSE OUT IN, REPORTED BY, TO WHOM REPORTED, TIME.

FIG. 18.—TROUBLE REPORT

found that repairs are necessary, they are sent to the shop and others put in their places, the proper correction being made on the board. The operating staff has nothing to do with the arrangement of the cars or posting of this car board.

SENIORITY LISTS

Conductors and motormen are allowed to choose their runs according to their seniority of service. There really is not very much difference in the desirability of the runs, but they are chosen by the men to suit their own personal convenience. In the office of the superintendent and division foreman are

of all lines. Emergency telephones are also placed at different points on the system, so that accidents and blockades may be quickly reported. The chief dispatcher has connection with all the officials of the company, the power house, the chief surgeon, hospital, police headquarters and fire department. He keeps in close touch with two car equipment repair men and one truck repair man, and the line wagons and the emergency car, record being kept of their movements on the memorandum blank, shown in Fig. 14, so that there is but little delay in reaching any of them in case their services are needed.

All electrical trouble, of course, is noticed first by the power house operators, who report it immediately to the chief dispatcher. The latter has a map of all the feeder lines showing the location of section insulators, so that upon orders from the power house he can instruct the crews of the first cars passing certain insulators to pull them. In the dispatcher's office are also maps showing all cross-overs on the system, city street maps, lists of fire alarm boxes, etc.

The chief dispatcher makes out all time schedules and working lists of runs, taking what time is necessary. While he is thus employed his place at the dispatcher's board is filled by an extra man, who is generally called in from service as motorman. When through with his special work he goes back to his position on the board. Two day dispatchers and two night dispatchers are required for the dispatching work.

TIME SCHEDULES

In making up a time table for a new line, the time necessary to make the run is first determined, as well as the running time between important cross-overs. Then the headway of the cars is decided upon and the leaving time at terminals is then arrived at for each car run. With this information the chief dispatcher works out his time schedule for the line on a blank, 12½ ins. x 16¾ ins. in size (Fig. 15). If a different service is put on for Sunday or any other day of the week a separate sheet is made out for that day. On these or separate sheets are noted the working runs that are necessary to handle the service on that line. These sheets are numbered and kept in a loose-leaf file, which is known as the chief dispatcher's schedule file. As changes are made, of course new sheets are inserted in the place of the obsolete ones. Each sheet has an index stamp on one corner, which contains space for the number of the schedule, the date it was put in effect, and blank spaces for indicating the number of the car and the headway for each change during the day. An index book is kept of all schedules made out so that they may be quickly referred to.

From this chief dispatcher's schedule file are made up the

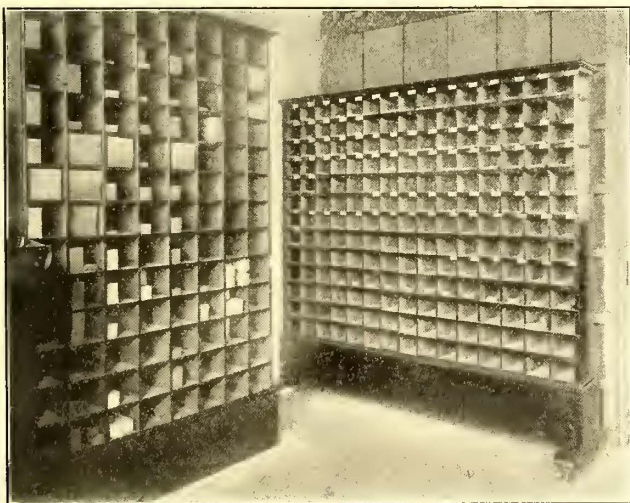


FIG. 20.—TRANSFER AND TRIP SHEET CASES IN CAR HOUSE

time schedules that are posted in the car houses for the use of the trainmen. These schedules are put on sheets 20½ in. x 25 ins. in size, Fig. 16, a separate sheet being used for each line. The scheduled time for leaving each terminal, and on long lines, a central point on the line are noted in black ink, and the time out of the barn and in at night, as well as the number of the car runs are indicated in red ink. The time underlined in red ink indicates reliefs at the relief point.

From the tabulation of working runs on the chief dispatcher's schedule are made up the typewritten working list spoken of above. If there is room, that part of the list affecting one line is pasted on the bottom of the time schedule (Fig. 16).

Each of the two dispatchers has upon his desk a large sheet on which he records the actual leaving time of every car, as reported by the conductors. For reference he has beneath his working sheet a sheet containing the scheduled leaving time of all lines under his supervision. When a car is replaced by another, switched back on a cross-over or switched by a different route in time of blockade, note is made of it on the sheet by the dispatcher.

MILEAGE AND TROUBLE REPORTS

From the dispatcher's sheet the actual mileage of every car on the system is obtained, the computation being made daily by clerks under the direction of the assistant superintendent. Records of the mileage of the different lines are kept on separate sheets, the aggregate mileage being reported to the general manager every fifteen days. A daily report of the

Form 124 7-25-'03-3m LOS ANGELES RAILWAY CO.
 Date 190.....
Foreman's Report of Register Change, or Car.
 To the Audit
 Car No. Line was run in Car House
 by Conductor at M., on account
 of with Register No. Closing at
 and Replaced by Car No. with Reg. No. commencing at
 This Slip must be forwarded to the Auditor
 immediately upon the change of any car
 during the day, or when car goes to
 shops Foreman

FIG. 19.—FOREMAN'S REPORT OF CHANGE OF CAR

mileage of each line, with mention of accidents, is made daily to the general manager on Form 202, Fig. 17.

The dispatchers also note on their sheets all trouble occurring during the day, and make a full report of it on a separate blank, Fig. 18, 10¾ ins. x 14½ ins. in size. The report, covering the work of one day, is placed on the superintendent's desk the following morning. It notes the car number, line, direction car was going, time, place, nature of trouble, where switched back, number of car replacing damaged one, where it was taken from, names of men reporting and to whom reported, etc. This trouble sheet generally gives the superintendent his first detailed information of damaged cars and unusual features in operating, and generally serves as a basis of investigating the action of trainmen, and placing responsibility for accidents.

An additional check on replaced cars is obtained from the foreman's report, made on blank, Fig. 19, which is forwarded to the auditor immediately upon the change of any car, or when a car goes to the shops.

REPORTING FOR DUTY

All trainmen marked up for duty in the morning are required to report at least fifteen minutes before the starting time of their cars, and to be on the car at least three minutes before their leaving time. Three days' suspension is entered against the records of all men who do not observe this rule. All trainmen desiring to lay off for a time not to exceed three days, are required to notify the operating foreman before 5 o'clock p. m. the previous day. Permission for lay-off longer than three days has to be obtained from the superintendent. In cases of emergency or sickness, night regulars or swing men must notify the operating foreman before 10 o'clock a. m. personally or by telephone, so that extras may be assigned to their runs.

TRIP SHEETS AND ENVELOPES

In each division headquarters are two large cases, such as that illustrated in Fig. 20, one for keeping transfers for different lines, and the other (the one shown at the right) for the trip sheets, envelopes, cash bag and bunches of transfers for each working run. Above each pigeon-hole is the number of the run, and on a white slip the number of trip sheets and envelopes required for that run. These cases are filled up each evening for the following day.

fers issued is made to the auditor on blank, Fig. 26. The conductors also record the number of transfers issued on their trip-sheets and envelopes, so a good check is obtained on all transfers.

INSPECTORS AND SECRET SERVICE SYSTEM

Under the immediate direction of the superintendent are two day and two night inspectors, who are constantly out on the system instructing the men on any points that seem necessary, and looking after the general operation of the cars. These inspectors virtually represent the superintendent in the actual handling of the men. In case of blockades and large crowds, they take charge and relieve the congestion of the lines, keeping in touch with the chief dispatcher as often as

Form 136-50m-10-'03.

OVER Conductor
 SHORT Lines
 ERROR Car Nos.
 Correct Bag No. Amt.
 Date

FIG. 22.—FRONT AND BACK OF CASH-BAG TAG

is necessary. The men who fill these positions are usually experienced trainmen who are thoroughly familiar with the city and the railway lines. They make a general report daily of what they think is necessary to be called to the attention of the superintendent.

The company has a secret service system, the force varying from two to ten men, as occasions demand. These men ride upon the cars and observe the number of passengers, fares collected and registered, and other features of operation. Their reports are made by mail to the superintendent's office, each "operator," as he is called, giving a detailed account of his work for the day. These men also observe the actions of the men off duty, and especially observe if they frequent saloons or questionable resorts. From their daily reports are entered

Form 203-10m-8-'03

Los Angeles Railway Company

MISCELLANEOUS REPORT BLANK

In all cases of altercation with passengers, derailment, broken trolley, headlight, car windows or any other damage to property of the Company, make report on this blank. Be expressly careful to state exact locality and every particular that would be necessary to a complete understanding of the case.

Car No. _____ Going _____ Line _____
 Date _____ Time _____ M. Place _____
 Conductor _____ Motorman _____

SUBJECT: PARTICULARS

.....

Motorman or Conductor

In all cases of damage to property, obtain the names and addresses of as many witnesses as possible. This blank is not to be used in accident cases.

FIG. 24.—CONDUCTOR'S MISCELLANEOUS REPORT BLANK

marks against the records of the men in the superintendent's private record book already referred to, note being always made if a man is reported "O. K." This system not only serves to quickly locate dishonest or careless employees, but also protects the honest men. If a man's record is believed to be questionable, one or two operators are detailed to watch him, and it is not long before evidence against him is obtained or the questionable report cleared up.

ACCIDENTS AND THE CLAIM DEPARTMENT

In case of accidents, however slight, the conductor and motorman on the car make up a report on an accident blank, Fig. 27, stating the car number, line, time, place, condition of track and brake, name and address of person injured, extent of injury, extent of damage to car or other vehicle damaged, name and addresses of owner and persons in charge, and then giving a statement of the whole matter, with any other information which may seem valuable. This report is signed by both conductor and motorman. A blank form is printed on the back which the injured party may fill out in case he exonerates the crew of the car. Conductors are supplied with

Form 126 1,000,000, 1-03.

TRANSFERS

Motor..... Trailer..... Line End
 Com Issued
 End
 Com
 Issued

FARES REGISTERED 1903

Motor Trailer Miscellaneous

TRIP	TIME	Fares Registered		Transfers	School Tickets	Free Walk Carriage	Passes	R. Tickets	Comp'y Tickets	Special Tickets	Police Fines	Trainmen	Total Passengers
		\$	Cts.										
OUT													
IN													
TOTAL													

Conductor Badge No.

FIG. 23.—CONDUCTOR'S TRIP ENVELOPE

small blanks, Fig. 28, on which they obtain the name, residence and business addresses of witnesses.

After this report is submitted to the superintendent, the testimony of witnesses and other interested parties is taken down by a stenographer and typewriter. The physician's certificate is obtained, and, in the more important cases, a blueprint is secured of the scene of the accident. If the accident was a fatal one, a certified copy of the inquest is obtained, and all these papers are filed for future reference.

The superintendent, John J. Akin, settles all claims him-

Form 204-7m-8-'03

LOS ANGELES RAILWAY CO.

ACCIDENT BLANK

In case of any accident, however slight, this blank must be filled out, in ink and returned to the Superintendent's office.

Car No. Line
 Motorman Conductor
 Accident (trip leaving) at M. 190...
 Exact time M. Exact place
 Condition of track (slippery or not) Was brake in good order
 Full name and address of person injured
 Extent of injury
 Extent of damage to car or other vehicle
 Name and address of person in charge
 Name and address of owner
 Number of passengers on at the time

Having answered the foregoing questions correctly, give a statement of the whole matter in the following space, with any other information which may seem valuable.

.....

FIG. 27.—ACCIDENT REPORT

self or through the assistance of his claim agent. In cases of large claims, the company's attorneys are consulted, but the power of settlement remains with the superintendent. The public is always treated very courteously and every complaint considered. The superintendent attends all inquests and arranges to have present all witnesses he thinks necessary.

The company has been very successful in the handling of its claim department, and few cases are carried into court.

During the nine years of the corporate existence but three judgments have been entered against it. During the year 1902, seven units, involving alleged damages of \$125,000, were brought against the company, and it won them all. During 1903, out of a total of five

ELECTRIC RAILWAYS OF NEW JERSEY

Situated as it is between Philadelphia and New York, New Jersey has always been very prominently identified with steam railroad development, as all of the large trunk lines reaching New York, with the exception of the New York Central Railroad and the New York, New Haven & Hartford Railroad, have their land terminals in New Jersey. Up to within recently there was no through electric line between either Philadelphia and New York or Trenton and New York. The through connections to Philadelphia, however, have now been completed practically between New York and Philadelphia, and through parties have been carried from Jersey City to Trenton. It will be impossible at present to operate through cars between New York and Philadelphia, on account of

Form 315-1-04-35 M

LOS ANGELES RAILWAY CO.

Motorman's Daily Report of Condition of Cars

Car No. _____ Date _____ 190__

Line _____

NOTE: Mark O. K. or B. O. and fill in time of taking and leaving car, and sign in same column. Explain on back of this card if necessary and sign name to same. Each motorman to fill out and hand to his relief; last man to put in box at barn.

SIGN HERE

TOOK CAR AT	M	M	M	M
1 Trolley				
2 Fuse Box				
3 Canopy Switch				
4 Controller				
5 Armature				
6 Brushes and Holders				
7 Fields				
8 Connections				
9 Resistance Boxes				
10 Lamp Circuit				
11 Bearings				
12 Motor Suspension				
13 Brakes				
14 Trucks				
Left Car at	M	M	M	M

FIG. 25.—MOTORMAN'S DAILY REPORT ON CONDITION OF CARS

the company, and it won them all. During 1903, out of a total of five

Form 205-8-03-10M

Name of Witness _____
 Residence _____
 Address _____

FIG. 28.—BLANK FOR WITNESSES' NAMES AND ADDRESSES

Form 13A 2M 3-03

LOS ANGELES RAILWAY COMPANY

Daily Report of Transfers furnished to Conductors and issued on _____ 190__

Conductors must turn in all unused transfers each night. Whenever they deviate from this rule, notation to this effect must be made in the "remarks" column.

The terminal number will be the closing number of the package or packages of transfers delivered to conductor, and for the ending number add one to the terminal number where the whole package of transfers are used. On broken packages the ending number will be the same as the commencing number of the transfers when furnished to the conductor subsequently. All transfers made void by being erroneously punched by conductor must be reported separately on this form and sent to the auditor daily with the report.

REV NO	CAR NO.		CONDUCTORS		SERIAL NO.	TERMINAL NO.	ISSUED		NO. ISSUED	REMARKS
	OUT	IN	OUT	IN			COM NO.	ENDING NO.		

FIG. 26.—TRANSFER REPORT

suits, it lost but one. The amount paid out by the company in settlement of damage claims averages about 2½ per cent of the gross earnings.

LOST ARTICLE DEPARTMENT

The lost-article department is operated under the supervision of the assistant superintendent. All articles found by the conductor and motomen on the cars are turned in with a report as to time and place, and those not claimed within sixty days are returned to the men who found them. A list, notifying the men to whom articles are returned, is posted twice a month.

OPENING OF THE NEWCASTLE BRANCH OF THE NORTHEASTERN RAILWAY

The Northeastern Railway is one of the principal railroad companies of Great Britain and, as announced some time ago in this paper, the company is equipping electrically a short section of its system in the neighborhood of Newcastle. Full commercial service with electrical service was put in operation March 29, although experimental trains were operated as early as Sept. 27, last year. There are 37 miles of double track and four miles of branches, equivalent to 82 miles of single track, equipped with electric power. The running time of the trains as compared with steam trains has been reduced 25 per cent.

The equipment was installed by the British Thomson-Houston Company, and the third-rail system is in use, the current returning to the generators through the track rails. The power distribution is at 6000 volts, and the current is furnished by a local electrical power company; 600 volts are used on the third rail. There are seventy motor cars and an equal number of trail cars, and the multiple-unit system is used. The opening of the line on March 29 was made quite an occasion, and a number of the directors of the company and distinguished guests were present. Trains are run at a headway of fifteen minutes, and twenty seconds only are allowed for each station stop.

a difference in gage, the lines through the northeastern part of the State having been equipped with 4 ft. 8½-in. gage, whereas the Trenton lines and most of those south of that city follow the practice in Philadelphia and other cities in Eastern Pennsylvania, and are equipped with a 5-ft. or a 5-ft. 2-in. gage.

A glance at the map shows the present condition of the connecting electric lines between New York and Philadelphia. As will be seen, when Trenton is reached on the trip south, two routes are open to the traveler, one on the east and the other on the west side of the Delaware river. The line is almost a straight one between the two cities from Milltown south, and if that between Milltown and Elizabeth is built as projected, the distance, although not the running time, by the electric and by the steam road would be almost the same.

The principal factor in the electric railway development in New Jersey, and almost the only factor in the northeastern part of the State, is, of course, the vast combination known as the Public Service Corporation, which owns all of the lines in Hoboken, Jersey City, Newark, Elizabeth and the Oranges, a district which is very densely populated, and which is the largest as well as one of the most attractive suburbs of New York City. The Public Service Corporation was formed on May 6, 1903, under the laws of the State of New Jersey, as a consolidation of the North Jersey Street Railway Company, the Jersey City, Hoboken & Paterson Street Railway Company; Elizabeth, Plainfield & Central New Jersey Railway Company; the Orange & Passaic Valley Railway Company, and the United Electric Company. The company also leases a large number of other lighting, railway and gas properties, and controls also the gas and electric lighting interests of the greater part of the State. The consolidation is of such recent date that no further discussion of the property is necessary here. A part of the projected extensions of the company is shown, including one through Ridgewood to the New York State line at Suffern.

The only important railway system in Northern New Jersey which is not controlled by the Public Service Corporation is that belonging to the New Jersey & Hudson River Railway & Ferry Company. This company owns a ferry running from West 130th Street, New York, to Edgewater, N. J., whence a line runs north to Englewood and west to Paterson. The same company owns a line running south from Hackensack to Arlington, a suburb of Newark.

Trenton, the State Capital, enjoys the distinction of being the terminus of more independent electric railways than any other point in the State. The Trenton Street Railway Company was the first on the field, and it owns practically all the local system, with branches to Princeton, Pennington, and Yardville. An extension from Pennington to Hopewell will be built at an early date, the contract having been given.

The New York & Pennsylvania Traction Company operates the Trenton, Lawrenceville & Princeton Railroad, under a steam charter, and the combination of street railways extending to Newtown, Pa., 12 miles. Altogether 25 miles of road are operated. Freight is carried on the Princeton line, being hauled direct from the Philadelphia & Reading Railway tracks in cars belonging to that company. The Trenton, Lawrenceville & Princeton Railroad is the only strictly electric railroad in the State which hauls regular railroad freight cars, including the "battleships" loaded with coal. All this hauling is done with the passenger cars, after hours.

The Trenton & New Brunswick Railroad extends from a point in Hamilton township, near Trenton, to Milltown Junction, 3 miles south-



east of New Brunswick, on the Middlesex & Somerset (Public Service) system. Cars are run to Adeline (near Broad) and Liberty Streets, Trenton, over the tracks of the Camden & Trenton Railway, and a special car conveys the passengers to and from State and Warren Streets (2½ miles) in the business center of the city. Cars enter New Brunswick over the Middlesex & Somerset tracks. The Trenton & New Brunswick Company has a steam railroad charter, but has carried very little freight. The New Jersey Short Line Company has been chartered within the past few weeks for the express purpose of extending the line northward from Milltown Junction to Elizabeth, where, it is understood, connection will be made with the Public Service lines, and the cars run through Newark into Jersey City.

The Camden & Trenton Railway extends for 29 miles from State and Warren Streets, Trenton, paralleling the Trenton Street Railway for nearly 4 miles, southward to Bordentown, Florence, Burlington, Beverly, Riverton, Riverside, Palmyra and West Palmyra, where connections will be made with the Camden & Suburban. The Camden & Suburban is building a line from Camden to West Palmyra, and it is expected that the short break now existing will be closed within a few weeks. It will then be possible to run cars right through from State and Warren Streets, Trenton, to the Philadelphia ferries, in Camden, and this will be done through traffic arrangements between the two companies. The Camden & Trenton connects with the Trenton & New Brunswick at Adeline and Liberty Streets, Trenton, but as already stated, no cars can be run through, owing to the difference in gages.

The Trenton, Lakewood & Atlantic Railroad Company is practically a new corporation, and proposes building a line from Trenton to Lakewood and the seashore, presumably to Point Pleasant. Trenton, Lakewood & Atlantic interests control the Point Pleasant Traction Company, and a contract has been let for the building of the section between Point Pleasant and Lakewood. George O. Vanderbilt, of Trenton, is the president.

The Delaware Valley Traction Company has a charter and most of the rights of way for a line from Trenton to Lambertville, but has done nothing toward building, except the planting of poles in the city of Lambertville, where it holds a franchise on Main Street. The Trenton, Newhope & Lambertville Street Railway Company, a Pennsylvania corporation, and a part of the New Jersey & Pennsylvania Traction system, has begun construction on a line from Yardley, Pa., to Newhope, and it will cross the new Delaware bridge (now building to replace one destroyed by floods) into Lambertville, \$10,000 having been paid as an option to secure it. Cars will be run direct from Warren and Hanover Streets, Trenton, to the center of Lambertville, over the New Jersey & Pennsylvania Traction Company's lines, when this is completed. It is, therefore, a question as to whether the Delaware Valley Traction Company will build or not.

The Philadelphia, Bristol & Trenton Street Railway enters Morrisville, Pa., opposite Trenton, where it connects with the New Jersey & Pennsylvania Traction Company, but its lines do not enter New Jersey.

North of Trenton the electric railways are largely in the Public Service system. The only railway in operation in the western part of this half of the State is the Phillipsburg Horse Car Railroad, which is operated by electricity under the control of the Lehigh Valley Traction Company, of Allentown, Pa. The Easton & Washington Traction Company has given a contract for a line from Phillipsburg to Washington, and it will be extended to Hackettstown and Lake Hopatcong. Other branches will extend from Washington to Belvedere, and from Washington to Clinton. This company is controlled by the Hay Brothers, in Easton, Pa., who operate the Northampton Traction lines.

The Morris County Traction Company has built some track in Dover, Wharton and Rockaway, and expects to have a part of the line in operation this summer. Rights of way and franchises are being secured for the Morris County Traction all the way from Lake Hopatcong to Elizabeth, via Rockaway, Morristown, Summit, etc.

The Delaware Valley Traction Company is also securing rights of way from Morristown to Caldwell, for an electric railway. There are several other projects in Morris County, but none of them has as yet been chartered.

The only other actively projected lines north of Trenton, aside from those mentioned, are from Princeton to Somerville, and Somerville to Morristown. James Brown, Jr., of Somerville, controls a right of way for 8 or 9 miles. Several surveying parties have been over both routes, and one or two have been securing rights of way, but no charters have been taken out. Under the New Jersey laws, though, the charter is merely a question of depositing the necessary amount of money. A line from New Brunswick to Princeton is also hinted at, recently, by New Brunswick parties.

South of Trenton the first active electric railway is the Burlington County Traction Company, which, in turn, is controlled by the People's Traction, of Philadelphia. This line extends from Mostertown to Mount Holly, and will soon extend to Burlington, a part of the track having been laid. Regular cars will operate from Mount Holly to Camden at an early date. An extension from Mount Holly to Pemberton is projected.

Camden is the electric railway center of South Jersey, but two companies control practically all the lines there. The Camden & Suburban covers Camden and the nearby suburban towns as far as West Palmyra, Moorestown and Haddonfield.

The Camden, Gloucester & Woodbury Railway, which is controlled by the Public Service Corporation, extends from Camden to Woodbury, touching at National Park and Washington Park. It also extends south to Mullica Hill. Further extensions to Paulsboro and Clayton are talked of, but no construction work has begun.

The Paulsboro Traction Company has a project on foot for building from Woodbury to Paulsboro.

The only electric railway system in the half a hundred miles from Mullica Hill to Cape May, is the Bridgeton & Millville and Millville Traction lines. The former extend from Bridgeton to Millville, and from Bridgeton to Port Norris. Freight is carried, this being the only line in the State which operates a traction charter secured at the time that freight could be carried under that act. The Millville Traction Company's line extends from Millville to Vineland.

Returning to the Atlantic Coast, and beginning at South Amboy, the first electric railway is the Jersey Central Traction Company, a part of the Vandegrift system, which is about completed from South Amboy to Keyport, and is in operation from Keyport to Red Bank, this latter having been opened since the first of April. Extensions are also planned to Atlantic Highlands.

The Monmouth County Electric Railway extends from Red Bank to Long Branch, via Eatontown, and the Atlantic Coast Electric Railway extends from Long Branch, through all the shore towns, to Belmar, from which point there is a break to Point Pleasant. The Point Pleasant Traction Company has a local line, and will build an extension to Lakewood.

The Brigantine Transportation Company is next down the coast. The company operates 9 miles of road and supplies the city's lighting. Practically all the business is done in the summer.

The West Jersey & Seashore Railroad (Pennsylvania Railroad) controls the electric railway system in Atlantic City, with the Atlantic City & Suburban in the field from Atlantic City to Pleasantville. The Delaware Valley Traction Company

also made a vigorous fight for a terminal here last year, and has several miles of road laid on the meadows. The Delaware River & Atlantic, for which a contract was recently let, will be a high speed line from Gloucester City, opposite Philadelphia, to Atlantic City. According to the officers, this road will be the highest class in the country. It will be entirely upon private right of way.

Ocean City has a local electric railway, the Ocean City Electric Railroad.

Cape May has the Cape May, Delaware Bay & Sewell's Point Railroad, operated by electricity and controlled by the Philadelphia & Reading Railway, which also controls the Ocean Street Passenger Railway.

South Jersey has not as yet become a prolific field for electric railway operations, although it offers the advantage of a nearly level country, and, in some sections, a good population per mile.

The only electric railway in South Jersey controlled by the Public Service Corporation is the Camden, Gloucester & Woodbury, which is a South Jersey Gas, Electric & Traction Company corporation. The American Railways Company controls the Bridgeton & Millville Traction Company.

Although not in New Jersey, Staten Island, with its electric lines, is also shown on the accompanying map. There are only two lines in Staten Island, both of which are controlled by H. H. Rogers, of New York, and an early consolidation is likely. The roads are still operated separately, with Charles L. Spier as president of one line, and secretary and treasurer of the other, and with S. F. Hazelrigg, general manager of the Atlantic Coast Electric Railway, as manager of both.

DROP LETTER BOXES ON CARS

San Francisco, March 9, 1904.

EDITORS STREET RAILWAY JOURNAL:

Will you kindly let us know the extent to which drop letter boxes are being carried on individual passenger ears of the electric railways in this country. Are these boxes installed with the sanction of the Government, and how are the deliveries made to the postoffice? Where are the boxes located on the ears as a rule, and is the operation of the ears delayed by persons who are not passengers posting letters? I do not refer to the operation of regular mail cars, which is common in many cities, but to the use of drop letter boxes on ordinary passenger ears.

A. B. C.

This practice is followed by a number of roads, including those in Ottumwa, Des Moines and Burlington, Iowa; Salt Lake City, Utah; Duluth, Minn., and Hartford, Conn. In some of these cities an arrangement has been effected directly with the postoffice department at Washington, while in others the service has been installed on the initiative of the railway companies. As a rule, the cars are equipped with the ordinary form of cast-iron mail boxes, such as are used on street corners. These boxes are attached either to the side of the car or, where single-ended cars are used, as in Des Moines, to the rear platform. They are so arranged that a person can drop a letter from the street whenever the ear stops. Opinions among railway managers conducting this service differ as to whether the posting of letters in this way delays the operation of the cars, but if so, the delay is slight, and where the service is a local one, is not of very great moment. The letters are removed from the ears by a mail carrier, and are usually emptied at the nearest point at which the cars pass the postoffice. The boxes form a part of the mail system of the Government, and the same protection is extended to them as to the other drop letter boxes.

Where a contract is entered into directly with the Government for this service, a payment is made for it. As a rule, the service is much appreciated by the public, as it expedites the transmission of mails.

STATISTICS ON WHEEL COST IN EUROPE

As outlined in this paper for Dec. 6, 1902, most of the Continental tramways are using steel-tired wheels, whereas the general practice in Great Britain, up to within recently, certainly, has been the employment of chilled-iron wheels. There is a tendency, however, at present in Great Britain, toward the use of steel-tired wheels. In explanation of this and of the practice on the Continent, it ought to be said that the full grooved rail is almost universally employed, and that the grooves in these rails are very much narrower than in the United States. As it is very difficult to make a chilled-iron flange with any depth of chill to fit these narrow grooves and yet provide it with a backing of gray iron, chilled-iron wheels in Europe have in many cases chipped badly on the flange. The use of steel-tired wheels in Europe, however, is not universal, and in a few large cities like Milan and Buda-Pest, chilled-iron wheels have been and are being used successfully and very extensively.

The accompanying table, which has been supplied this paper by a well-known tramway engineer in Europe, gives some recent quotations on cost of cast-iron, steel-tired and cast-steel wheels as used in different cities, principally on the Continent.

	Diameter Inches.	Weight Lbs.	Cost Per Lb. (Cents).	Cost Per Piece (Dollars).	Delive y.	Date.	Manufacture.
Cast Iron Wheels.....	33	340	4.0	13.60	Paris	1900	French
" ".....	"	"	2.64	"	"	1904	English
Steel Tired Wheels.....	34	340	7.8	26.52	Jeumont	1900	French
" ".....	20	160	11.8	19.00	"	"	"
" ".....	30	"	"	12.50	Brussels	1904	Belgian
" ".....	31½	"	"	19.00	London	1903	English
" ".....	30½	295	9	20.25	Paris	1900	French
Cast Steel Wheel Center.....	29	166	5.0	8.30	"	1903	"
Rolled Steel Tires.....	29½	"	3.1	8.30	"	1902	"
" ".....	Interior 15½	153	3.1	4.74	"	"	"
" ".....	Interior 30	243	3.1	7.53	"	"	"
" ".....	Interior	"	2.7	"	Brussels	1904	Belgian
" ".....	"	"	2.0	"	"	"	"
" ".....	"	"	"	5.50	Haarlem	"	German
Pair Steel Tired Wheels and axle mounted.....	"	"	"	55.60	"	"	"
Pair Steel Tired Wheels and axle mounted.....	33	"	"	52.00	Liverpool	"	English
Pair Steel Tired Wheels and axle mounted.....	33	"	"	31.40	Antwerp	"	Belgian
Pair Steel Tired Wheels and axle mounted.....	33	"	"	41.60	"	"	"
Pair Chilled Cast Wheels and axle mounted.....	33	"	"	26.00	Liverpool	"	English

The gage of track in most cases is 4 ft. 8½ ins., although a few of the roads given in the table are of narrower gage.

Considerable attention has been given in Europe to the quality of the steel in the tire and the material composing the center of steel-tired wheels. Soft steel has been used to some extent for tires, and is considerably cheaper than hard steel, but experience has proved that it is more expensive in the long run. The centers are usually forged, but it is now becoming quite frequent to use cast-steel for this purpose. It would appear that the cast-steel will give enough longer life to warrant its increased first cost over the forged iron centers.

The following are extracts from some steel-tired wheel specifications prepared by Mr. Fell for the Sheffield Corporation Tramways. These specifications are the result of a number of tests, and they are, therefore, practical in the best sense of the word:

CENTERS

The centers to be 26¾ ins. diameter, to be of cast-steel, having a tensile strength of from 30 tons to 35 tons per square inch and an elongation of at least 15 per cent in 2 ins. They must be capable of withstanding a test load, applied by static pressure to the center, of at least 50 tons, without producing any permanent set, and also a load of at least 100 tons applied in the same manner, without showing signs of breaking up. The above loads to be applied to the hub of the wheel in a testing machine, the rim resting against four bear-

ing blocks about 3 ins. wide, fixed on the stationary portion of the machine. The whole of the centers to be carefully turned and stepped on the rim for the reception of the tires.

The hub to be faced on both sides of the wheel and bored for the axles. The weight of the finished center not to be less than 164 pounds.

TIRES

The tires to be of specially tough rolled crucible or Siemens-Martin steel, having a tensile strength of from 50 tons to 55 tons per square inch, with a minimum elongation of 11 per cent to 8 per cent in 2 ins. The tires to be shrunk on the wheel centers, and secured to the same by an approved method, so that it will be impossible for the tire to work loose sideways, or circumferentially. The weight of finished tire to be not less than 166 pounds.

MILEAGE

Every tire must run at least 5000 miles per 1/8 in. thickness without breaking the flange, loosening, or showing any other signs of defect down to a minimum thickness of 3/4 in.

REBUILDING G. E.-57 FIELD COILS AT ST. LOUIS

In rewinding the field coils of G. E.-57 motors in the shops of the St. Louis Transit Company, some important changes from the original way of constructing these coils have been made by W. O. Mundy, master mechanic, and his assistant,

two coils are separated from the brass shell and from each other by heavy micanite board. It was found at St. Louis that frequently one or two turns would be short-circuited by contact at the edges of the copper strap. The vibration of the brass shell on the pole pieces as the shell wore down at

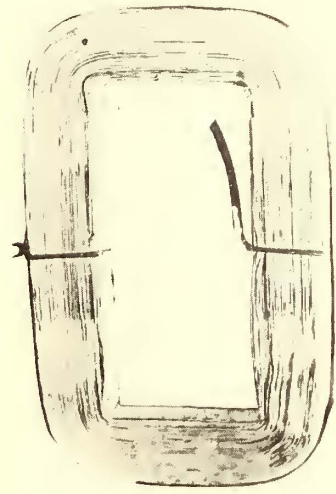


FIG. 1



FIG. 2



FIG. 4

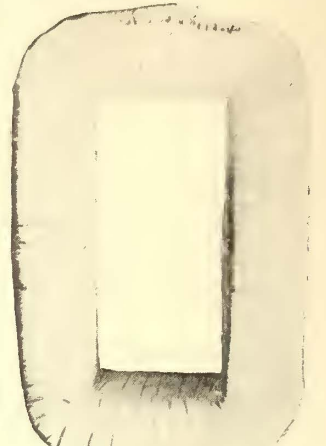


FIG. 5

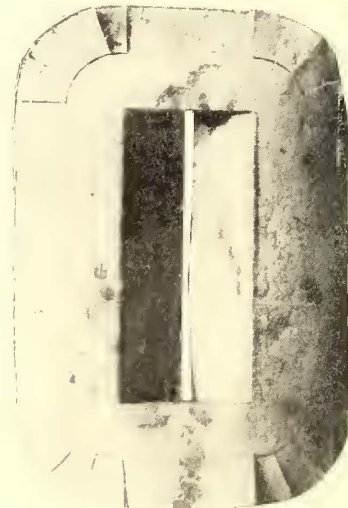


FIG. 6

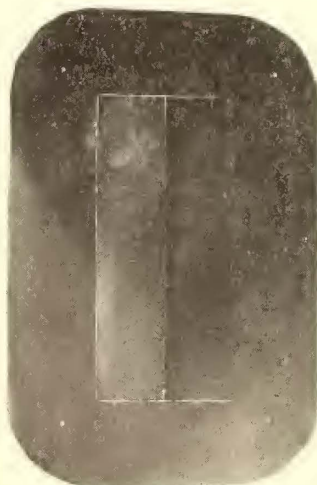
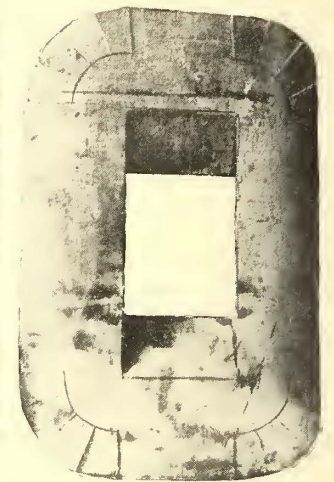


FIG. 3

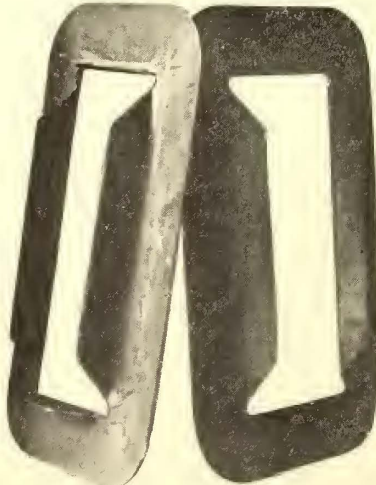
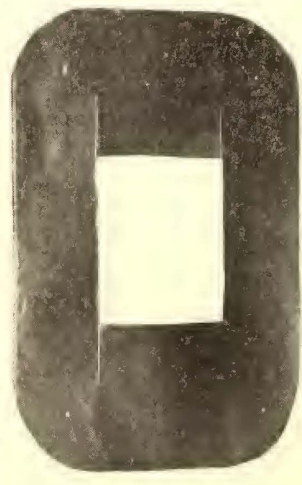


FIG. 7

the points planed off for its bearing on the motor casing, and the vibration of the coils in the brass shell proved ruinous to insulation in many cases.

The new plan is to wind up the two sections of the field coil separately on a wooden form, using the copper strap and asbestos just as before. This leaves a coil like that shown in Fig. 1. It is then taped as in Fig. 2. The coil is then dipped in insulating paint. After this

Chas. Remelius. As all know who are familiar with the first construction of the field coils of the G. E.-57 motor, the coil consists of flat bare copper strap wound with a strip of asbestos between the turns. The asbestos is somewhat wider than the copper strap. Two such strap wound coils make up one field coil. They are wound side by side on a brass shell. The brass shell carrying the coil is slipped over the pole piece. The

dipping it is covered with empire cloth. The two pieces of empire cloth to cover it are cut as in Fig. 3. The cloth is held in place by a layer of tape, which is wound over the whole coil. This leaves the coil as shown in Fig. 4. The two coils are then laid side by side and connected together and are covered with canvas, micanite and red board cut as in Fig. 6, and the whole is wrapped in canvas, making the

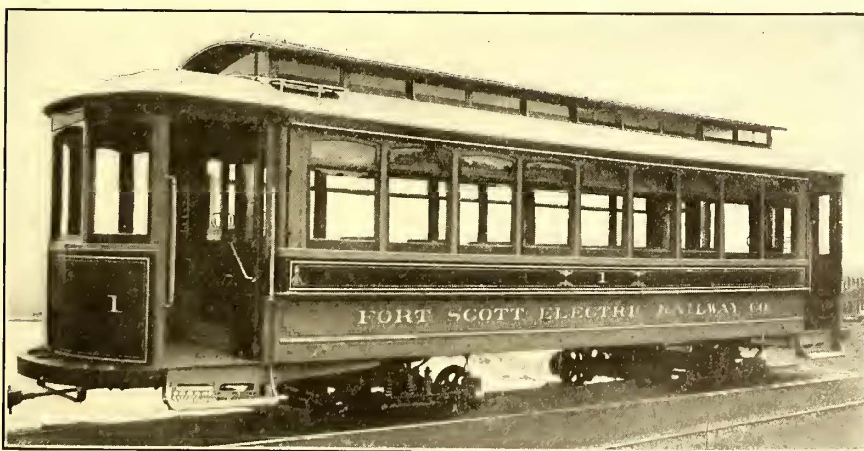
completed coils look like Fig. 5. The whole is then dipped again in insulating paint.

Instead of using the brass shell for mounting on the field poles, two pressed-steel forms made in the company's shops are used. These are shown in Fig. 7. As the pole piece is drawn in place the insulating covering of the coils is pressed so as to hold the field coil firmly and prevent vibration. Another advantage incidental to this method of constructing field coils as compared to the old method is that the transformer test for short-circuited coils can be applied, while with the coil wound on a brass shell the transformer test, of course, can not be applied, because the shell itself acts like a short-circuited turn.

CARS FOR FORT SCOTT, KANSAS

The Fort Scott Gas & Electric Company has lately received a number of fine cars like the one illustrated, built by the American Car Company, of St. Louis. The railway company operates 9 miles of lines in Fort Scott and vicinity, and owns a popular summer resort known as Town Hill Park. Fort Scott is 125 miles directly south of Kansas City, close to the Missouri border, and is an important center for mining and shipping of bituminous coal. It has a population of 10,500, and is one of the most thriving cities in the State. The cars are handsomely finished in cherry, with decorated birch ceilings. The upper window sashes are stationary, and the lower arranged to drop into pockets in the sides, and have hinged covers for the openings. The sashes in the vestibules also drop. The cane upholstered walk-over seats have a capacity for thirty-six passengers. Upper truss rods are shouldered high upon the posts, and half-inch sill plates are upon the outer side of the side sills. The cars measure 25 ft. 4 ins. over the end panels, and 34 ft. 9 ins. over the vestibules; from the end panels over vestibules, 4 ft. 8½ ins. They are mounted on Brill "Eureka" maximum traction trucks having 4 ft. wheel base, 33-in. driving wheels, and 20-in. pony wheels.

The Brooklyn Rapid Transit Company has determined to reinforce all of the elevated railway structures throughout the city. The present viaducts were not designed for the heavy motor-equipped trains now in operation, so the changes that

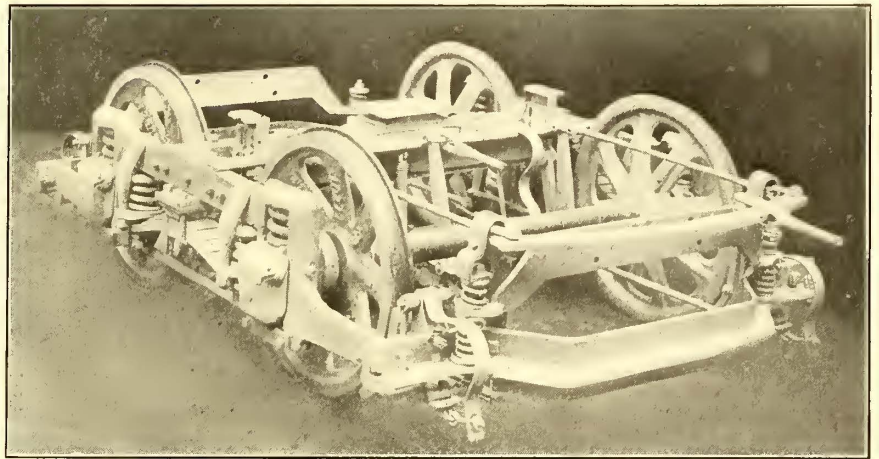


EXTERIOR OF CAR FOR THE FORT SCOTT ELECTRIC RAILWAY COMPANY

have had to be made by many of the steam railroads in late years, owing to the great change in rolling stock and train loads, has extended to passenger lines within a single city. The work is in charge of Boller & Hodge, of New York.

INTERESTING TRUCKS FOR TURIN, ITALY

The J.G. Brill Company recently shipped ten trucks of its No. 27-G-E-1 type to Turin, Italy. The brake system of these trucks is of unusual interest, as both outside and inside brakes are



TRUCK USED IN TURIN, ITALY



INTERIOR OF CAR FOR THE FORT SCOTT ELECTRIC RAILWAY COMPANY

used, which work independently so far as the levers and brake-rods of the truck are concerned, but which are operated simultaneously by a lever attached to the car body. The top brake-rods, just inside the wheels and attached to the horizontal brake lever shown in the picture, operate the outside brake-shoes, while the upright lever at the center operates the inside shoes. The former are adjusted by crown nuts on the brake-rods outside the brake-beams, while the latter receive their adjustment by means of a connecting rod at the lower ends of the live and dead levers. The wheel base is 4 ft.; the axles are 6 ft. 4¾ ins. diameter, and journals 3½ ins. in diameter. The wheels used are 33 ins. in diameter and the gage is 4 ft. 8¾ ins. The side frames are solid forged in a single piece, a method of construction peculiar to the builders. The bars between the yokes are 1½ ins. thick x 4½ ins. deep at the center. The pedestals are 3½ ins. thick, and the extensions 1¾ ins. Double corner brackets, forged from a single billet ¾ ins. thick, secure the transoms to the side frames, together with single corner brackets ¾ in. thick. The pedestals are fitted with steel gibs.

FINANCIAL INTELLIGENCE

WALL STREET, April 13, 1904.

The Money Market

Money rates are still extremely easy, despite certain influences which would seem to favor a higher market later on. Call funds have gone begging on the Stock Exchange this week at $1\frac{1}{2}$ per cent. Relatively, time money quotations are fully as low. For sixty days 3 per cent is the ruling figure, while for the long periods contracts are offered freely at 4 per cent. In addition to last week's gold exports of \$3,500,000, another million was engaged Monday. These withdrawals have made no impression whatever on exchange rates, which continue at the shipping level. It is quite certain, therefore, that exports will keep on, and will probably reach a large quantity before the present month is out. Another factor pointing toward higher money is the continued expansion in the bank loan account, which has now reached the stupendous figure of \$1,032,000,000. The more recent increase in loans is due partly to the fact that the trust companies and other lending institutions outside of the Clearing-House have retired from the market, finding it more profitable to keep their balances on deposit with the banks than to lend them out on such low terms as the situation offers. But it is also true that the Clearing-House members are anxious to avail themselves of every opportunity to place their unemployed funds on demand and short time loans, for the purpose it would seem of forcing up the money rate. In this latter circumstance appears the chief reason to believe that the present exceptionally easy conditions will not last for very much longer. On the other hand, there is nothing in the outlook to suggest anything but a very moderate hardening of the market. The gold for Europe has been more than replaced by the arrivals of Japanese specie, which last week amounted to \$5,000,000. More of these arrivals are looked for in the immediate future. Meanwhile the shrinkage which has often been noted during the last few months in the volume of interior trade is operating in two ways to increase reserves at this city. It is causing an extraordinary inflow of country bank balances, and it is reducing the payments of the banks on interior revenue to such an extent that the Treasury is left a debtor on current transactions. From now on for the next two months and a half the accumulation of currency from these two sources should be fairly constant. The movement will probably be sufficiently heavy to offset the gold which Europe takes. Under these circumstances it may readily be seen that the chances for much of an advance in money rates are small.

The Stock Market

The advance on the Stock Exchange has continued unremittingly during the past week, and there are no signs as yet that the rise is about to culminate. The excitement over the Union Pacific episode and the whole Northern Securities controversy has subsided. Fears that the dispute over the control of the Northern Pacific might lead to an open rupture have been allayed by the assurance of both contending parties that they will leave their differences to the decision of the courts and will abide by the outcome. In consequence the dealings in Union Pacific shares have ceased to overshadow the general trading, and the upward movement has shaped itself on other lines. All trustworthy indications point to the activity of the large financial interests on the side of rising prices to a greater degree than at any time in the last two years. The reasons underlying the advance ought scarcely to need much elaboration. With money as easy as it is now prices of securities are made to seem genuinely low. This is one phase of the situation. The other lies in the assurance which recent events have greatly strengthened that general business throughout the country is on the mend, and that although no return is likely to the flush time of 1902, the much-dreaded commercial reaction is a thing of the past. Trade reports are telling a more cheerful story; the steel corporation in its recent statement showed that earnings of the steel trade are rapidly recovering their lost ground, while railway traffic receipts are also gaining in a most satisfactory manner. Taken all in all, the railway statements for the month of March not only showed a great improvement over the preceding month's, but a considerable advance also over a year ago. The government crop report revealing a condition of only 76 per cent for winter wheat, does not make a very auspicious beginning for the crop season. But it is far too early yet

to start a crop scare. With good growing weather from now on there is still opportunity for the wheat plant to repair some of the winter's ravages. Altogether the prospect is distinctly brighter than it has been for a very long time, and joined to the fact that the efforts to advance prices have seemingly been undertaken seriously by representatives of substantial capital, there is good cause to look for the upward tendency to continue.

The local traction stocks have come in to more prominence in the week's dealings with brisk advances in Brooklyn Rapid Transit and Metropolitan. Manhattan has hung behind the rest, and there are, in fact, some evidences of this stock being well supplied, for what cause does not appear. An important speculative party has been bullish on Metropolitan ever since the recent break in the stock, taking the position that it was cheap on its merits, even though the earnings of the company have fallen behind the 7 per cent dividend. The price seems to have been marked up this week partly at the expense of a short interest which found itself unable to cover at last month's low figures. The advance in Brooklyn Rapid Transit has, of course, been a purely speculative move, the animus of which is the time-worn argument that the season for heavy earnings is approaching.

Philadelphia

In the Philadelphia dealings of the week prices have again failed to improve to the extent that might have been expected from the course of the general speculation. Philadelphia Traction gained a half point to 96, which is the highest it has sold in some time. There was a good deal of small investment buying in this issue. Philadelphia Electric was active and stronger, moving up from $5\frac{7}{8}$ to $6\frac{3}{16}$, and holding most of the advance. With these two exceptions, however, prices were barely altered on the week. Union Traction, which last week touched 50, did not go above $49\frac{3}{4}$. Philadelphia Company, although as active as usual, remained almost stationary around 39. One or two sales of the preferred were reported at 44. A few fractional lots of American Railways were dealt in at $43\frac{3}{4}$ and $43\frac{7}{8}$. United Traction of Pittsburg preferred sold at $48\frac{3}{4}$, and one lot of Fairmount Park Transportation at 25.

Chicago

The Metropolitan Elevated has borrowed \$1,100,000 for the purpose of acquiring more property and making further extensions and more improvements. The loan is secured by a deposit of extension mortgage bonds, which are a lien on the new property. Announcement of this transaction has been followed by fresh liquidation in the company's shares. A hundred Metropolitan common sold this week at $16\frac{1}{4}$, down $\frac{3}{4}$ of a point from the last previous sale. A hundred Metropolitan preferred sold at $49\frac{1}{2}$, after which 700 shares were offered down as low as 47. A little selling was also induced in South Side Elevated when the news came out that the stockholders had ratified the proposition to increase the capital stock by \$7,000,000. Support was forthcoming, however, on the decline, and after selling at $90\frac{7}{8}$ the stock recovered to $91\frac{1}{2}$. Union Traction issues have been a trifle better, the common improving from $5\frac{1}{4}$ to $5\frac{3}{8}$, and the preferred gaining a point to $31\frac{1}{2}$. A single lot of North Chicago sold at 71, and West Chicago at $43\frac{3}{4}$. City Railway changed hands at 165. Lake Street Elevated receipts, with the \$2 assessment added on to the price, sold at $3\frac{3}{4}$. A single sale of Northwestern Elevated common occurred at 17, and one transaction in the preferred at 45.

Other Traction Securities

All the Boston tractions have shared in the general market improvement of the week. Boston Elevated, on comparatively large transactions for that stock, rose from 139 to $140\frac{1}{2}$, West End common, from $92\frac{1}{2}$ to 93, and West End preferred, from $110\frac{1}{2}$ to $111\frac{1}{2}$. All these represented the highest quotations reached in a long while past. The Massachusetts Electric issues were more active, the common especially, which has lain dormant lately, rising from $19\frac{1}{4}$ to $20\frac{1}{2}$. The preferred sold as high as 75 and as low as $74\frac{3}{8}$. No sales occurred in United Railways of Baltimore stock during the week, but the bonds were fairly active, the incomes changing hands between 53 and $52\frac{3}{4}$, and the general 4s between 90 and $90\frac{1}{4}$. Lexington Street Railway 5s were a feature of the Baltimore dealings, advancing nearly four points, from $96\frac{1}{2}$ to 100. The move seemed to be entirely speculative. Norfolk Street Railway 5s gained a half-point, from 106 to $106\frac{1}{2}$. Charles-

ton Consolidated 5s sold at 85, Atlanta Street Railway 5s at 106, Anacostia & Potomac 5s at 96, City & Suburban of Baltimore 5s at 113½, and 50 shares of Consolidated Traction stock at 72½. On the New York curb, Interborough Rapid Transit again monopolized the interest so far as the traction group was concerned. The stock declined from 110½ to 108¾ on sales of 800 shares, after which 500 shares sold on a recovery to 109. New Orleans common sold at 9½, and 350 shares of the preferred from 30 down to 27 and back to 27¾. Two small lots of American Light & Traction sold, one at 47 and the other at 49¼. Nassau Electric 4s declined from 79¼ to 78½.

Speculation in Miami & Erie Canal continued strong in Cincinnati last week. Over 1000 shares of the stock changed hands at 1¾ to 2½, the closing price being 2. Five thousand dollars worth of the 5 per cent bonds sold at 30. Cincinnati, Newport & Covington preferred sold at 85½ and the common at 30½, the demand falling off considerably from previous weeks. Cincinnati Street Railway advanced to 183, the highest in many months. Detroit United sold off to 64½ on several small sales. Twenty-two thousand dollars worth of Cincinnati, Covington & Newport first 5s sold at 109, and \$19,000 worth of Cincinnati, Dayton & Toledo 5s at 81½, the latter selling in small lots.

At Cleveland, Cleveland Electric was active at 75, sales being about 300 shares. Northern Texas Traction sold at 32¾, a slight increase over previous figures. Northern Ohio Traction declined a trifle during the week and the last sale was at 143¼, total sales, 300 shares. Northern Ohio Traction & Light 4s sold at 55¾, a trifle lower than previous mark.

Security Quotations

The following table shows the present bid quotations for the leading traction stock, and the active bonds, as compared with last week:

	Closing	Bid
	April 5	April 12
American Railways	43	43
Aurora, Elgin & Chicago (preferred).....	—	a55
Boston Elevated	139	140
Brooklyn Rapid Transit	44¼	46¾
Chicago City	—	100
Chicago Union Traction (common)	5	5½
Chicago Union Traction (preferred)	30	30½
Cleveland Electric	72½	74¾
Consolidated Traction of New Jersey	62	63
Consolidated Traction of New Jersey 5s.....	105	105
Detroit United	64	64
Interborough Rapid Transit	109	108
Lake Shore Electric (preferred)	—	—
Lake Street Elevated	11½	3½
Manhattan Railway	142	142¾
Massachusetts Electric Cos. (common).....	19	20¼
Massachusetts Electric Cos. (preferred)	74	75
Metropolitan Elevated, Chicago (common)	a17	15
Metropolitan Elevated, Chicago (preferred)	48	45
Metropolitan Street	113¼	115½
Metropolitan Securities	80	80
New Orleans Railways (common).....	8½	9½
New Orleans Railways (preferred)	29	28
New Orleans Railways 4½s.....	a78	74
North American	84½	85
Northern Ohio Traction & Light.....	14½	13
Philadelphia Company (common)	*38¾	38¾
Philadelphia Rapid Transit	13¾	13¾
Philadelphia Traction	95¼	95¾
St. Louis (common).....	11	11½
South Side Elevated (Chicago)	90	91½
Third Avenue	120	120½
Twin City, Minneapolis (common)	91	93¼
Union Traction (Philadelphia)	49½	49½
United Railways, St. Louis (preferred)	52	53
West End (common)	92½	92
West End (preferred)	110¾	111½

a Asked. * Ex-dividend.

Iron and Steel

No particular developments are to be noted in the iron trade during the past week. The only important item of news was the announcement that the Steel Corporation had delayed for the time being any further purchases of raw material—action which was construed in some quarters as not reflecting entire assurance over the pig iron outlook. Nevertheless, pig iron prices have held firm. More activity is reported in structural shapes, and the bar trade is flourishing. The ending of the bricklayers' strike in this city removes all fear of a general tie-up in the buildings in-

dustry, such as wrought such havoc with the steel business last summer. This, of course, is a highly encouraging incident. Quotations are as follows: Bessemer pig iron, \$13.85; Bessemer steel, \$23, and steel rails, \$28.

Metals

Quotations for the leading metals are as follows: Copper 13¾ to 13½ cents, tin 28 cents, lead 45½ cents, and spelter 5¼ cents.

AGREEMENT BETWEEN THE GENERAL ELECTRIC COMPANY AND THE ALLGEMEINE ELECTRICITÄTS GESELLSCHAFT

At a special meeting of the stockholders of the Allgemeine Elektrizitäts Gesellschaft, held in Berlin, Feb. 27, to consider the amalgamation of that company with the Union Elektrizitäts Gesellschaft, a report was submitted by the chairman outlining the relations to be established between the consolidated company and the General Electric Company, of America, and its other affiliated companies in Europe, such as the French and Mediterranean Thomson-Houston Companies, the Austrian and Russian Union Elektrizitäts Gesellschaften and the Union Electrique, of Brussels. The element which unites all of the companies of this vast group is the interchange of patents and experience.

Under the new agreement the territories of the Allgemeine Elektrizitäts Gesellschaft and the General Electric Company and its branch companies are defined as follows:

The exclusive territory of the General Electric Company comprises the United States of America and Canada, that of the A. E. G. Germany, including Luxembourg, Austria-Hungary, Russia in Europe and in Asia, Finland, Holland, Belgium, Sweden, Norway, Denmark, Switzerland, Turkey and the Balkan States. With regard to the territories of the various branch companies in Europe, separate agreements have been made. For the other continents, including South America, a joint working of the two large concerns is proposed, an arrangement which will no doubt result in a profitable joint undertaking. The subject of the Italian territory will be considered a little later on. The present condition of affairs will hold good in Spain and also in Greece.

The General Electric Company and the A. E. G. will form a company, with a capital of 3,000,000 marks, for the exploitation of the Riedler-Stumpf and the Curtis steam turbine patents in the territory of the A. E. G. In this combination the Curtis patents are valued at 1,800,000 marks and the Riedler-Stumpf patents at 1,200,000 marks. The A. E. G. has secured a license to supply all non-European countries with this turbine, with the exception of the United States and Canada. In these latter countries the General Electric Company has secured the Riedler-Stumpf rights.

The rights for the use of the Curtis patents for marine engines have been secured by the International Curtis Marine Turbine Company. This company has given a license to the A. E. G. for its European territory, while the A. E. G. has allowed the Marine Turbine Company to use the Riedler-Stumpf patents for its marine work.

For the purpose of working the steam turbine patents of Professors Riedler and Stumpf, the A. E. G. has formed a "Company for the Introduction of Inventions, Ltd." The patents have now passed into the possession of the Vereinigte Dampfturbinen Gesellschaft, and in the United States in the hands of the General Electric Company, the marine having been secured by the Marine Turbine Companies, and the inventors, Messrs. Riedler & Stumpf, derive part of the profits from the facilities granted to the A. E. G.

A similar contract as that concluded with the General Electric Company has been made with the British Thomson-Houston Company for the export trade. Various additional rights have been granted to the British company, such as a financial participation in the branch companies of the A. E. G. and of a company which may eventually be formed in Great Britain for the manufacture of Nernst lamps. The A. E. G. reserves also the right to also supply turbines in addition to other manufactures.

Similarly to the relations with the British company there also exists an exchange of patents and experience with the French Thomson-Houston Company. The A. E. G. will restrict its French establishment to the sale of its manufactures in France, and will supply engines and steam turbines to the French company only. This company has secured the option to draw shares of the Soc. Française d'Electricité A. E. G. up to a certain amount. On the other hand, the French Thomson-Houston Company guarantees to the A. E. G. a demand of dynamos in proportion with the turnover of apparatus up to the present time.

From the various agreements the A. E. G. will commence immediately to form the following companies:

(1) A company for the manufacture of turbines, turbo-generators and accessory apparatus. The Allgemeine Dampf-Turbinen Gesellschaft is to be equipped with a share capital of 5,000,000 marks, to be paid in as required. The shares are subscribed for by the A. E. G. For the establishment of a factory it is proposed to use the land, buildings and plant of the U. E. G., the working of which has been absorbed by the A. E. G. The above-mentioned real estate will be left to the Allgemeine Dampf-Turbinen Gesellschaft for a number of years, with the option of its purchase outright. The technical management will be in the hands of Dir. Lasche, who up to the present has been looking after the turbine construction work of the A. E. G.

(2) The above-mentioned Turbine License Company. This company has already been formed under the name of Vereinigte Dampfturbinen Gesellschaft M. B. H. (United Steam Turbine Company, Ltd.).

(3) An Italian company, with a capital of 6,000,000 lire. To this company will be transferred the organizations of the A. E. G. and the Thomson-Houston Company, as well as the Italian turbine patents of the entire group.

(4) An arrangement somewhat similar to that existing between the A. E. G. and the U. E. G. has been arrived at between the Société Belge d'Electricité A. E. G. and the Union Electricque in Brussels. A formal amalgamation of these two companies may take place in the future.

Although the expense in connection with the companies enumerated, the purchase of patents and the sums advanced represent a considerable amount, this is still further increased by the taking over of the shares of the Austrian U. E. G. in which the Berlin U. E. G. is largely interested, and which for this reason and also for the purpose of establishing suitable works in Austria it seemed desirable entirely to re-organize.

The report then cites the financial arrangements which have been made to obtain the necessary capital to carry out the program outlined, which includes the transfer of the property of the U. E. G. to the A. E. G. in return for the sum of 6,500,000 marks in new A. E. G. stock which a syndicate has agreed to purchase at the rate of 210 per cent, giving a cash fund of 13,650,000 marks. There would then be a liquidation of the U. E. G. by the issue of an exchange of shares for A. G. E. shares in the proportion established by the joint interest understanding, viz., 3:2.

The report also states that the A. E. G. has procured control of Brown, Boveri & Company, of Baden, by the purchase of shares to the amount of four and a half million marks, secured by the issue of three and half million marks worth of certificates of new shares of the A. E. G. The Brown, Boveri Company, however, will continue to work independently and under the same management as at present.

ANNUAL REPORT OF METROPOLITAN WEST SIDE ELEVATED, CHICAGO

The annual statement of the Metropolitan Elevated Railway Company for the fiscal year ending Feb. 29, 1904, shows a surplus of \$216,100, which is equal to 2½ per cent of the preferred stock. No dividends were paid on the preferred last year, enabling the company to extinguish the floating debt. In the directorate R. Somers Hayes was succeeded by C.H. Requa. B. L. Smith and F. L. Higginson, Jr., were re-elected. Among other things, President MacAllister, in presenting his report, said:

"A new coal handling plant has been constructed at Forty-Sixth Avenue on the Garfield Park line, in place of the old apparatus which had become inadequate to the needs of the company. This plant will greatly facilitate and economize the handling of fuel for the power house and stations, and furnish much needed storage room for a reserve supply.

"Some progress has been made in the construction of the new terminal station at Fifth Avenue, between Van Buren Street and Jackson Boulevard. The work has been retarded on account of inability to get possession of the property on Franklin Street; also by delay in the receipt of material. The improvement will be completed during the summer, and in ample time for the heavy fall and winter traffic. The board of directors realizes that this station is very much needed, as our service has not been satisfactory during the 'rush hours' for the past two years, and no material relief can be had until the new terminal station is in operation.

"The increase in traffic has been fairly satisfactory during the year, and was particularly gratifying at the stations which were put in operation last year, on the extension of the Douglas Park line. On account of the closing of the theaters on Jan. 2, 1904, and during the time they were closed, this company lost considerable traffic. The traffic delivered to your company by the

Aurora, Elgin & Chicago Railway has shown a satisfactory increase during the year, partially due to that company having put in operation on May 26, 1903, a branch line from Wheaton to Elgin, Ill., thus opening additional territory.

"The operating expenses were comparatively high for the year, due to increase in cost of supplies, fuel and labor, wages having been materially increased March 15, 1903, by decision of a board of arbitration. Although the increased wages continued throughout the year, other expenses decreased during the latter part of the year, and the result has been much more satisfactory than for the first part.

"The board of directors, in view of improvements made during the year, and those contemplated, and in view of present general financial conditions forbidding sale of bonds on terms that could be considered, deemed it wise to pass the dividend for the fiscal year."

The comparative statement for two years follows:

	1904	1903
Passenger earnings	\$2,065,701	\$1,976,326
Miscellaneous earnings	81,453	63,679
Total earnings	\$2,147,154	\$2,040,005
OPERATING EXPENSES		
Maintenance of way and works.....	\$64,330	\$55,306
Maintenance of equipment	149,022	137,119
Conducting transportation	726,790	670,738
General expenses	102,196	89,544
Total expenses	\$1,042,338	\$952,707
Net earnings from operation	1,104,816	1,087,298
Other income	6,030	9,524
Net income	\$1,110,846	\$1,096,822
CHARGES		
Interest on bonds	\$474,353	\$454,619
Rental Pennsylvania Company	11,900	11,900
Other rental	20,351	20,351
Loop rental	207,258	198,054
Taxes	139,533	140,870
Total charges	\$853,395	\$825,794
Balance	257,451	271,028
Preferred dividends	261,243
Old claims	41,350	30,767
Surplus for year	\$216,101	*\$20,932
Add surplus previous year	10,856	31,838
Total surplus Feb. 29.....	\$226,957	\$10,855
*Deficit.		
The balance sheet compares:		
Assets—	1904	1903
Cost of road and equipment	\$29,249,758	\$28,988,401
Metropolitan West Side Elevated railway preferred capital stock in treasury (2,919 shares)	291,900	291,900
Metropolitan West Side Elevated railway first mortgage 4 per cent bonds in treasury	192,000	192,000
Securities on hand	4,124
Material and fuel on hand	66,061	37,573
Accounts receivable	86,116	98,954
Trustee, extension 4 per cent bonds	1,860	76,538
Cash	221,714	298,173
Totals	\$30,109,409	\$29,955,573
CREDIT BALANCES		
Liabilities—		
Capital stock, preferred	\$9,000,000	\$9,000,000
Capital stock, common	7,500,000	7,500,000
First mortgage 4 per cent bonds	10,000,000	10,000,000
Extension 4 per cent bonds	3,000,000	3,000,000
Coupons unpaid	32,720
Interest accrued, not due	52,693	45,843
Taxes accrued, not due	117,779	120,676
Dividends due	130,700
Accounts payable	205,332	81,458
Reserve fund for replacement of property.....	6,648	2,933
Balance, profit and loss	226,957
Totals	\$30,109,409	\$29,955,573

MAYOR HARRISON ON MUNICIPAL OWNERSHIP

Mayor Harrison of Chicago says regarding the ownership of street railways by the city of Chicago: "Municipal ownership in our present financial condition is impossible. We have no money to take over these traction interests, and even if we had the companies would not sell them to us. I would like some of these people who have been so insistent for municipal ownership to come to the front and tell us how it is to be done."

CAR HOUSE BURNED AT BUFFALO

The car houses of the International Traction Company, of Buffalo, N. Y., in Main Street, burned with a fury that the firemen could not abate Tuesday morning, April 12. The houses and between thirty-five and forty cars were destroyed. The loss is placed at \$200,000, fully covered by insurance. How the fire started has not been ascertained. There are some indications that it was of incendiary origin. It began in the paint shop, in the Main Street end of the building, which was of wood, and the wind, blowing from the west, rapidly carried it to the other end at Jefferson Street. Many of the cars destroyed were practically new and were of the summer type.

OHIO ASSOCIATION TO MEET AT CLEVELAND.

President Harrie P. Clegg of the Ohio Interurban Railway Association announces that the second meeting of the association will be held at the Hollenden Hotel, Cleveland, Thursday, April 28. A very interesting and instructive programme will be prepared for this meeting, and it is hoped that the attendance will be very large.

J. H. Merrill, of the Western Ohio Railway, of Lima; F. W. Adams, of the Toledo, Fostoria & Findlay Railway, of Fostoria, and F. W. Coen, of the Lake Shore Electric Railway, of Cleveland, have been appointed transportation committee to effect an agreement with as many companies as possible for the use of the interchangeable coupon book which was adopted at the meeting held in Dayton last month. The form of book was described in the *STREET RAILWAY JOURNAL* of April 9. Companies desiring to become parties to the agreement or interested in the plan, are requested to correspond with the members of this committee at the earliest possible date. Thus far, thirteen leading Ohio roads have signed the agreement, and it is expected that a number of others will come in before the Cleveland meeting.

The officials of the association desire it to be understood that membership in the association will not be confined to the State of Ohio alone, but that representatives of all roads throughout the Central West are eligible for membership and to become parties to any agreement that may be made by the association. Already the association has members in Indiana, Michigan, Pennsylvania and West Virginia.

THE NEW YORK RAPID TRANSIT BILLS PASS

The two bills prepared by the Rapid Transit Commission of New York were passed by the Legislature last week and are now before the Governor. As they were hastened in their passage by an emergency message from the Governor, there is no doubt that they will receive his signature, Mayor McClellan's approval being a foregone conclusion. One of the bills makes minor but needed changes in the law. The other makes it possible to proceed at once with the construction of new rapid transit subways. It removes the limit of expenditure under the law, now standing at \$50,000,000, and enables the Rapid Transit Commission to lay out routes supplementary to those already adopted and to invite bids for their construction and operation.

THE STRIKE ON THE CAMDEN INTERSTATE RAILWAY

As far as the Camden Interstate Railway Company is concerned, the strike on its lines is over. As stated in the *STREET RAILWAY JOURNAL* of April 9, regular service has been given since April 1, and traffic now is normal. In order clearly to understand the situation, it is necessary to review the conditions from their beginning. It seems that the company had a contract with the men, whereby matters of difference arising between them should be submitted to arbitration. This agreement has been fully lived up to by the company, as the only matter of difference subject to arbitration was submitted to the board and is now pending before the arbitrators. The real cause of the strike was the discharge of two men for violating certain rules of the company. The union wanted these men reinstated. This the company refused to do, stating that its right to hire or discharge employees could not be abridged, as its success depended mainly on efficient and careful employees. As a result of this refusal of the company to meet the demands of the union the strike was declared on March 24.

The new 50-ton electric locomotive of the Cincinnati, Georgetown & Portsmouth Railway Company has been placed in service. This is the first electric locomotive to be used in the vicinity of Cincinnati. With a similar locomotive, which is expected to arrive soon, it will replace the steam locomotives now used in hauling freight.

FRANCHISE COMMISSION BILL IN OHIO

The bill to create a State public service board to grant franchises to city and interurban street railroad, gas, electric light, heat, power and water companies, has been introduced in the House at Columbus by Dr. Lefever, of Mountville.

The bill provides for a board of three members, to be appointed by the Governor, to have salaries of \$6,000 a year each. This board will exercise control over street railways, interurban railways, artificial gas, electric light, heat, power and water companies. In case of disagreement between public service corporations and City Councils or County Commissioners, with reference to franchise grants, appeal may be had to the new board within thirty days, and it shall have power to grant franchises, regulate fares and other charges and authorize the construction, maintenance, extension and operation of public service plants. In short, the determination of practically all the conditions under which quasi public corporations are to operate in the municipalities will, by the terms of the bill, be placed in the hands of a State created commission of three members with absolute powers. Perhaps the paramount issue in the bill is the proposition to give the board power to regulate and fix street and suburban railway fares.

THE NEAR-SIDE ORDINANCE IN NEW YORK

The advocates of the present near-side ordinance in New York received a set back last week when President Fornes, of the Board of Aldermen, who is advocating its repeal, made public a letter from President Vreeland, of the New York City Railway Company, stating that the change had not diminished accidents. The letter also said:

During the past ten years, since I have been in charge of the operation of street railroads in this city, the proposition of establishing the so-called "near-side" stop has very frequently been brought up, and I have always constantly opposed it, because I knew that all the attempts to establish it in other cities have been received with dissatisfaction by the traveling public.

As you know, I had no part in securing the passage of the ordinance under which it was recently inaugurated. The city officials and a considerable number of citizens seemed to desire to give it a trial and I offered to co-operate. You are as well able to judge as I of how much it has been appreciated by the public.

Largely as a result of this letter, the Board of Aldermen voted on April 13 to repeal the ordinance. If signed by the Mayor, as there is no doubt it will be, the old condition of affairs will be resumed.

THE "JIM CROW" LAW AT RICHMOND

Owing to the trouble the Virginia Passenger & Power Company, of Richmond, Va., has been having with people who insist on expectorating in cars, the company is having copies of the State law covering this offense printed to put up in all cars. The law giving conductors the authority to seat passengers is also being printed to be put up in all cars. As soon as posted, probably by April 15, both laws will be rigidly enforced.

The following is the seating law as passed by the last Legislature, and which will be rigidly enforced:

NOTICE TO THE PUBLIC

The conductor of this car is authorized by law to separate white and colored passengers and to designate the portions of this car, or the seats therein, which may be occupied by white passengers, and which may be occupied by colored passengers, and to change such designation from time to time, and to require any passenger to change his or her seat when and as often as he may deem necessary and proper.

Any person failing or refusing to obey the direction of the conductor is liable to a fine of \$25, and may be also ejected from the car for such refusal.

The conductor and motorman of this car are made by law special policemen while on duty.

(See Secs. 41-47 of chapter 4 of an act concerning public service corporations, approved Jan. 18, 1904, acts of Assembly, extra session, 1902-3-4, pp. 990-91.)

In accordance with this act white passengers will occupy seats in the forward portion of the car, and colored passengers will occupy seats in rear.

In open cars the two extreme rear seats are for smokers.

The following is the State and anti-expectorating law, which will be posted and enforced at the same time:

Chapter 595—An act to prohibit expectorating or spitting on any part of any car or coach owned or operated by any urban, suburban or interurban electric railway, etc.

1. Be it enacted by the general Assembly of Virginia, that it shall be unlawful for any person to expectorate or spit on any part of any car or coach owned or operated by any urban, suburban or interurban electric railway in this State, and that any person violating the provisions of this act shall be deemed guilty of a misdemeanor, and, upon conviction thereof, shall be fined not less than \$1 nor more than \$10 for each offense.

2. All corporations, person or persons owning or operating in this State any urban, suburban or interurban electric railway shall post in their cars or coaches, in some prominent place, printed in large type, a copy of this act.

3. This act shall be in force from and after its passage.

A QUICK-ACTION BRAKE FOR STREET CARS

A patent was recently granted to Wm. S. Howland, of Jamaica, Long Island, N. Y., for the invention of a system of mechanical car braking that involves novel features, departing radically from the usual hand brake system. In general principle this system has much in common with the automatic air-brake system, in that mechanical pressure is held in reserve, which may be released gradually or instantaneously for applying the brakes.

In this system the brake-shoes are hung with spring pressure applied so as to hold them normally against the wheels for full braking effect. For operation of the car the brake-shoe pressure is released by means of the usual form of brake handle, the normal use of which is here, however, to pull the brake-shoes off of the wheels by compressing the pressure springs. In this way it may be seen that any accident to the brake rigging will release the spring pressure and throw the brakes full on, tending to quickly stop the car.

The method of holding the brake-shoes normally against the wheels is that of using a system of springs acting through the usual equalizing levers of the brake system beneath the car. These springs are drawn into compression in removing the shoes from the wheels, and the system is held in this position by the latch on the motorman's brake-shaft upon the platform; when it is desired to apply the brakes this latch is merely released, when the shaft may be allowed to unwind to let the brakes go on with full or part force, as required. In this way the brakes may be released at leisure, or instantly with full force, in emergency.

In addition to this an emergency system of brakes is added by another similar system of heavier and stiffer springs acting through a separate equalizing lever, so that when released it serves to throw added spring pressure upon the brake-shoe system. This emergency brake is applied and released in a manner similar to that used for the main brakes, a separate brake-handle being located upon the platform for it.

This system has many of the advantages of the automatic air brake in that power is always held in reserve when running and can be instantly applied when necessary, the release being accomplished at leisure, and moreover that any accident to the system tends to throw on full braking pressure. The inventor is a practical man of long experience in street railway work, and is now connected with the Long Island Electric Railway, at Jamaica, N. Y.

A PLAUSIBLE IMPOSTOR

A correspondent from Chattanooga writes that a person, who is undoubtedly the impostor exposed in the *STREET RAILWAY JOURNAL* for Jan. 4 and March 29, 1902, recently swindled a number of persons in that city—as well as in Richmond, Va. This time he is representing himself to be Wm. F. Campbell, of the house of Wm. Campbell & Co., Toronto, large importers of shellac, and owners of a secret formula for cutting shellac. It is needless to say that this claim is used only to secure money from his victim. The impostor usually represents himself to be either an Englishman or a Canadian, is about 5 ft. 7 ins. in height and from 30 to 35 years of age, weighs about 130 lbs., has iron-gray hair and is smooth shaven. He can also be recognized by his front teeth, which are very prominent and somewhat irregular and discolored.

SOME RECENT BABCOCK & WILCOX INSTALLATIONS IN EUROPE

A late computation shows that throughout the world the total horse-power of the Babcock & Wilcox make of boiler now in use reaches 4,500,000, and that many of the latest electric power stations in Europe are equipped with this type of steam generator. Thus in 1900 the city of Vienna placed an order for thirty-two Babcock & Wilcox boilers, each of 300 sq. meters heating surface, and capable, with the engines in use, of developing 600 to 650 ihp each; and in the same year the Midland Electric Power Corporation, of Great Britain, placed an order for eight of these boilers, each having 4780 sq. ft. of heating surface, or having an approximate capacity of about 1000 ihp. The city of Manchester next placed, in 1901 and 1902, some notable orders for these boilers for its municipal power station, aggregating fifty-one boilers, viz: four for Dickenson Street, having 3140 sq. ft. of heating surface; eleven for Bloom Street, having 5140 sq. ft. of heating surface, and thirty-six boilers for Stuart Street, twenty-four each with 3580 sq. ft., and twelve each with 5730 sq. ft. of heating surface.

Then came the largest boiler order of modern times, placed

with the English company by the Metropolitan & District Electric Traction Company, Ltd., for its great Chelsea Power Station, consisting of sixty-four boilers, each of 5200 sq. ft. of heating surface, into which are being fitted 128 of the company's chain-grate stokers. This order as a whole undoubtedly holds the record for both boilers and stokers. After this it seems insignificant to speak of the order placed by the Japanese Imperial Navy for twelve boilers, each of 4394 sq. ft., for its arsenal and steel works, and of the eighteen boilers, each of 3140 sq. ft. of heating surface, for Bolckow Vaughan & Company's steel works, and the ten boilers for the Carville power station, each of 4500 sq. ft. of heating surface, or the twenty B. & W. boilers for the Paris Metropolitan Electricity Works. The steam turbines here represent 20,000 kw, and the boilers are of the company's marine type, with mechanical stokers, superheaters and economizers.

Among great power undertakings the boiler is also greatly in evidence. Thus the Newcastle-on-Tyne Electric Supply Company has already been referred to, partly in connection with its Carville station, and its works at Neptune Bank there are ten Babcock & Wilcox boilers, eight each of 4020 sq. ft. heating surface, and two of 4780 sq. ft. heating surface. The Midland Power Company has already been referred to.

The North Metropolitan Electrical Power Company has six boilers, with superheaters and chain-grate stokers, each of 4400 sq. ft. heating surface. The Yorkshire Electrical Power Company has also six, each with a capacity of 20,000 lbs. evaporation per hour, while the Lancashire Electric Power Company have six, of equal capacity. The Clyde Valley Electrical Power Company has ordered sixteen, each of 4400 sq. ft. heating surface. The Bankside Electricity Works has forty-five; the Chelsea Electricity Supply Company twenty-two; the Central London Electric Railway sixteen; the County of London & Brush Company thirty-six; the Dublin United Tramways twelve; the Glasgow Corporation thirty-six; the Islington Electricity Works, with ten, etc. The London United Tramways have eleven; the London Electric Supply Corporation eighteen; the Leeds Electricity Works twelve; the Metropolitan Electric Supply Company sixty-four; the Metropolitan Railway Company ten; the West Ham Electricity Works seventeen, and the Westminster Electric Supply Company seventeen, without referring to any other of the 200 electricity works in the United Kingdom alone.

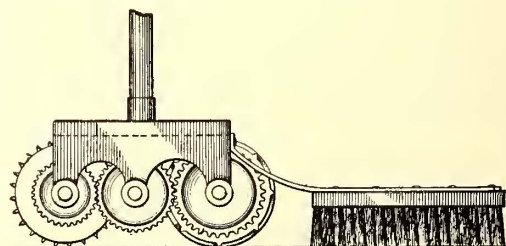
Babcock & Wilcox, Ltd., of London, have also supplied a very large number of boilers for the navies of the United States, Great Britain, Japan, and other countries, and are now building at their Renfrew works boilers having 8000 sq. ft. of heating surface. These may be relied upon to give upwards of 1500-hp as an ordinary working load in conjunction with the modern high-class condensing engines now manufactured, while their overload steaming capacity is known to be considerable.

STREET RAILWAY PATENTS

[This department is conducted by W. A. Rosenbaum, patent attorney, Room No. 1203-7 Nassau-Beekman Building, New York.]

UNITED STATES PATENTS ISSUED APRIL 5, 1904

756,288. Flexible Sliding Panel or Front for Articles of Furniture or Other Purposes; Hermann Romunder, Milwaukee, Wis. App. filed Jan. 12, 1904. The panel or front is made up principally of wood-veneer plates, the grain of alternate layers being reversed.



PATENT NO. 756,502

756,316. Electromagnetic Railway Switch; Rollin A. Baldwin, South Norwalk, Conn. App. filed Dec. 18, 1902. A single armature is acted upon by two solenoids to throw the switch in opposite directions and cut-outs automatically throw the current into the proper solenoid and hold it there until the solenoid has done its work.

756,411. Car Fender; Albert G. Roberts, Peterborough, Can. App. filed Aug. 17, 1903. Details of construction of that type of fender in which the fender is hung under the car and thrown to

operative position when a swinging gate mounted in advance thereof encounters an obstruction.

756,502. Mechanism for Removing Ice from Electric Conductors; Benjamin J. Jewett, Brooklyn, N. Y. App. filed Oct. 29, 1903. Two rotary cutters and a driving wheel mounted in a frame, gears connecting the driving wheel with the cutters and a brush attached to the frame and trailing behind the cutters.

756,523. Automatic Power Cut-Out for Electric Railways; Harry F. Pieper, New York, N. Y. App. filed Jan. 5, 1904. Circuits and apparatus so arranged that a car on a block using either power current or lamp current will prevent another car from entering the same block from behind, by taking current therefrom.

756,547. Trolley Pole; Edwin A. Wakefield and George W. Morse, Mechanic Falls, Maine. App. filed Dec. 18, 1903. Mechanism whereby the pole is lowered in case it rises above the wire.

756,550. Trolley; Charles M. Wilson, St. Louis, Mo. App. filed Feb. 18, 1904. A spirally-grooved trolley wheel in which the spirals are so arranged as to conduct the wire when displaced back to the center.

756,579. Emergency Brake; George E. Carnes, St. Louis, Mo. App. filed March 23, 1903. Details of construction.

756,757. Third-Rail Electric Railway System; John D. Wilkins, Chicago, Ill. App. filed July 24, 1903. A third-rail covering consisting of a string piece made in two longitudinal sections bolted together.

PERSONAL MENTION

MR. W. T. COOKE has resigned as superintendent of motive power of the St. Louis Transit Company, of St. Louis, Mo. His successor has not yet been announced.

MR. C. P. WILSON, formerly chief steam engineer of the Chicago City Railway Company, has recently taken a similar position with the East St. Louis & Suburban Railway Company.

MR. H. CHAPMAN, of the Montreal Street Railway, of Montreal, Que., has been appointed superintendent of construction of that company to succeed the late Mr. Vinden, who died some weeks ago.

MR. C. H. TAYLOR has retired as treasurer of the Northern Texas Traction Company, of Fort Worth, Tex. Mr. Taylor will be succeeded by Mr. Geo. F. Clifford, who has been cashier of the company.

MR. W. RUTHERFORD, general manager of Dick, Kerr & Company, Ltd., of London, is spending a few days in New York. Mr. Rutherford's visit is purely for pleasure and recreation. He expects to visit Canada before his return to England.

MR. C. A. DENMAN has resigned the superintendency of the Richmond Street & Interurban Railway Company, of Richmond, Ind., and has been succeeded by Mr. Albert Gordon, formerly connected with the Lafayette Street Railway, of Lafayette, Ind. Mr. Denman will go into the telephone business in the South.

MR. GUY L. FAIRBROTHER has resigned as superintendent of the Rutland Street Railway Company, of Rutland, Vt. His resignation took effect April 1. Mr. Fairbrother says he has made no plans for the future. Mr. M. P. Jones, formerly superintendent of the Norfolk Street Railway Company, of Norfolk, Va., has been appointed to succeed Mr. Fairbrother.

MR. GEORGE M. HOADLEY, who has been connected with the Bemis Car Truck Company for more than twenty years, has just severed his connection with that company and will represent the Peckham Manufacturing Company in the Southern territory. Mr. Hoadley, through his long experience, is recognized to be one of the best-posted men on electric railway trucks in the country, and the Peckham Company is to be congratulated on having secured his services.

MR. S. E. ROBB has resigned as vice-president and a director of the Galesburg & Kewanee Railway Company. His place has been filled by the election of Mr. Frank M. Lay, who is the manager of the Boss Manufacturing Company, of Kewanee and Galesburg. The company has announced that a number of improvements will be made soon, among which will be the completion of the line to Galva, the grading for which has already been completed. The company will also build the west end extension to the Kewanee Boiler Company's factory.

MR. A. B. DUPONT, retiring vice-president and general manager of the St. Louis Transit Company, was the guest of honor at a banquet tendered him at the Mercantile Club of St. Louis,

on Saturday, April 9, by his fellow associates of the company. The dinner was quite elaborate, the menus being done in leather and carrying a picture of the guest of honor and of one of the recently purchased street cars. In speaking of his plans for the future, Mr. DuPont said that he and Mrs. DuPont would go to Detroit for a month and then spend several months in Europe. After returning from Europe Mr. DuPont expects to locate permanently in St. Louis.

MR. A. D. SCHINDLER, formerly division superintendent of the Santa Fe Railroad between San Francisco and Bakersfield, Cal., has been appointed general manager of the Pacific Electric Railway Company, of Los Angeles, to succeed Mr. Epes Randolph, who will in the future devote most of his time to his Arizona interests. Mr. Schindler is a young man. He was born in the Middle West and served as a civil engineer with the Southern Pacific Railroad. Resigning from this position, he entered the engineering department of the United States Government along the Pacific Coast, and finally became associated with the construction of the San Francisco & San Joaquin Valley Railroad, which is now a division of the Santa Fe. He was appointed superintendent of that division at the time it was turned over to the system in the spring of 1900.

MR. H. A. WALDRON, assistant superintendent of the Chicago & Joliet Electric Railway, has resigned to become superintendent of the Urbana & Champaign Electric Street Railway at Champaign, Ill. Mr. Waldron has been in railway work for six years. When a mere boy he entered the employ of the Springfield (O.) Electric Light & Power Company, but soon left the company to return to school. His next business connection was with the Springfield (O.) Street Railway Company, where he was rapidly promoted until he came to Willow Springs, Ill., as chief clerk and paymaster of the Dupage Construction Company, building the Chicago division of the Chicago & Joliet Electric Railway Company. He remained with this company until it completed its contract, and was then placed in charge of the operation of the road. In March, 1902, Mr. Waldron was appointed assistant superintendent of the entire system of the Chicago & Joliet Electric Railway Company.

MR. JAMES W. HINKLEY, president of the United States Casualty Company and president of the Walker Company, of Cleveland, before its absorption by the Westinghouse Company, died suddenly Monday, April 11, at his home, Eden Hill, Poughkeepsie, N. Y., of apoplexy. Mr. Hinkley was born in 1850 in Port Jackson, Clinton County, N. Y., and was educated at the Smith and Converse Academy and at the West Point Military Academy. Subsequently he removed to Poughkeepsie and became owner of The News Press. Later he purchased and assumed editorial control of The New York Daily Graphic. This connection brought him in contact with prominent men of each of the political parties, but particularly with the leaders of the Democratic party in New York, and he soon took an active interest in the work of the party. At the time of his death he was president of the Poughkeepsie City & Wappingers Falls Electric Railway Company, a director of the Poughkeepsie Trust Company, and of several New York banks. He is survived by his wife and eleven children.

MR. JOHN SCULLIN, who before the consolidation of the traction interests of St. Louis was connected with the Union Depot Company of that city, has been appointed director of transportation of the Louisiana Purchase Exposition. He will succeed Mr. George W. Ristine, who resigned last October, and whose duties have in the interval been performed by Mr. C. L. Hilleary, the traffic manager. Mr. Scullin, as director, is made the chief of operation of Exposition transportation within the grounds, and will also have jurisdiction over the intramural railway and its superintendent, as well as the superintendent of terminals, both of whom will report to him. The entire system of handling freight, exhibits and passengers on the site will be in his hands. He also will manage the Exposition's interest in the General Service Company. The superintendent of terminals is Mr. G. M. Carson, but there is at present no superintendent of the intramural railway. Some time ago the traffic manager of the intramural released his control, and it was turned over to President Francis. Mr. Scullin is one of the foremost railroad builders and managers in the West. He began as a contractor, doing much of the early work on Texas and other Southwestern systems. Later he entered the street railway field in St. Louis, building and managing for many years the Union Depot system, which was sold to the United Railways Company when the consolidated system was formed. Mr. Scullin was one of the owners of the St. Louis, Kansas City & Colorado line when it was sold to the Rock Island. He also built and is largely interested in the St. Louis & Northern Arkansas Railroad.

NEWS OF THE WEEK

CONSTRUCTION NOTES

ALAMEDA, CAL.—At a meeting of the West End Alameda Improvement Association April 1, City Trustee William M. Bowers stated that he had received the assurance from Manager Julius Kruttschnitt of the Southern Pacific Company in an interview a day or two before that an electric service to replace steam roads is to be installed for the suburban system, taking in the lines in this city and Oakland. "I asked Mr. Kruttschnitt," said Mr. Bowers, "why work was not proceeding on the construction of the \$150,000 depot at the Alameda. He stated that the company was about to install an electric service, which had necessitated a change in the plans for the new depot, but that work would proceed in a short time. He informed me that the railroad officials felt that a change to electricity as a motive power was a necessity, and that the plans were now in the hands of the engineers."

LOS ANGELES, CAL.—The City Council has voted to advertise for sale an electric franchise along West Eleventh Street, upon petition of property-owners along the way, and has furthermore stipulated that the minimum price shall be \$2,500.

LOS ANGELES, CAL.—Present plans seem to indicate that the Pacific Electric Railway will extend its line from Long Beach, now constructed nearly to Anaheim Landing, along the coast to a point where it will meet the Southern Pacific line from Smeltzer Station to Santa Ana. At this point the electric line will operate over the steam track to Newport Beach and Santa Ana. This will give excellent service to Newport, the popular seaside resort of Orange County, in which Mr. Huntington is interested.

LOS ANGELES, CAL.—The Los Angeles-Pacific Railroad Company is ready to go ahead with its proposed loop line, extending from the Soldiers' Home, near Sawtelle, to Santa Monica canyon. It is the company's intention to swing the line west along the Santa Monica bluffs, from the canyon to a connection with the main road. This road will open for settlement, with first-class transportation facilities, a large portion of the great Jones-Baker ranch, which is controlled by the company. The line will be double-tracked and built for high speed.

OAKLAND, CAL.—The Oakland Transit Consolidated has purchased from J. H. Macdonald the franchises for the street railroad connections in East Oakland known as the Fourth Avenue cut-off.

SAN DIEGO, CAL.—Through the Title Insurance & Trust Company, of Los Angeles, D. J. Kelley has filed the appropriation of 25,000 miners' inches of water from the San Luis Rey River to be used at Potrero, just below Warner's ranch. Kelley is reported to have made the filing in the interests of H. E. Huntington for the development of power for the electric railway from Los Angeles to San Diego.

WASHINGTON, D. C.—The Senate Committee on the District of Columbia has ordered a favorable report on Senate bill 2833, to authorize the extension, construction and operation of the Great Falls Old Dominion Railroad into the District. The bill proposes to allow the company to come into the District from the northern terminus of the aqueduct bridge and run eastwardly to the union station, and thence to the northeastern part of the District. Before the company shall have the right to lay its tracks in Bladensburg road between Maryland Avenue and Mount Olivet Cemetery the road shall be widened, without expense to the District of Columbia, to a width of 90 ft. between building lines. The terms on which there shall be a division of expense between the new company and the Capital Traction Company in the use of the tracks of the latter are prescribed.

LEWISTON, IDAHO.—Judson Spofford and associates have asked the City Council of Lewiston for a franchise to be granted the petitioners to operate and maintain an electric street railway over the streets and alleys of the city. A copy of the proposed franchise was submitted, showing the streets to be operated on, the line circling the city for 6 miles. The franchise provides that in good faith rail shall be laid within one year, and at least 2 miles shall be built and in operation by Dec. 31, 1905. The franchise is to run twenty-five years. The petitioners represent the Lewiston & South-eastern Electric Railway Company, which has completed a survey and is now ready to promote the building of an electric railway between Lewiston and Grangeville, with a branch line running to Nez Perce.

BELLEVILLE, ILL.—President John R. Piercy and General Manager Isaae R. Smith, of the Southern Illinois Electric Railway Company, with headquarters at Mount Vernon, Ill., were in Belleville March 29. The company claims to have obtained franchises in all of the cities along the right of way. The line is to be built from Salem, in Marion County, to Belleville, where it will connect with the East St. Louis & Suburban Railway.

EDWARDSVILLE, ILL.—Preliminary work on the St. Louis division of the Decatur, Springfield & St. Louis Electric Railway, an interurban line which will connect many places through the central portion of Illinois, will be resumed at once. The company has already completed large portions of the track between Decatur and Springfield, and between the latter place and Carlinville. E. J. Noonan, of La Salle, and W. H. Caton, of Ottawa, engineers in the service of the company, arrived in Edwardsville April 8, and in the evening met in consultation with some of the officers of the company. What territory shall be traversed between Edwardsville and Carlinville has not been definitely decided. It is stated that preliminary surveys will be started at once.

GALESBURG, ILL.—Plans are now being made by the promoters of the Western Illinois Traction Company for the taking up of the construction work on the lines in this city and on the interurban right of way between Monmouth and Galesburg, where it was left last fall. The laying of the track

on South Eleventh Street will soon be begun, and will be pushed on East Broadway to the square, and from there south on Main street and south to the terminus of the line at the Burlington Depot. The first move of the company will be to ask the local Council to grant it a new franchise on East Broadway, from Second to Eleventh Street. This move is taken in response to several questions which have been raised as to the legality of the petition on which the Council granted the company a franchise on Broadway last fall.

KEWANEE, ILL.—The Gatesburg & Kewanee Railway Company has announced that a number of improvements will be made soon, among them the completion of the line to Galva, the grading for which has already been completed. It will also build an extension to a local boiler factory.

EVANSVILLE, IND.—The Evansville & Eastern Electric Railway Company has incorporated to build an electric railway from Evansville to Rockport by way of Newberg and Yanketown. The officers of the new company are: J. C. Haines, president; J. W. Fuquay, vice-president; M. S. Sontag, treasurer; L. C. Friek, secretary; W. I. Rudd, F. W. Reitz and W. L. Sontag, directors. The equipment will consist of eight modern passenger coaches and several freight cars. The line will be 32 miles long. W. L. Sontag, who conceived and built the Princeton line, will be the chief factor in the promotion of this road.

GREENSBURG, IND.—The promoters of the Columbus, Greensburg & Richmond Interurban Railway are contemplating a survey to run parallel with the Big Four line the entire way from Columbus to Greensburg. C. N. Wilson, general manager, says the line will be constructed between Columbus and Greensburg. It will be double track the entire distance.

INDEPENDENCE, IND.—Ties are being distributed along the route of the Union Traction Company's proposed road between Independence and Coffeyville, and the announcement is made that construction work will be begun in a few days. The Darsey Construction Company, of Terre Haute, Ind., has the contract for construction.

INDIANAPOLIS, IND.—The Indianapolis & Northwestern Traction Company re-elected the old officers at the annual meeting held here April 6. The directors discussed a number of extensions which will probably be made to the system this season.

WABASH, IND.—The specifications for the track equipment and building of the Wabash & Rochester Electric Railway have been completed, and the promoters are busily engaged in preparing for beginning the grading.

TRIPOLI, IA.—A company is being organized here for the purpose of building an electric railway from Anamosa through Independence to Tripoli, and up the river to Nashua, thence to Mason City.

TOPEKA, KAN.—The Topeka Railway Company intends to spend \$25,000 in installing new amusements at Vinewood Park. The principal new feature will be a "scenic railroad." Another new feature will be a merry-go-round. An electric fountain will also be one of the new attractions.

COLUMBIA, KY.—W. K. Azbill, of Columbia, says the plan to build an electric railway between Columbia and Lebanon, a distance of 46 miles, is in the primary stages. It is known at this time that the capital stock will be about \$1,000,000, and that the line will be equipped to handle freight. Local parties will be interested to the extent of rights of way, depot grounds, easements, franchises and \$100,000 of stock at least.

ANNAPOLIS MD.—A bill has been introduced in the House to incorporate the Stewartstown & Susquehanna Railway & Power Company. The incorporators named in the bill are Thomas Mackenzie, Harry M. Benzinger, Joseph W. Galbraith, Clarence B. Hight, E. E. Mackenzie, Harry E. Karr and Thomas H. Robinson. The capital stock is \$10,000, with privilege of increasing it to \$500,000. The company is authorized to construct and operate an electric or steam railroad from some point on the west bank of the Susquehanna River, in Harford County, through the northern part of Harford County, for a distance of 12½ miles or more to some point near the said State line not farther westward than the boundary line between Harford and Baltimore Counties, with the power to cross and bridge the Susquehanna River and extend the road eastwardly or northeastwardly to some point at or near the Pennsylvania State line. Power to consolidate with other roads is given.

MANKATO, MINN.—Last fall the construction of an electric railway from Mankato to Albert Lea, a distance of 52 miles, was agitated. Owing to financial difficulties, however, the project was not launched then. Since that time a few of the original projectors, impressed with the Mankato end of the scheme, have had a survey completed from this city to and through Eagle Rock and Mineral Springs to St. Clair, a distance of 13 miles. St. Clair is the center of a very large and rich farming country without any railroad facilities, and while the passenger traffic would be light, there would be an abundance of freight traffic. The line would be very easy to build. The county is level and there is no need for bridges. The promoters are anxious to have the project investigated with a view to constructing the line. J. A. Willard, president and treasurer of the Standard Fiber-Ware Company, of Mankato, Minn., is interested.

JACKSON, MISS.—Chief Engineer Paige, of Terre Haute, Ind., in charge of the surveying party which is to lay out the route for the interurban electric railway from here to Vicksburg, left here April 4. It is said that the straightest line from Jackson to Vicksburg will be followed, and it is not believed that there are many engineering difficulties in the way. Estimates of cost of construction will be made as soon as the survey is completed.

ST. LOUIS, MO.—D. C. Taylor, president, and Dr. J. M. Berry, secretary of the St. Louis, Kirkwood & Manchester Railroad Company, which was granted a franchise in St. Louis County in 1901, were before the County Court at Clayton last week seeking a renewal of the court granting them permission to cross certain roads. The terms of the original franchise were