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*Of this issue of the Street Railway Journal, 8,200 copies are printed. Total circulation for 1906 to date, 361,900 copies, an average of 8232 copies per week.*

## Our Convention Issues

In this issue we conclude our account of the Columbus Convention by printing a report of the Claim Agents' Convention, a digest of the Question Box discussed by that association, and the papers presented at its Columbus meetings. The work accomplished in the various associations at Columbus was more extensive than ever before, and the task of reporting them was much larger. We do not know whether our readers realize that during the last five issues of the STREET RAILWAY JOURNAL, counting this issue, we have supplied them, including the dictionary in our issue of Oct. 13,

with the equivalent of 510 pages of reading matter and illustrations. These pages represent not historical matter, but are descriptive of the latest and best practice in different branches of electric railway work. The complaint is sometimes made that there are very few text books on the subject of electric railway practice. This is true, but any real ground for complaint disappears when the technical papers are considered. The reading matter and illustrations in these 510 pages of the STREET RAILWAY JOURNAL if reckoned in words would aggregate over 1,000,000, and if published in book form would constitute a volume about two and a half times the size of Wellington's "Railway Location" or four volumes each the size of Bell's "Power Transmission." Our modesty prevents us from referring often to the service given by this paper to its subscribers, but we believe that the one mentioned above constitutes the record in technical journalism.

## The Selection and Training of Employees

The only papers before the American Association which we have not yet discussed were those on Thursday afternoon devoted to employees, and those of Friday morning upon the relations between the corporation and the public. The former were printed in our issue of Oct. 20, and should be read in their entirety by every superintendent, motorman, conductor and inspector. Commencing with Mr. Learned's paper and ending with that contributed by Mr. Brooks, they trace the relations between management and employee from the time that they become acquainted through their association in the service of the company.

Partly because of the demands for higher qualifications from the employee and partly because of the scarcity of labor, the problem of the selection and even the retention of the right kind of men in street railway service is becoming more difficult every day. The experience of the Boston Elevated Railway is that only 22 per cent of those who apply for work are assigned for duty and only 6¼ per cent of the applicants are in service at the end of a year. We believe that the experience of many other companies will not differ greatly from this. The responsibility carried by the superintendent of employment is consequently a great one. Mr. Learned has outlined his chief qualification as being a good judge of human nature, and able to determine not only the men that are especially fitted for the work, but those whose inclinations will lead them to take an interest in it and remain with the company.

The selection of an employee, however, is only the beginning. The corporation must commence to instill in his mind, from the very moment that he enters the employment bureau and files his application, the idea that the company wants good men, that it is prepared to treat them justly and liberally, that it is just as anxious to secure the service of such men as they are to receive employment, and that it expects them to take the same interest in their future work that the company will take in their welfare. In other words, its effort should be to increase the morale of the service, to incul-

cate the idea that railroading is a highly specialized business which affords opportunities at all times for the employment and advancement of good men, and that it is a line of work in which they can justly take pride.

Mr. Willis' paper outlined the connection between the morale and the morals of the employee, and showed how successful the Y. M. C. A. work had been with the steam railroads, among whom 80 per cent of the entire mileage of the country is now co-operating in this movement. As yet little has been done among the electric roads, but with the increasing demand for higher grades of labor on the city and interurban railways it is inevitable that the men will demand and require club houses and other accompaniments of the Y. M. C. A. work which were not formerly necessary. If it is found that such provision not only assists in retaining the best men in the employ of the company, but also attracts to its service men of better character than would otherwise be available, the corporations will be disposed to look upon this work with favor. This has been the experience with the steam roads, and there is no reason to expect unlike results on the electric roads. In fact there are many reasons to anticipate an even more satisfactory showing.

Mr. McGivney's paper might be considered as tracing the connection between morale and outward appearance of the employee. It is a well-known fact that in any large body of men working together along the same lines, the adoption of a uniform increases both the self-respect of the wearer and the respect which is shown him by others. A small body of uniformed police can control a crowd better than a much larger number in plain clothes, and there is nothing which adds so much to the opinion which the public has for a railway company as to see its employees neatly uniformed. Mr. McGivney offers some practical suggestions along this line, and gives the specifications and methods followed by the New Orleans Railways & Light Company.

Mr. Brooks, assistant general manager of the Detroit United Railway Company, was an eminently proper selection for a paper on discipline, as his company was one of the first, if not the first, to adopt a comprehensive system of merit and demerit marks for governing the conduct of its crews. This system has already been described in this paper, so that any further comments are unnecessary except to say that four years have elapsed since the extensive article descriptive of the system, written by Mr. Brooks, appeared in the STREET RAILWAY JOURNAL. The experience of these last four years indicates that the principles upon which the system was established are fundamentally correct, and it has now been successfully extended over a property comprising over 600 miles of track.

### Getting and Keeping the Nickel

No large business gathers its receipts in such infinitesimal morsels as street railroading. Hence in spite of large totals the prosperity of a road depends on close attention to the task of picking up nickels—all of them that are in sight, and holding them tight until they can be accounted for. The Convention papers by Mr. Beeler and Mr. Stanley deal directly with this intimate and petty task. Looked at in the large, a street railway company may be a huge corporation with millions of capital and thousands of employees, yet all its prosperity depends on the trickling stream of tiny coins

that must be gathered as a miner gathers gold dust, grain by grain as the stream flows on. In the varied necessities of travel a large amount of traffic comes naturally and the resulting coin gets as far as the car quite easily. The report of the committee on promotion of traffic pointed out ways in which the stream might be made larger. The paper of Mr. Stanley was directed toward showing how to prevent it becoming smaller, and also how to stop the leaks which lead any part of it away from the coffers of the company.

As regards the first, good service is paramount. It is the short-distance traffic which brings the maximum profit, and unfortunately it is also the short-distance traffic that is most easily discouraged and repelled. The man who has a couple of miles between himself and his place of business is not likely to walk even if the service is bad and the cars crowded, and it is only in rare cases that he turns to a competing system. The man or woman with half a dozen blocks to go catches a car to save a few minutes or to escape a passing shower. If the car is delayed or is overcrowded the passenger simply walks, and that potential nickel is as definitely lost to the company as if somebody had stolen it out of the cash box, which might have been its fate had the passenger ridden. The fundamental principle of successful nickel hunting as described Mr. Stanley is in eternal vigilance. Every superintendent means to give good service, but once in a while he has indignation or is refused improvements by his directors, and the schedules break down or the extra cars are not ready, with the result that a little broadening rill of nickels begins to flow away. We grant that the job is one fit to wear down the very patience of Job, but there is no escaping the necessity for omnipresence and infinite tact and vigilance on the part of the operating superintendent.

Looking now at the question of the nickels missed, the most important desiderata are care in the selection of employees and the adoption of the most practical method of assisting the conductor in his work of collection. Of course one can hardly expect a compendium of all the talents and virtues on the back platform any more than elsewhere. But there is no doubt that with the care which is used on most roads in picking out and training men, street railway employees as a whole should, and undoubtedly do, possess the fundamental virtues of honesty, civility, courtesy and courage in as full a degree as any other large body of picked men in the community, the police force or fire department, for instance. No amount of care will prevent occasional mistakes and dishonesty, but every effort should be made by the management to reduce the likelihood of both to the minimum. To what extent the Montreal type of car assists in this direction was carefully discussed at the Convention. Its plan is so radical that most managers were loath to express a decided opinion upon it, but it undoubtedly made a very favorable impression.

Outside of missing fares, direct peculation and the abuse of transfers are the most troublesome sources of loss of revenue. "Knocking down" fares in its various forms is undeniably difficult to deal with. The better the personnel as a whole the less likely it is to be serious, but some form of inspection is at present an unfortunate necessity. Inspection should be extremely useful in dealing as well with irregular transfers. Regular attempts to misuse transfers on the part of conductors are usually soon detected,



since, in order to be profitable, they must be on a fairly large scale and will generally show by an unusual increase of transfers at one or a few points. In this connection there might be some advantage in using transfer slips stiff enough to run through a sorting machine, so as quickly to determine the distribution of transfer tickets at the different points. Prompt prosecution for misuse of transfers should also have a very valuable deterrent effect. In stopping leaks of this kind, however, the broad question of the real good of the service should not be forgotten. The occasional effort of an individual to beat the road out of a fare is of small consequence, exasperating as it may be, compared with the total receipts, and any plan of stopping leaks that causes inconvenience to the rank and file of the fare-paying public may lose a possible fare for every one that it saves. The necessity of adopting this broad view of the question is emphasized in both Mr. Stanley's and Mr. Beeler's paper.

### The Claim Agents' Convention

The proceedings and papers presented at the meeting of the Claim Agents' Association, with a digest of the Question Box of that association, are published in this issue. They indicate that excellent progress has been made by that body during the past year under the direction of President Rhoades. Altogether four papers were presented, and the ensuing discussions were active and to the point. Owing to the popular prejudice against corporations, their methods and purposes are frequently misinterpreted, and this is especially true of the policy of the claim department. This department of a street railway company is often credited with ignoring justice and equity and with taking every legal opportunity to reduce or avoid the payment of proper claims. We believe, however, that if the proceedings and papers of the Claim Agents' Association at the Columbus Convention should receive wide publicity this idea would largely disappear. It would easily become apparent that the fear of a miscarriage of justice is in the other direction. The methods of dealing with claims against street railway companies, advocated in the papers and debates at Columbus, were those looking to the prompt payment of just claims and arguments in favor of reducing litigation were urged as being in the interests of both company and claimants. We venture to predict that if the laws against fraudulent claims were more strictly enforced, so that the companies would not have this danger always confronting them, the question of the settlement of damages from accidents would become a very simple matter.

Comparatively few managers or presidents in attendance at Columbus were present at the meetings of the Claim Agents, but there is no doubt that if these two departments were in closer touch a material benefit to the service would result. The statistics presented by Mr. Rhoades at the general meeting in classifying the expense involved in the settlement of accident claims are particularly significant as bearing upon this point. His statement that it costs the street railway companies of the country \$4,000,000 a year to permit people to board and leave the cars in the usual way; \$2,500,000 for collisions, and \$1,250,000 because of the blowing of fuses, are facts which are worthy of the most careful consideration.

In the first paper before the Claim Agents' Convention Mr. Farrell summed up the question of the better policy of settling claims—quick or delayed—by recommending the former generally in the case of light injuries and in all cases where a

reasonable and fair settlement can be made, but he urged excellent reasons for not hastening a settlement in the case of unreasonable demands and in serious cases. The discussion as a whole supported Mr. Farrell's hypotheses, with the proviso that there were exceptions where this rule does not hold. Mr. Web's paper defined the qualifications of a claim agent and contained a strong argument in favor of keeping the public better informed both as to the real policies of the claim department and in exposing the fraudulent suits brought against the companies. Mr. Hare's paper suggested reforms in the negligence law which should tend to reduce the number of these fraudulent suits, especially those brought a long time after an alleged accident. He also was in favor of publicity and a closer method of working between the operating and the claim departments. Altogether the meetings and papers were most profitable, and should add to the growing prestige of this organization.

### Train Men for Emergencies

Conditions often arise in electric railway operation where there is a continuous demand for overtime work on the part of train men. No amount of foresight in maintaining a large extra list can prevent this contingency. It may be that some festival or convention is taking place, or an unexpected period of heavy travel may occur at a time when a number of the men are off duty because of sickness or otherwise. Of course in cases of this kind the regular men are usually very glad to put in the extra time, on account of the additional compensation obtained, and they do not regard the request to do so as a hardship. The management realizes this condition, and as every one concerned is satisfied there does not seem to be any great call for a change in methods.

We believe, however, that if the extra time necessary is reduced to a minimum, both the road and the men will be gainers. The question is how it can best be accomplished. A large extra list does not seem feasible because the men on that list would have practically no opportunity of becoming regular employees, and could not be induced to spend much time in learning the business for the sake of work during a few days of the year only. The remaining alternative is to train the men in other departments of the system to a knowledge of the duties of the motormen and conductors, so that they can if necessary undertake this work. For instance, there is on every system quite a large number of employees, such as shop men and construction men, who could be trained so that they could operate the cars for a few hours each day in emergencies. It might even be possible to utilize the services in some cases of the men in the clerical force and engineering department. The general knowledge which all of these men have of the organization and operating methods would stand them in good stead, and if their regular work was of such a character that it could temporarily be laid aside while they were occupying the front or back platform the road not only would be a gainer but the men themselves would often welcome the temporary change in occupation. We do not mean to be understood as recommending the employment of untrained men, particularly on the front platform. If, however, the employees mentioned should be given the requisite instruction, this knowledge, together with their familiarity with what was required, would make them much superior to the ordinary "extra" man. They would constitute a reserve force which might prove very useful at times.

### EXPERIMENTAL THREE-WIRE SYSTEM IN VIENNA

The Wiener Stadtbahn (Vienna City Railway) is still operated with steam locomotives hauling trains up to 130 tons on a double-track line about 27.8 km (17.2 miles) long, 22 per cent of which is in tunnels. The maximum grade is 3 per cent. The unpleasant features incident to steam railroad operation in a crowded city have been experienced in Vienna as elsewhere. As a result, about two years ago the authorities called for proposals from several electrical firms for the electrification of the system. Of the plans submitted that of the Fr. Krizik Works, of Prague, was considered the best, and the successful bidder was authorized to electrify for experimental purposes the 2-km (1.24-miles) branch extending from the Custom House to Praterstern. A preliminary notice of this contract was published in the STREET RAILWAY JOURNAL of Nov. 18, 1905, but full details of the equipment have not been available until the present time.

It is proposed to continue the use of the present rolling stock even to the retention of the vacuum brakes now on the cars. The electric locomotives will haul trains at a maximum speed of 50 km (31 miles) an hour, and it is believed that their superior acceleration will enable the headway of the trains to be shortened from 3 minutes to 2.5 minutes during rush hours.

The remarkable feature of this contract is the provision for a three-wire direct-current system. This resembles in its general characteristics the Krizik 1400-volt installation on the Tabor-Bechyne (Bohemia) Railway, of which a description appeared on page 1042 in the issue of the STREET RAILWAY JOURNAL for Dec. 10, 1904. The Tabor line is 16.1 miles long and the service is of interurban character. The traffic on the Vienna Stadtbahn is of course much heavier, and corresponds to the elevated railway service given in other cities. While the Tabor-Bechyne Railway is operated with motor cars (which also haul trailers), electric locomotives will be employed in Vienna. This difference in operating methods may be attributed to the necessity for retaining the present rolling stock without material changes in construction.

On the Tabor line two 700-volt motors are operated in series, giving a potential difference of 1400 volts between the outside wires; on the Vienna locomotives there are four 750-volt motors, two in series on each side of the circuit, so that there is a difference of 3000 volts between the outside wires. In both installations the neutral of the circuit is formed by the rails. It is estimated that the use of this potential will obviate the necessity for sub-stations on the Stadtbahn if it should be entirely equipped with electricity. Other advantages claimed are the practical absence of electrolysis and similar troubles caused by the return currents of the ordinary system, and the division of the generating machinery in two independent sets, either of which may be out of action without seriously disturbing the train service.

As before stated, the motors are disposed two in series on each side of the circuit. It is clear if the speeds of the coupled motors began to differ there would be an unequal division of potential. To prevent this, both motors of each group are connected together mechanically by mounting them on opposite sides of the same axle, and the pinions of both motors drive the same gear wheel as shown in Fig. 2. Each locomotive has two axles and consequently four motors. The weight of the locomotives is 29 tons.

In general the wiring connections resemble those used for ordinary series-parallel work and follow the changes shown in the diagram, Fig. 3. The motors at first are connected in series between one of the outside wires and the earth, after which the resistances are cut out and a voltage of 1500 is applied. These steps are shown in diagrams 1 to 6 of Fig. 3. When about one-half the maximum speed has been

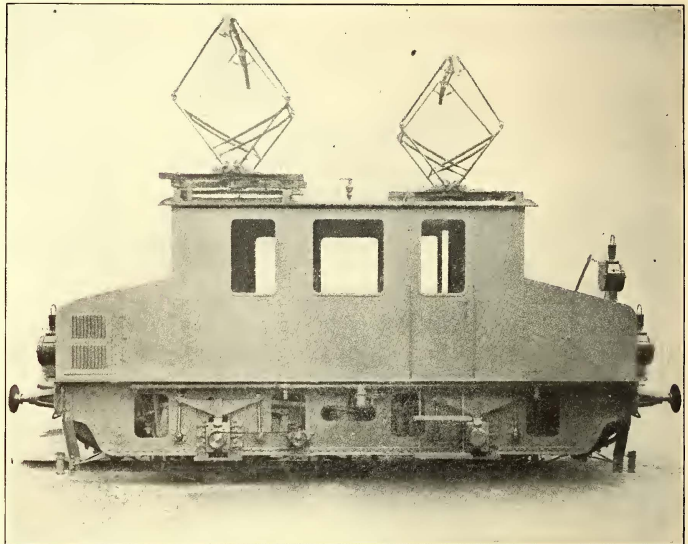


FIG. 1.—SIDE VIEW OF COMPLETED ELECTRIC LOCOMOTIVE IN EXPERIMENTAL USE ON THE VIENNA STADTBAHN

reached the resistances are again inserted, the outside ground connection broken, the neutral is connected to ground and the motor terminals are placed in circuit with the other outside wire. To secure higher speed the fields may be shunted as shown in diagrams 13 and 14 of Fig. 3.

The large number of running points afforded in this method of control gives quite an increase in efficiency during starting. The power consumption during the trial runs has been found to be 48 watt-hours per ton-kilometer (77 watt-hours per ton-mile), based on the gross weight of the train, and 59 watt-hours per ton-kilometer (94.5 watt-hours per ton-mile) based on the net weight of the train.

The Praterstern section was chosen for the experimental work because it presents the most unfavorable conditions. On other parts of the system the average distance between stations is 950 meters (3116 ft.); on this it is only 625 meters (2050 ft.), so that during the greater part of the trip the train is either accelerating or decelerating. In addition, this section, which in all is only 1.25 miles long, has a 2 per cent grade for 332 meters (1089 ft.), with an entrance



curve of 120-meter (395-ft.) radius, on which no speeds over 10 km (6.2 miles) an hour are permitted. Consequently the highest speeds must be attained while climbing a grade.

THE OVERHEAD STRUCTURE

Center pole or bracket construction is used, according to space conditions. The trolley wires are figure 8 in shape and have a cross-section of 115 sq. mm, which is the size contemplated for the entire system to keep the transmission losses within 3 per cent when feeding from two points. The outside wires are placed 1.4 meters (4 ft. 7 ins.) apart and

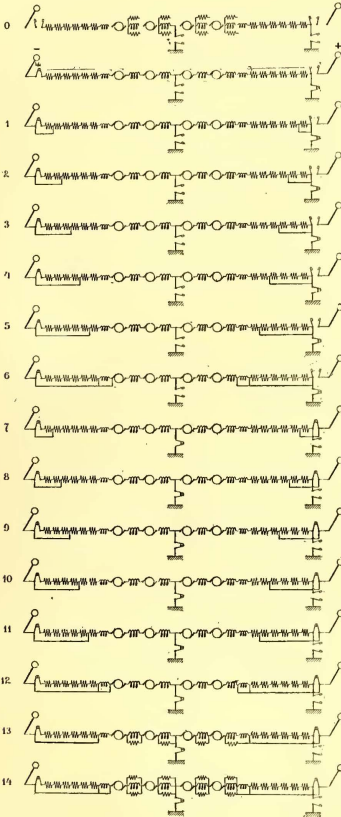


FIG. 3.—WIRING DIAGRAMS, SHOWING THE STEPS TAKEN IN RUNNING ON THE VIENNA THREE-WIRE SYSTEM. THE LAST TWO ARE FOR OPERATION WITH WEAKENED FIELDS

5.2 meters (17 ft. 1 in.) above the roadbed. As shown in Fig. 8, each wire is hung independently, thus making it very unlikely that both wires should be injured at the same time. The trolley wires are suspended from Ambroin insulators of the type shown in Fig. 6. They were tested for 30,000 volts and are flexibly connected to steel span wires furnished with pull-offs capable of withstanding 15,000 volts. The effectiveness of this insulation is apparent from the results already achieved on the experimental division, where the steam and corrosive gases from 300 locomotives passing every day have failed to affect it injuriously.

The line is double track, and the overhead work is so ar-

ranged that the inside trolley wires are of like polarity. This simplifies the construction, as it is unnecessary to insulate the inside wires from each other. Switching or stub tracks are equipped with only one trolley wire. With the 1500 volts thus available the cars may be moved at half speed, which of course is sufficient at such points. This feature consequently avoids the complication that would otherwise result. For instance, although the Praterstern station has five overhead switches, only three insulators are required. A cross-over between parallel tracks has two such insulators placed in

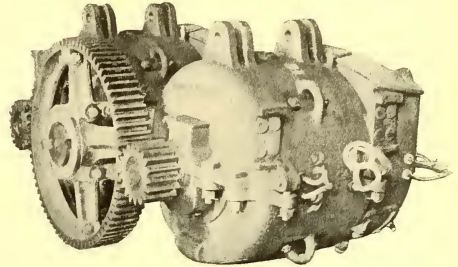


FIG. 2.—DOUBLE MOTOR WITH TWO PINIONS MESHING WITH ONE GEAR

the wires over the cross-over, as shown in Fig. 7. In general, the problems relating to the overhead structure have been solved for all the conditions possible throughout the system.

THE LOCOMOTIVE

From the accompanying illustrations, Figs. 1, 9 and 10, which show the electric locomotive adopted, it will be noted that the axles, which are 3000 mm (9 ft. 10 ins.) apart, are placed in a steel side frame above which is built the regular form of electric locomotive cab. The wheels are of 1200 mm

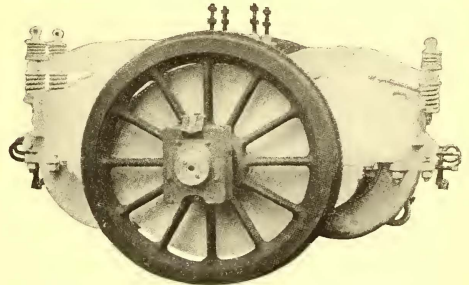


FIG. 4.—RUNNING AXLE CARRYING TWO MOTORS

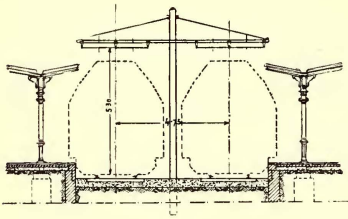
(47 ins.) diameter. The type of bearings, spring suspension and other mechanical features harmonize with the steam locomotive standards of the Austro-Hungarian steam railroads. The length of the locomotive between the bumpers is 7850 mm (25 ft. 9 ins.). Its weight with the electrical equipment is 29,000 kg (63,800 lbs.), and without, 14,500 kg (31,900 lbs.).

The framework consists of riveted steel plates suitably stiffened by cross-pieces to withstand the strains incident to operation. The different parts of the locomotive are symmetrically disposed except the arrangement of the electrical apparatus. Both axles carry two motors each, these being spring-suspended at their centers of gravity so that the axles are subjected only to torsional strains. The motorman's compartment is double with a door on each side.

The brakes are of the Hardy vacuum type, and a brake cylinder is provided for each axle. Power is applied to four brake-shoes, and to equalize the braking effect on both sets of wheels the brake cylinders are connected by piping to

containing also the axle bearings. Ventilation is provided by holes under the bearings, covered over to prevent the entrance of water. There is also a ventilator above the commutator. The axles run in oil-lubricated bearings and the motor shafts are ring-oiled. The armature coils are copper ribbon, varnished and resting in pressed mica troughs. There are four sets of brushes per motor, and each brush-holder is connected to a separate insulating plate.

The motors are rated at 130 hp each at 750 volts, 134 amps. and 545 r. p. m. In the speed curves, Fig. 11,  $V_1$  is the speed at 350 volts (using but one



All Dimensions are in mm

FIG. 5.—CENTER-POLE CONSTRUCTION AT THE CUSTOM HOUSE STATION

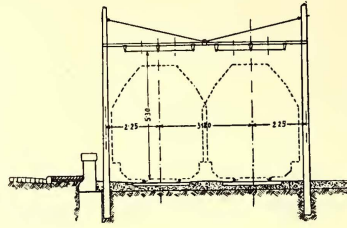


FIG. 5A.—SIDE-POLE CONSTRUCTION ON THE EXPERIMENTAL DIVISION

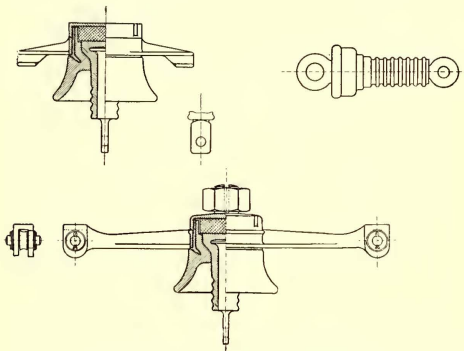


FIG. 6.—TYPES OF INSULATORS AND PULL-OFFS USED ON THE VIENNA THREE-WIRE SYSTEM

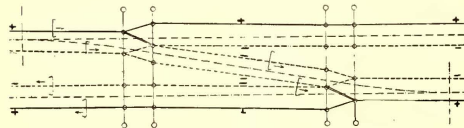


FIG. 7.—ARRANGEMENT OF OVERHEAD WORK AT CROSS-OVERS

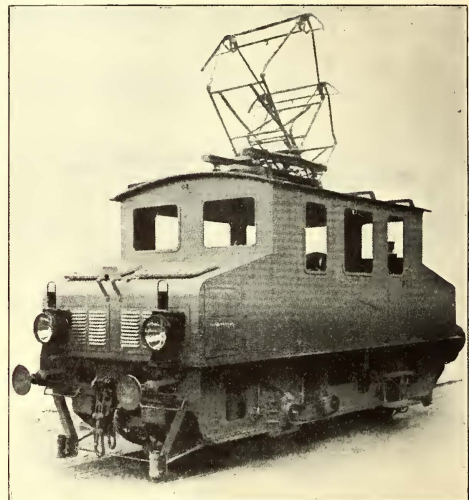


FIG. 9.—THE LOCOMOTIVE BUILT FOR THE VIENNA THREE-WIRE TESTS

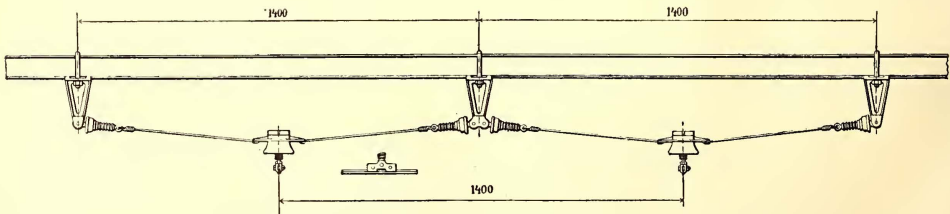


FIG. 8.—DOUBLE TROLLEY SUSPENSION ON THE VIENNA THREE-WIRE SYSTEM. DIMENSIONS GIVEN IN MM

insure the same degree of vacuum. Pneumatic sanders are used.

THE MOTORS

Reference has already been made to the mounting of the motors in pairs per axle. The motor casings are in two parts, the upper half having cast thereon the suspension pieces and

trolley),  $V_2$  at 750 volts at full field strength (both trolleys in circuit),  $V_3$  at 750 volts and 75 per cent of the field strength, and  $V_4$  at 65 per cent of the field strength. The last two curves correspond to diagrams 13 and 14 of Fig. 3.

The dimensions of the principal motor parts are as follows: Diameter of armature, 61 cm; length of armature, 30 cm;



length of core without air gaps, 37.2 cm; 46 slots, 1.72 cm wide and 3.64 cm deep, air gap .5 cm, 550 turns of 13-mm x 1.2-mm cross-section and 12 turns per slot; the diameter of the commutator is 41 cm, length 18 cm, laminations 2.75 cm. There are 16 carbon brushes in rows of four with a contact surface per brush equal to 1.1 cm x 4 cm. The four poles have a cross-section of 554 sq. cm through the core and

pumps. Both motors are double, each taking 750 volts, so that the complete motor uses the 1500 volts received from one side of the circuit. The total weight of these motors is 850 kg (1870 lbs.).

CONTROLLER, SWITCHES, TROLLEY BOWS AND CIRCUIT BREAKER

The controller, which is shown in Figs. 12 and 13, was

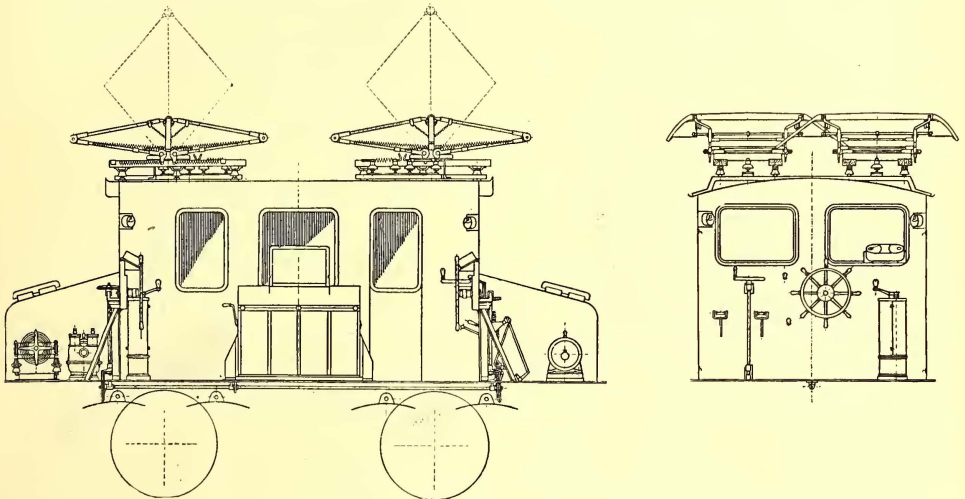


FIG. 10.—LONGITUDINAL AND END ELEVATIONS AND PART SECTIONS, ILLUSTRATING THE ARRANGEMENT OF THE APPARATUS ON THE ELECTRIC LOCOMOTIVE USED ON THE VIENNA THREE-WIRE SYSTEM

2 times 274 sq. cm through the yoke. The pole shoe length is 30 cm, pole arc length 31 cm, 66 turns per pole, diameter of wire 7.8 mm. The weight of two motors with gearing is 4930 kg (10,846 lbs.). The gear ratio is 18:78.

purposely placed in the center of the locomotive for better observations during tests. The reverser is placed in the middle of the controller mechanism and can be operated from

At the factory test the motors were subjected to a full-load run without commutator ventilation with the following results: Armature resistance, .1632 ohms; field resistance, .128

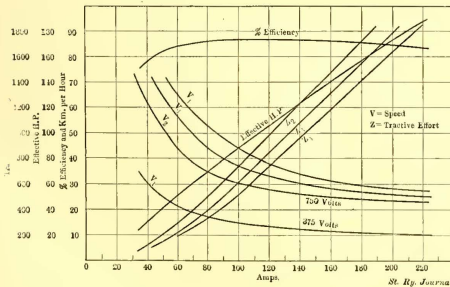


FIG. 11.—PERFORMANCE CURVES

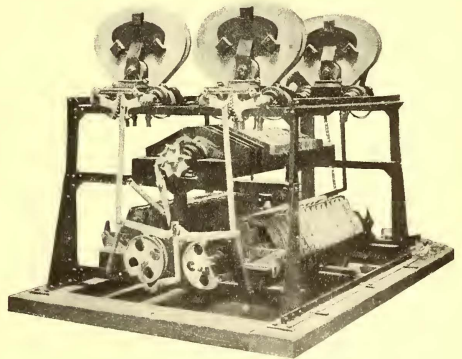


FIG. 12.—CONTROLLER, SEEN FROM THE SWITCH SIDE

ohms; temperature rise in the armature, from 54 deg. to 61 deg. C.; commutator temperature, 60 deg. C.; field coil temperature, 59 deg. C. During the braking runs and experimental trips the motors are said to have run absolutely sparkless at all loads and even with weakened fields.

either side by a removable handle. The controller for regular running is operated with a removable hand wheel which can be used from either side. This wheel actuates the controller contact through a chain, gear wheels and a shaft in the lower part of the controller. Every switch is provided with magnetic blow-outs.

The auxiliary motors comprise a 2-hp, 900 r. p. m. machine for the air compressor and a 5.6-hp motor for the vacuum

It should be noted that hand operation of the controller

was adopted merely to facilitate the delivery of the trial locomotive. Pneumatic means will be used on the later locomotives.

The circuit switches in the controller are shown in Figs. 12 to 14. They consist of carbon contacts carried at the ends of two arcs which are geared together and are provided with a

cuit and is immediately carried over to the metal horns where it is extinguished by the two blow-out coils. The current limit is fixed by an auxiliary coil in the lower part of the circuit

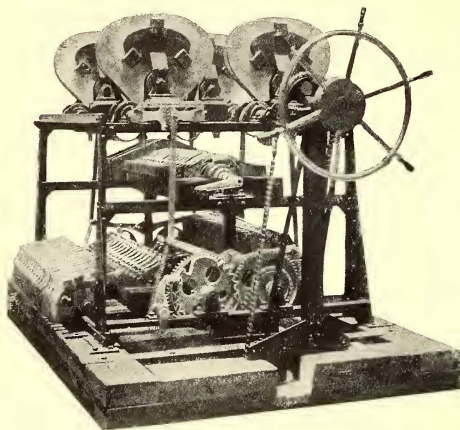


FIG. 13.—CONTROLLER VIEWED FROM THE HAND-WHEEL SIDE, SHOWING CHAIN AND GEARING

magnetic blow-out. The main circuit switch is constructed in the same way.

The trolley bows, as will be noted from the illustration, are of the rhomboidal or pantagraph type. The frame is made of steel tubing and the roller axle of crucible steel. Flake graphite is used for lubrication. The bows are placed on a wooden frame mounted on Ambroin insulators.

Owing to the higher voltage used particular attention was

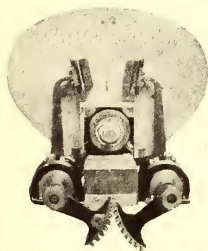


FIG. 14.—DETAIL OF MAIN AND TROLLEY SWITCH

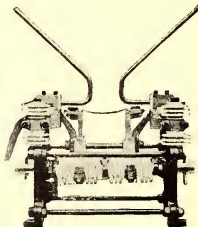


FIG. 15.—AUXILIARY BLOW-OUT DEVICE

given to the design of the circuit breakers. When there is an overload, the main solenoid forces up a core which pushes a small ratchet out of position. This releases a spring which drives down the contact pin and breaks the circuit. The circuit closing occurs through a copper spring between the two stationary contactors. In parallel with this main breaker circuit are two current-carrying fingers in contact with a pair of stationary metal horns. The circuit thus formed closes the power circuit earlier and opens it later than the main circuit breaker. The arc is always formed in this parallel cir-

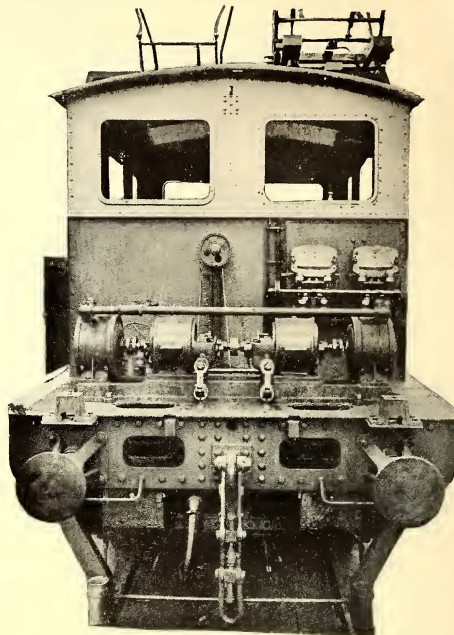


FIG. 16.—PART OF LOCOMOTIVE COVERING TAKEN OFF TO SHOW THE AIR COMPRESSOR APPARATUS

breaker. The latter is placed in circuit with a handle from the motorman's stand. This breaker is also arranged for use as a switch in emergencies.

### CONCORD-BOSTON ROUTE NEARLY COMPLETED;

By Jan. 1 it is expected that it will be possible to travel from Concord to Boston, a distance of 75 miles, by trolley. For a number of years electric car lines have been in operation between Boston and Nashua, and a few years ago a line was completed connecting Concord and Manchester. The seventeen miles between Manchester and Nashua, however, remained outside the trolley limit until a charter was secured from the last Legislature by the Goff's Falls, Litchfield & Hudson Electric Railway Company, granting permission to construct an electric railway from Manchester, through Goff's Falls, Litchfield and Hudson to Nashua. The necessary land was secured, construction was pushed rapidly, and the new line is now almost completed. It is expected that cars will be in operation over the new road some time in December. For the greater part of the distance the new line runs over private ground, crossing the highway only four times in the long stretch between Goff's Falls and Hudson. It is planned to run the cars at a good rate of speed, and it is estimated that the run from the City Hall in Manchester to the Masonic Temple in Nashua will consume exactly one hour. When this connecting link is completed, a trip between Concord and Boston by trolley will take a little over five hours. The time for expresses on the steam railroad is two hours.



**SUB-STATIONS AND TRANSMISSION SYSTEM OF THE NEW YORK CENTRAL & HUDSON RIVER RAILROAD**

In the Sept. 29 issue of the STREET RAILWAY JOURNAL an account was published of the Port Morris power station of the New York Central & Hudson River Railroad. The current generated at this station is transmitted as three-phase, 25-cycle, 11,000-volt alternating current to sub-stations located as follows: No. 1 at the Grand Central terminal; No. 2 at Mott Haven junction; No. 3 at Kingsbridge, and No. 7 at Bronx Park. These four sub-stations are in the initial electric zone to be operated shortly, but there are eight sub-stations in the entire electric zone. The other sub-stations are located as follows: No. 4 just north of the power station at Yonkers; No. 5 at Irvington; No. 6 at Ossining, and No. 8 at Scarsdale. Power is transmitted by overhead cable lines north of High Bridge on the Hudson division, and north of Bronx Park on the Harlem division. Conduit lines run from the Grand Central Station to High Bridge and to

electrical control of the operator at the board. The risk of accident to the operator when operating switches is eliminated and his control over the apparatus very thorough. The apparatus is arranged in the following general order across the sub-stations: High-tension lines, high-tension switching apparatus, transformers, rotaries, direct-current switching apparatus. Along the station there is a succession of complete units made up as described above, the controlling board being located at the center of the station. The concealing of the wires necessitated the use of wall chases for the high-tension lines and determined the use of transformers having high and low-tension terminals underneath the floor. The switches and circuit breakers for both the high-tension alternating and the low-tension direct current are all electrically operated.

At the sub-stations the high-tension current is transformed and converted into direct current at 666 volts for delivery to the railway circuits. The main equipment of each sub-station consists of three rotaries and their transformers and subsidiary apparatus. The arrangements provide for a future in-



TWO ELECTRIC LOCOMOTIVES AND TRAILER LEAVING THE KINGSBRIDGE STATION

Bronx Park as well as to the Port Morris power station and to Kingsbridge from the Harlem division line. From the Kingsbridge terminus of these conduits an overhead line runs to the Glenwood power station and sub-station. Cable towers for the overhead lines are located at High Bridge, Kingsbridge and Glenwood. In the initial electric zone, including on the Hudson division the line as far as Kingsbridge, there are 17 miles of line to be electrified—13 miles from the Grand Central Station to Wakefield on the Harlem division and 4 miles from Mott Haven to Kingsbridge on the Hudson division. In this territory there are 73 miles of main and 12 miles of yard tracks, a total of 85 miles of track. In the entire electric zone, which will take in a total of 52 miles of line, there will be 224 miles of main and 68 miles of yard tracks, or a total track mileage of 292 miles. All tracks within this territory are laid with 100-lb. rails.

All of the sub-stations are fireproof structures. The wiring is for the most part enclosed and yet it is all readily accessible. The machinery and operating boards are on the same floor and all the apparatus, including direct and alternating-current switches and circuit breakers, is under direct

stallation of two additional rotaries. The relative locations and capacities of the sub-stations are shown in the accompanying table:

Sub-Station Number	Location	Area of Main Floor, Square Feet	Miles from Grand Central Station	Installation of Rotary Converters
1	Fiftieth St. and Lexington Ave.	4,796.6	.36	3 of 1,500 kw
2	Mott Haven Junction.....	3,845.27	{ \$5.47 15.49 }	3 of 1,500 kw
3	Kingsbridge .....	3,845.27	9.44	3 of 1,000 kw
4	Yonkers .....	3,839.23	15.64	3 of 1,000 kw
5	Irvington .....	3,845.27	22.11	3 of 1,000 kw
6	Ossining .....	3,845.26	30.31	3 of 1,000 kw
7	Bronx Park .....	1,845.27	9.30	3 of 1,000 kw
8	Scarsdale .....	3,845.27	19.02	3 of 1,000 kw

\* Hudson Division. † Harlem Division.

Each sub-station is provided with a battery equipment and provision is made for any extensions which may be required.

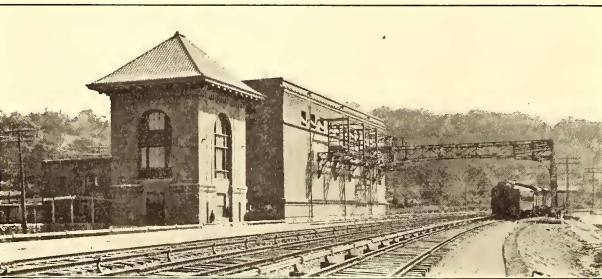
The underground lines enter the basement through ducts and are terminated at end bells where they divide into three separate conductors running to three series transformers which supply current to the measuring instruments. The scheme adopted for the entrance of the overhead conductors is believed to afford the best protection against rain and snow,

not only to the incoming lines, but also to the apparatus in the building. The design of the lightning arresters was made with a view to separating the phases as much as possible and to make all parts accessible. The groups of arresters are mounted in such a way that a complete set may be removed and replaced without skilled labor, a feature which is supposed to be original with this installation. Knife switches disconnect all overhead lines from the sub-station apparatus.

Concrete is used for the high-tension bus-bar compartments, and these are provided with concrete barriers to separate the lines connected to the bus-bars. The series transformers for the measuring instruments are suspended from the ceiling in a row near the bus-bar compartments and are separated by barriers. To obtain this uniform arrangement and yet leave the front terminals of the oil switches dead when not in use, the high-tension lines between the series transformers and the power transformers are looped under the bus-bar compartment. The wiring, where bare, is of copper tubing, which gives an excellent mechanical construction. The high-tension bus-bars are supported rigidly; but in such a way that expansion and contraction are possible. All openings in the bus-bar compartments are protected by fireproof doors.

The oil switches are electrically operated and are designed to carry considerable overload. They are provided with pilot lamps to indicate at the control board whether they are open or closed, and the lamp circuits are so arranged that unless the plungers complete their stroke without rebounding there is no indication. The compartments are of buff-colored brick and the barriers between phases are of soapstone.

Two of the sub-stations are equipped with single-phase, 550-kw transformers to supply the 1500-kw rotaries, whereas the stations with the 1000-kw rotaries have 375-kw transformers. These have a normal ratio of 11,000 volts to 460 volts, and are provided with extra taps for varying the voltage according

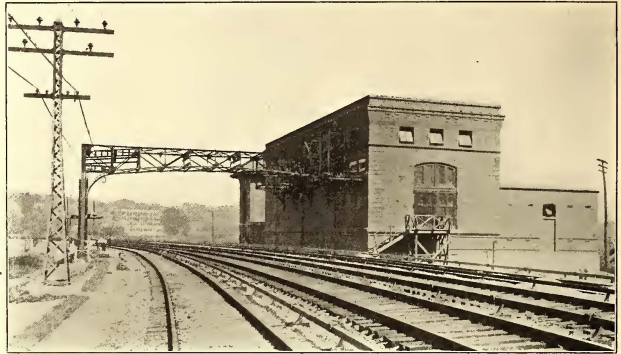


ANOTHER VIEW OF SUB-STATION NO. 3

to the drop in the transmission lines or according to the distribution of load among the sub-stations. The transformers are of the air-cooled type, with terminals underneath. The air is supplied by two induction motor-driven blowers, one of which is sufficient to supply the station. The rotaries are of the sextuple connection, three-phase type, which combines the advantages of the ordinary three-phase and six-phase type.

The direct-current switches and circuit breakers are motor-operated. The switches and breakers are positive, rapid and

safe in action to a degree hitherto unknown with this type of apparatus. A spare panel and auxiliary bus are provided, to which any feeder or machine may be connected pending repairs on its proper panel. All connections are made with copper bars, thereby insuring a neat and effective construction. The positive feeders after leaving the switchboards are provided with end bells, which terminate the lead sheathing of the cables run out to the third rail in underground ducts. The negative leads from the rotaries run through the founda-



EXTERIOR OF SUB-STATION NO. 3, SHOWING ALSO THE TYPES OF POLE AND OVERHEAD CONSTRUCTION

tions and connect to an ammeter shunt which carries the entire station output. The negative feeders are bare 2,000,000-circ.-mil cables, which run out directly to the tracks in pipes.

There are two controlling boards situated at the center of each sub-station where it is extended to its final limits. A bench board carries the principal instruments and control apparatus, and an upright board carries the auxiliary control apparatus for lighting, etc. All panels are of natural slate, with black finish, the instrument cases being black oxidized.

The electric storage battery equipment not only takes care of the fluctuations in the load, but is sufficiently large to operate the entire system under normal conditions for a period of one hour, in case of failure of the generating apparatus. Five of the batteries have an output of 2250 amps. for one hour and the others have outputs of 3000, 3750 and 4020 amps., respectively. The batteries are in buildings adjoining the sub-stations and they are operated in connection with boosters and switching apparatus in the sub-station. The discharge is governed by a carbon regulator working in connection with exciters and boosters, the effect of which is to make the batteries discharge when there is a heavy demand for current and to charge when the demand is light.

Sub-station lighting is done with incandescent lamps fed from 120-volt alternating-current circuits. The current is taken from the 460-volt power circuit and the voltage is reduced by separate transformers. The wires are all placed in conduit and the circuits are controlled from standard panel boxes set in the walls. The wires in the battery room are lead-covered and the lamp sockets are of porcelain in order to withstand the action of the acid fumes. Emergency lighting current may be taken from the control battery or charging set.



The rotaries may be started from either side. When started from the alternating-current side a gradual application of voltage is insured by taking current from several taps in the secondaries of the power transformers. Starting from the direct-current bus-bars, the machine is brought up to speed as a direct-current motor through a rheostat, the positive bus being used as a source of current. When a speed above synchronism is reached, the direct-current circuits, including the shunt field, are opened and the machine runs by its momentum only. The alternating-current circuit is then closed through the oil switch and the machine runs as a synchronous motor. It is then only necessary to close the shunt field circuit to put the machine in synchronism. These operations are rapidly effected by a special combination switch.

The direct-current feeder system is designed to give a duplicate path for the current from the sub-station to the third rail. It is also designed to confine any trouble which may occur to one track only, thereby making interruptions of traffic as slight as possible. A train-length section of rail is separately fed from each sub-station, to prevent trains bridging between main sections. All direct-current cables are installed in the conduit close to the tracks, except in some cases where auxiliary feeders join the bus-bars of consecutive sub-stations and supplement the conductivity of the third rail. These are in some localities run overhead on the transmission poles. The four third rails and auxiliary feeders are joined together through circuit breakers situated in small houses at intervals along the line.

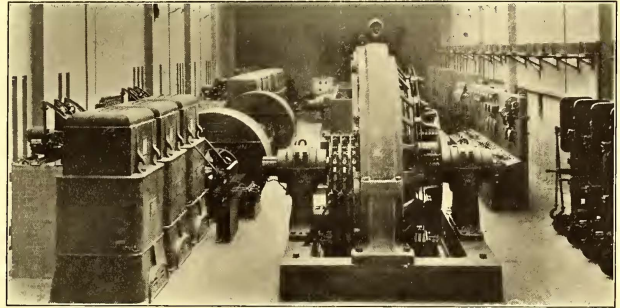
The transmission system in the initial zone includes 12 miles of conduit territory, 89 miles of cables in conduits, 6 miles of pole line territory which requires 48 miles of cables on poles, 220 splicing chambers, 9 circuit-breaker houses and one cable tower. The approximate weight of the copper necessary for the transmission wires in this territory is 1,500,000 lbs. In the entire electric zone there will be 16 miles of conduit, 97 miles of cable in conduits, 46 miles of pole lines and 344 miles of cable on poles, with 383 splicing chambers, 26 circuit-breaker houses and three cable towers. The copper for the transmission system will weigh approximately 3,000,000 lbs.

The working conductors in the initial zone include 75 miles of track equipped with 70-lb. under-contact third rail and three miles of overhead construction. There are 285 circuit-breakers and switches used in connection with the working conductors, 14,000 linear ft. of jumpers and 43,000 running track bonds in this zone. The whole zone includes 285 miles of track equipped with third rail, 5 miles of overhead construction, 450 switches with working conductors, 37,000 ft. of jumpers and 136,000 running track bonds. The third rail is of special bullhead section with high electrical conductivity. It is supported by cast-iron brackets bolted to long ties, spaced 11 ft. centers. Insulators fit loosely over the top and web of the rail, thus allowing some vertical play. A clamp fits around the side and top of the insulator and is bolted to the bracket. The top and sides of the third rail are covered with Georgia pine to afford a protection against accidental contact. The protection comes in about 6-ft. lengths.

The rolling stock to be used includes electric locomotives and electric motor cars. The locomotives are to be used in hauling the through trains on the Hudson division in and out of the Grand Central terminal. In the initial electric zone High Bridge will be the engine terminal for steam locomotives.

Later on when the proposed extension to Croton is made, that will be the point at which the electric locomotives will pick up the steam trains. The motor cars are to be used for local trains on both the Harlem and Hudson divisions. Steam locomotives will pick up these cars for the present north of Wakefield and High Bridge until the electrification is further completed. The company now has 221 locomotives and cars for this service, 35 of which are electric locomotives and 125 are all-steel, multiple-unit motor cars, each with a normal capacity of 400 hp, weighing 53 tons complete. There are 55 all-steel multiple-unit trailer cars weighing 41 tons complete and 6 combined baggage and express motor-cars, each of 400 hp. The total normal horse-power of the electric rolling stock is 129,400, the normal capacity of the locomotives being 2200 hp each. The maximum speed of the locomotives is from 40 to 80 miles an hour, depending on the weight of the train, which will range from 250 to 900 tons. The maximum speed of the multiple-unit trains is 52 miles per hour.

With the electrification of the road, the existing signals and interlockings will be almost entirely replaced. All-electric, automatic signals and interlocking plants involving the use of alternating-current track circuits in combination with a



INTERIOR OF SUB-STATION NO. 1, NEW YORK CENTRAL ELECTRIFICATION

direct-current propulsion system will take the place of the manually-controlled and electropneumatic automatic signals and the low-pressure pneumatic and mechanical interlocking plants now in use. When the system is complete there will be 51 interlocking plants with 1705 levers, 564 blocks, 4 miles of four-way ducts and 702 miles of pole line wires. On the 292 miles of track mileage there are to be 51 signal towers, 41 battery houses, 8 signal stations and 108 signal bridges. With the electrification of the road a change will be made from left-handed to right-handed running, which method has heretofore prevailed south of Spuyten Duyvil and on the entire Harlem division as far as double-tracked.

The Grand Central Station will be entirely rebuilt with tracks at two levels below the street, the upper level being for express trains and the lower level for suburban trains. Including subways, tracks and streets—the depth from the street level to the lowest part of the terminal being 80 ft.—there will be four levels. At present the excavation for the east side of the new Grand Central yard is practically completed, and with the beginning of electrical operation all trains of the Hudson division will run into this new depressed yard, discharging their passengers into the Grand Central Palace, which has been converted into a temporary station. The new terminal will have an area of 22 acres in the suburban station and 39 acres on the express level, and will include 25 miles of tracks with a car capacity of 12,000 cars.

## THE DISEASES OF CAST IRON WHEELS

In an article ("Wear and Tear, or Diseases of Car Wheels") that appeared in the issue of Aug. 25, were discussed some of the accidental diseases to which car wheels are liable, that is, diseases which are due to the physical treatment to which the wheels are subjected and in no way caused by the weaknesses or defects of the wheel metal. In addition to these accidental diseases there are a number of others that are inherent in the metal, some of which will develop weaknesses of more or less dangerous import under any type of equipment and in any kind of service. These diseases result from two causes—the use of improper materials and carelessness or neglect to use proper methods of manufacture. Back of these is a single one that might be called the primal cause: the desire to meet competition by the production of a wheel cheaper than any other upon the market, and the wish of the purchasing agent to obtain bargain counter prices. Whether the cast-iron wheel has really seriously deteriorated as compared with that of "olden times" is difficult to determine, because of the greater requirements of the present day; but the fact remains that all makers say they can produce a better cast-iron wheel if the railroads are willing to pay for it. However this may be, the cast-iron wheel is a good article in spite of its diseases, which do seem to be more numerous and also better understood than those of its steel rival.

Of those that are due to defective material the two that stand out most prominently are weakness of the gray iron and thinness of the chill. No external inspection can detect or guard against these. A chill that is but 1-16 in. thick will look as smooth and appear the same as one of  $\frac{1}{2}$  in., nor can weakness of spoke or plate be ascertained by looking at them. It is to guard against such defects that the simple inspection tests of the thermal and drop type have been adopted by the Master Car Builders' Association. And here a suggestion can be offered to the committee of standards for the electric railways, that a similar series of tests be formulated for wheels intended for electric service.

Poor material in the shape of a low-grade pig or an attempt to carry too high a percentage of scrap is partly responsible for these two defects. It is generally conceded that at least 50 per cent of pig iron should be used, though some claim that it should be as much as 75 per cent. This difference of opinion probably results from the variations in the quality of pig and scrap. But whether the proportion of the one to the other be in a greater or lesser ratio, the resultant combination in the carbon content must be practically the same to secure a chill. Roughly speaking, this carbon content must be about 3 per cent. This is so distributed that in the gray iron there is 1 per cent combined and 2 per cent graphitic carbon, while in the white or chilled iron these figures are reversed, there being 1 per cent of graphitic and 2 of combined carbon, so that a chemical analysis is but little guide as to the real quality of the wheel when regarded from an operative standpoint.

The local diseases of the cast-iron wheel may be classified as: Out of round, swollen flange, comby tread, shelled-out tread, cracked plates or spokes, cracked brackets, cracked flanges, burst, seams, wrinkles, slag, chill cracks, and sweat. These are called local diseases, just as gout may be a local disease in the body of a man though it really affects the whole organism and decreases its efficiency.

In a general way it may be stated that these diseases are more apt to develop and manifest themselves in heavy and fast service than where the opposite conditions prevail; just as an inherited tendency to consumption may never develop in a dry climate and comfortable physical conditions, where-

as it would quickly appear under exposure to the wet and cold. So, as a simple example, the wheel that is out of round may never be noticed under a slow service, but quickly shows itself at high speeds. This may be called a generic disease of the cast-iron wheel, and is always there, for it is safe to say that no cast-iron wheel has ever been made that was perfectly true and round when it came from the annealing pits. There is always a variation in rotundity. The amount permissible depends upon the service, and is frequently stated in the specifications. This can well be limited to 1-16 in. for any one wheel, though those made in the same chill often vary as much as  $\frac{1}{4}$  in. in diameter. A variation of 1-16 in. will be imperceptible on a wheel of 33 ins. diameter. If, however, a true wheel is desired, recourse must be had to grinding, which, however, possesses the disadvantage of cutting away a part of the hardest and best wearing portion of the chill, and of leaving the tread with a slight variation of hardness along the line of its periphery, thus inducing a variation in the rate of wear, which will reproduce the very defect of lack of rotundity that the original grinding was intended to abolish.

The swollen flange is purely the result of carelessness in the molding. Unless the sand is properly tempered and rammed, that is, if it is insufficiently rammed so as to be unable to sustain the pressure of the molten iron under the head of the gate, it will yield and the flange will have a thickness greater than desired. This may or may not be a serious fault, dependent upon the service. Where the cars are heavy and the speed high, a swollen flange may be positively dangerous, in that it will be apt to strike guard rails or the wing rails of frogs and cross-overs and either be broken by the violent blow which it so receives or cause a derailment by lifting the car from the rails. For light cars and slow speeds the swollen flange is not a serious matter. If it strikes an obstruction, the gray metal at the back is quickly worn away and no real harm is done.

As in the case of the rim that is never round, so the flange is never of absolutely uniform thickness throughout its whole extent. An allowance must therefore be made for the necessary variation. As to what this allowance shall be will depend upon the nominal thickness. For a heavy flange of the Master Car Builders' type this is limited to  $\frac{1}{8}$  in. or 1-16 in. on each side of the nominal dimension. For the light flanges, used on city electric railways, this allowance can be easily cut to one-half this amount.

The comby tread, or a tread in which fine, irregular cracks appear, may be due to a variety of causes. First of these is probably an inherent defect in the metal. A chill that is excessively hard is said to be more apt to develop comby spots than one that is softer. This statement must, however, be taken with allowances, for no data are at hand to show that any investigation has ever been made on the subject, not only along the lines laid down by the statement, but even as to whether there is really any variation in the hardness of the surface of the chill of different wheels. The appearance of the comby spot is shown by the line drawing. As to the immediate cause of the appearance of such a spot, it is generally acknowledged that it may be caused by a sliding which first produces a small flat place, and, by the local heating of the metal, sets up strains that the subsequent service of the wheel develops into the fine cracks called comby. This appearance may also be brought out by defective metal, indeed it is probable that some such defect must exist, in any case, else the sliding would not produce the effect that has been noted. Several causes have been assigned for comby wheels, such as having too much metal in the chill; from the presence of sand in the chill, and from ramming the pattern too tightly. Probably a microscopical examination of a chill with comby



spots would show either incipient cracks or slag, and that it is the crushing down of the metal and the chipping off of fine films that frequently produce the phenomena. At the same time wheels undoubtedly are often made comby by sliding, as the result of the heating thus produced; though, in the end, it is probably the quality of the metal that is responsible. Finally, it may be added that comby treads are more apt to be developed in heavy than in light service.

The shelled-out tread is unmistakable in appearance and is due to defective material. Usually the shelled-out spot is approximately round with a raised spot at the center. A fair idea of this can be obtained from the accompanying reproductions of photographs of shelled-out wheels. It is doubtful if a true shelled-out spot was ever caused by sliding, and a distinction must be drawn between one that is comby and one that is shelled out. The former is often mistaken for the latter. The shelled-out spot may be immediately brought out by sliding, but the cause is a defect in the metal, and is fully as apt to manifest itself in wheels to which no brakes are applied as to those where the brake pressures are the heaviest. Like other weaknesses of the wheel, it is most apt to appear where the service is the heaviest and fastest. That it is due to a defect in the metal is proven by the fact that if a defect in a wheel is taken and worked over carefully with a hammer a shelled-out spot can be produced. So that it is fair to conclude that the starting point of such a spot, when developed in service, is a minor defect in the form of an incipient seam that has been enlarged by the blows to which the metal has been subjected, until a piece flakes off and leaves a spot like that shown. This is emphasized by the frequency with which a number of spots are found on a single wheel.

Cracked plates or spokes are due to the internal stresses set up in the metal while cooling, and may be due to an improper form of pattern, the pouring of the wheel with metal at an unsuitable temperature, carelessness in cooling or annealing,

in such shape that it can yield slightly to the contracting influences of cooling without inducing stresses that approach the point of fracture. The influence of the temperature of the metal at the time it is poured is also of importance in securing a sound casting and thus give a section of sufficient size to resist the stresses of contraction.

Cracked plates have often been attributed to brake applications, and this may possibly have caused it in some instances;

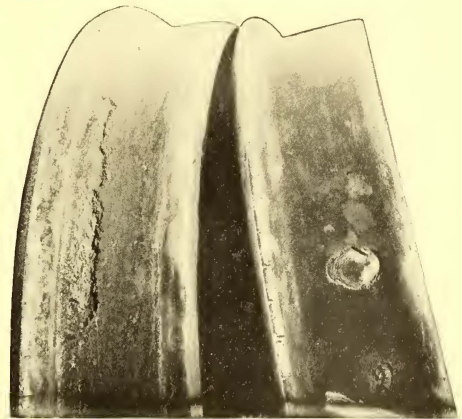


GENERAL APPEARANCE OF COMBY TREADS

but, wherever the case is carefully investigated, it will ordinarily be found to be due to a fault of the wheel. This can usually be traced to the condition of the metal at the junction of the double plate, where there is frequently found to be but a small percentage of the full section, because of the collection of sand and the formation of blow-holes at that point. This is apt to occur when the metal is too cool at the time of pouring. The first of the pour is then still further cooled by contact with the gate and in filling the hub and front plate, so that the junction point, through which the gases and sand that have been washed from the mold tend to pass, has become so chilled that these impurities are held and the defects named are produced. Where these conditions exist the application of the brakes may readily cause a fracture, because it has been found, in experimental work as well as from observations made immediately after a crack occurs (which is usually manifested by a loud report), that the tem-



WHEEL WITH BROKEN FLANGE



SHELLED OUT AND SEAMY TREAD WHEELS

Cast iron is a metal with a high tensile strength, and its ductility is very low, so that the local stresses set up in the tread by a slight amount of skidding will cause the comby cracks to appear in the unyielding metal of the chill. The stresses induced by unequal cooling will cause a breakage of the gray iron of the spoke or plate.

No rule can be laid down for the construction of a wheel pattern that will guide the inexperienced man to success. The only thing that can be said is that the metal should be

perature of the metal is rarely above 225 deg. F., to which it can readily be raised by the brakes.

Cracked brackets may be due to the defective form, by which they are unduly strained in the cooling of the metal, or to a difference between their own temperature and that of the plate against which they lie, when the wheel is subjected to the action of the brakes. The projection of the brackets gives them a fan-like action on the air, so that they are invariably cooler than either the rim or the plate. The same

statement holds regarding the spokes of a wheel, and explains some of the breakages that occur. Still, this is a legitimate stress which the wheel should be able to withstand and which it can do if the metal is of proper form and character.

Cracked and broken flanges are defects of an exceedingly serious character, especially in heavy and high-speed service. They may be occasioned by undue stresses in the form of a side thrust on curves or in passing frogs and switches, but such a stress could hardly produce a crack. The unyielding nature of cast iron is such that a blow sufficient to start a

solidifying or cooling of the metal before the mold has been filled. The wrinkles appear as folds on the surface and the seams where two currents have come together and not welded or united on account of their low temperature. As these defects are usually detected by the surface inspection at the foundry, the wheels containing them are rejected and so need not enter into a railroad's consideration of the matter.

Slag may be a serious matter if it becomes imbedded in the metal of the wheel. It produces a weak spot wherever it happens to stop, and is responsible for many of the defects that have been named. Its presence in the wheel is due to carelessness in pouring the metal and skimming the ladle. Fortunately it is lighter than the iron and so has a tendency to come to the surface, and may thus appear as a pit or mark at the end of the hub where it does no harm. Frequently, however, it is swept down by the current and small particles are lodged in the rim, where they injure the chill or are the starting points for shelled-out spots.

Chill cracks are now sufficient reason for the rejection of a wheel. In this connection it is interesting to quote from a discussion on the subject before the Master Car Builders' Association in 1877. One manufacturer is reported as saying that he did not consider a small chill crack any injury to the wheel across the tread or in the flange, provided the latter did not run down into the tread. Another, a user, did "not object to the chill cracks unless they were pretty wide, for instance, a quarter of an inch across"; while a third, and a very prominent member of the association said: "There is no doubt in my mind, from the experience I have had with chill-cracked wheels, that it is the most mistaken idea that railroad men ever got into their heads, that a chill crack in a wheel injures it materially. I have always understood, and I think



WHEEL WITH SHELLED-OUT SPOT

crack at the root of the flange would undoubtedly be enough to produce a fracture. This, of course, sometimes occurs, but an examination of a broken flange will usually show that it has broken in detail. That is to say, a fine and imperceptible crack was formed at the root of the flange in some way, and this was gradually extended down into the body of the metal and along the circumference, until a side blow was received sufficient to break a piece off. This condition of a partial fracture or crack extending down into the metal is shown by the variation in the color of the broken wheel and flange shown in the reproduction of the photograph. These incipient cracks may be formed by pouring the metal at too high a temperature or by the action of the brakes upon defective material. A broken flange does not necessarily mean, in that it has broken in detail, that some inspector has been negligent and should have discovered the crack before the danger point had been reached, because these cracks are usually very fine and closed so that they are invisible under the ordinary conditions of inspection, and also because they often start in the body of the metal and are buried therein to such a depth that even a polishing and etching of the adjacent surfaces would not reveal their presence.

Burst wheels are caused by the use of weak metal or by putting them on axles at too high a pressure. Of course, when the latter condition prevails the wheel is not to be held responsible for the defect, and this should be easily traced by the records at the wheel press. Weakness in the metal is due to the use of poor material, improper mixing or careless melting, as previously indicated.

Seams and wrinkles come under the same category, and usually appear on the face of the tread. They are due to a



SECTION OF WHEEL, SHOWING INCIPIENT FRACTURE

it is common sense, that the best iron for wearing is the iron that chill cracks." But this was in the days of light cars. At present chill cracks are not accepted, and wheels are rejected at the foundry if they are defective in this regard.

Sweat or beads, sometimes also called cold shot, takes the form of small shot, smooth and round, and is sometimes found in the chilled portion of a cast wheel, usually on the surface, and most frequently in the throat of the flange. This, like the wrinkle, does not necessarily involve the rejection of the wheel, if it is not "too deep"—a flexible limitation that depends for its application on the personal equation of the inspector. This shot is supposed to be formed by the solidification of the metal while it is in a spheroidal condition—resembling drops of water that have fallen upon a hot stove.

From this resumé of the diseases to which the cast-iron wheel is heir, it will be seen that the pitfalls in the path of the manufacturer are many, and when we consider the vast number of these wheels that are in use, the service that they are rendering, and what a small percentage of those made develop any diseases whatever, it must be conceded that the makers are skilled in their art.

Although the cast-iron wheel has been forced out of the



market for steam passenger cars and engine trucks and is being hard pressed by the steel wheel in heavy electric and freight service, it will be a strong factor in all railroad work for many years to come. To quote from the introduction to a report on the testing of this class of wheels in 1898: "The long continued use of the cast-iron wheel in this country particularly testifies to its great efficiency and economy, and to preserve this useful product, as to preserve any product of industry, requires continual improvement. That the quality of the cast-iron wheel has been improved materially from time to time there is no doubt, but that it is in need of still greater improvement, it is thought, there is also no doubt." That the cast-iron wheel, under the spur of rivalry and competition, will be made better as time goes on is evident from the work now done, and this will be, to a great extent, along the lines of the elimination of the diseases and their causes to which it is now subjected.

**REPORT ON THE RAILWAYS AND TRAMWAYS OF NEW SOUTH WALES, AUSTRALIA**

Consul F. W. Goding reports concerning the railways and tramways of New South Wales, quoting some of the more important details submitted by the government commissioners. He writes:

The earnings from the two services (railways and tramways) totaled \$24,752,352, and the expenditure \$14,470,037, leaving a balance of \$10,281,975. The interest on capital invested totaled \$8,136,140, which, deducted from the net earnings, leaves a surplus of \$2,145,835, to which the railways contributed \$1,873,505 and the tramways \$272,330. In 1904-5 there was a total deficiency of \$178,590, so the figures for 1905-6 show an improvement of \$2,324,425. The percentage of working expenses to revenue was reduced from 59.5 to 54.51, being an improvement of 4.99.

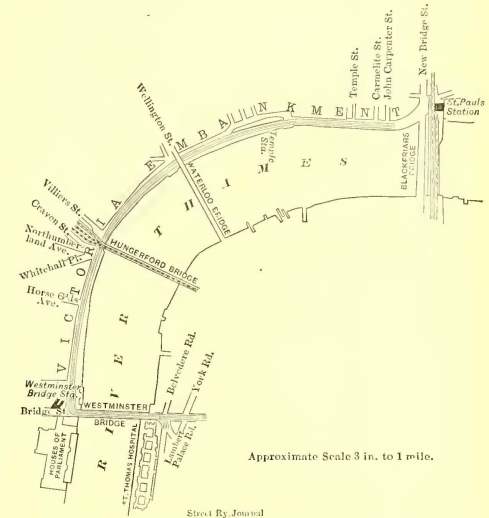
The number of miles of tramways open on June 30 was 126, and the average cost per mile, including workshops and rolling stock, was \$141,576. The percentage of profit to capital invested was \$24.71, as compared with \$17.11 in the previous year and \$9.63 in 1888. The percentage of working expenses to earnings was 78.11, being a reduction of nearly 6 per cent. The return per average mile open, after paying working expenses, \$7,197, the earnings per tram mile \$0.25, the working expenses \$0.19, leaving a return of \$0.05. The number of passengers carried was 145,262,779 and the mileage run 16,309,907. The staff employed on the railways on June 30 last was 13,478, and on the tramways 4163.

**PROFITABLE LIVE STOCK CARRIAGE ON THE WESTERN OHIO (ELECTRIC) RAILWAY**

C. C. Collins, general freight agent of the Western Ohio Railway Company, has been moving live stock and other property to and from county fairs, to the advantage of his own company and connecting lines. During the past few weeks there has been a large circuit of county fairs in the western part of Ohio, and by offering quick service and unloading goods directly at the fair grounds he was able to get the business away from the steam roads. A large number of race horses was moved over the entire circuit. Mr. Collins arranged his express cars into stalls by placing scantlings across the car, and in this way it was possible to handle ten or eleven running horses or eight trotting horses and their traps in one car. A rate of about 80 cents a car mile for the mileage actually made by the car was fixed for this business.

**ELECTRIC TRAMWAYS ON THE THAMES EMBANKMENT, LONDON**

One of the most interesting sections of the London County Council tramways now under construction is that which is



ROUTE OF THE THAMES EMBANKMENT TRAMWAYS

being carried out by Dick, Kerr & Co., Ltd., on the Thames Embankment. The work is being done under somewhat dif-



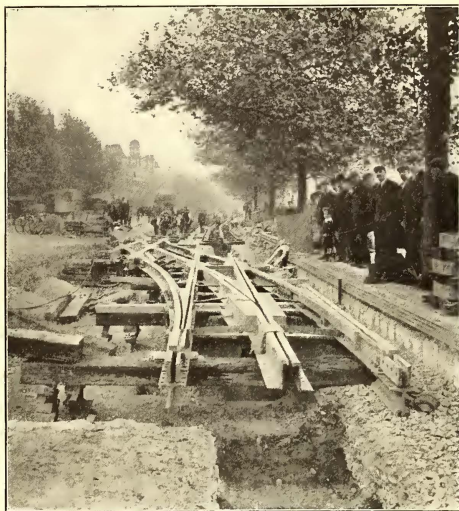
LOOKING EAST ALONG THE THAMES, NEAR EASTERN TERMINUS AT BLACKFRIAR'S BRIDGE, H. M. TRAINING SHIP "BUZZARD" ON THE RIGHT

icult conditions owing to the splendid nature of the roadway, which below the surface is practically as solid as concrete, resource having to be made to mechanical appliances for

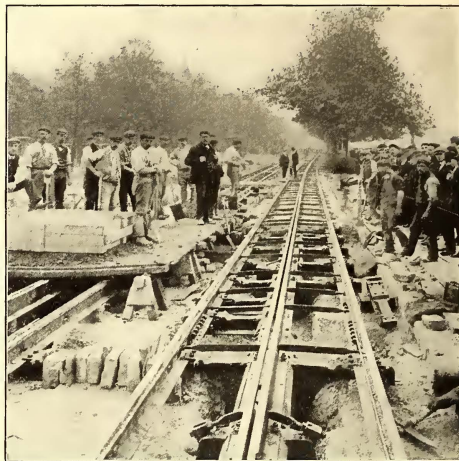
breaking it up. And again, almost immediately below the level of the roadway is the arch of the underground railway.

Despite these and other difficulties, however, excellent progress is being made and the contractors expect that the track

Bridge, the contractors have not been able to proceed with the special construction required for this part of the line; but it is possible to show some interesting illustrations of the work now under construction. One cut gives an excellent view of the cross-overs, of which there are five in all, and three double junctions; and other illustrations show views of the work in its various stages toward completion.



VICTORIA EMBANKMENT TRAMWAYS, SHOWING CROSS-TIES AND YOKE CONSTRUCTION



VICTORIA EMBANKMENT TRAMWAYS, OPPOSITE TEMPLE GARDEN, LOOKING EAST

work will be complete well within the next three weeks; a very satisfactory rate of progress, indeed, when it is remembered that the total length of the line is about  $3\frac{1}{4}$  miles of single track, and that the work has only been proceeding some five weeks.

The contract consists of 1.46 miles of route along the Embankment, and 1.54 miles of route over Westminster Bridge, which together is equivalent to  $3\frac{1}{4}$  miles of single track, as stated above. The map gives a very clear idea of the ramifications of the lines and graphically illustrates the advantages offered by this extension of the London County

The width of the embankment generally is about 66 ft. from curb to curb, and the effective widths occupied by the new lines is about 18 to 19 ft., which leaves a width of about 47



SHOWING THE ARCHES IN ROADBED OF THE METROPOLITAN DISTRICT (YERKES) UNDERGROUND RAILWAY. IN THE RIGHT FOREGROUND IS SOMERSET HOUSE, WATERLOO BRIDGE, AND IN THE BACKGROUND, THE HOTEL CECIL



ALONG THE THAMES EMBANKMENT, WITH THE HOUSES OF PARLIAMENT IN THE BACKGROUND (CLOCK IS "BIG BEN"), AND SCOTLAND YARD IN THE FOREGROUND LOOKING SOUTH

Council's tramways in coping with the heavy passenger traffic from the South Side of London. Owing to the structural alterations not having been completed on Westminster

fare in London and most Continental cities. This width is 10 ft. more than the width of an ordinary first-class thoroughfare in London and most Continental cities.



## THE RECONSTRUCTION OF THE OLIVE STREET TRACK IN ST. LOUIS

An interesting and detailed account of the method of reconstructing the Olive Street track in St. Louis was presented Sept. 19, 1906, before the Engineers' Club, of St. Louis, by Richard McCulloch, assistant general manager of the United Railway Company. A brief account of this work was published in the *STREET RAILWAY JOURNAL* for May 26, 1906. Mr. McCulloch's paper appears in the current issue of the *Journal of the Associated Engineering Societies*, from which the accompanying abstract is taken:

The first street railway track laid in the city of St. Louis was that laid on Olive Street from Fourth Street to Fourteenth Street. The original rail was a flat strap rail, and the road was opened for traffic as a horse-car line on July 4, 1859. As the city grew, Olive Street developed into an important retail business street, and the Olive Street line became the artery uniting the business district with the most important residence district of the city.

In 1887 the Olive Street line was converted into a cable line, a double cable track being built from Fourth Street to Boyle Avenue, a distance of 3.5 miles. In this construction a girder rail,  $4\frac{1}{2}$  in. in height, weighing 63 lbs. per yard, was laid on cast-iron yokes weighing 300 lbs. each, set in concrete 4 ft. apart. These yokes were 48 ins. in depth and enclosed a conduit for the cable 38 ins. in depth. This cable road was one of the first built east of San Francisco. All of the St. Louis cable roads adopted the 38-in. conduit. In cable roads afterwards built in New York City the conduit depth was reduced to 24 ins., making a much stronger roadbed, and greatly reducing the cost of construction.

The original rail having worn out, in 1898 the rail of the cable road was renewed. In the original construction the rail had been bolted directly to the yokes by means of hook bolts without the use of chairs, and it was, therefore, impossible to increase the height of the rail on the yokes. In the 1898 reconstruction an extra heavy section of  $4\frac{1}{2}$ -in. rail weighing 67 lbs. per yard was used. In 1901 the road was converted into an electric road, electric cars being operated over the cable roadbed without change. This rail, however, was entirely too light for service under heavy electric cars. In 1903, the year before the World's Fair, about one-half of the track was relaid, the portions selected for relaying being the downhill parts of the tracks where the speed of the cars was greater. In the 1903 reconstruction it was not considered advisable to take the cars off the street during the reconstruction, and the very novel method of laying the track with a 9-in. rail for the outside rail and a  $6\frac{3}{8}$ -in. rail for the inside rail was adopted. The 9-in. rail was laid 7 ins. outside of the gage line of the track on a concrete stringer 18 ins. wide and 6 ins. deep. The  $6\frac{3}{8}$ -in. rail was laid on the old concrete of the cable road and tamped to surface with a mixture of iron borings and salt about  $1\frac{1}{2}$  ins. deep. The concrete under the 9-in. rail was given about five days to set. The bed of iron borings under the  $6\frac{3}{8}$ -in. rail was given only a few hours to set, as the rail was laid at night and cars run over it the next day. The two rails were tied together by steel tie rods spaced 6 ft. apart. Fig. 1 shows this construction. The reasons for this unusual construction were to enable the track to be relaid without interfering with car service on the street, and to avoid the expense of excavating the concrete roadbed of the cable road. The results obtained, however, were not at all satisfactory. The shallow concrete stringer under the 9-in. rail broke in a number of places and left this rail without support. The iron borings under the  $6\frac{3}{8}$ -in.

rail did not set to form a hard mass, and this rail, being left loose, deflected up and down as cars went over it, working the paving loose and emitting a horrible grinding and chattering noise which gave rise to constant complaint. The two rails were not sufficiently tied together, and frequent wide gage was the result.

In the spring of 1906, when it was necessary to relay the old cable track on account of the rail being worn out, that portion of the track reconstructed in 1903 was in such bad condition that it was considered best to relay both of the tracks and put the street into first-class shape.

In order to understand the need for speed in the construction, it should be stated that the Olive Street line is the one having the heaviest traffic in the United Railways system. During the middle of the day the cars are 1.5 minutes apart, and night and morning during the hours of heaviest travel, the headway between cars is reduced to 50 seconds. Olive Street throughout its entire length is a narrow street, only 36 ft. wide between curbs, and lined with retail stores. As a concrete construction for the track was decided upon, it was necessary to remove the cars from each track during its construction. The street being entirely too narrow for a third temporary track, it was necessary to route the cars over another parallel line. Hence, any delay in the progress of

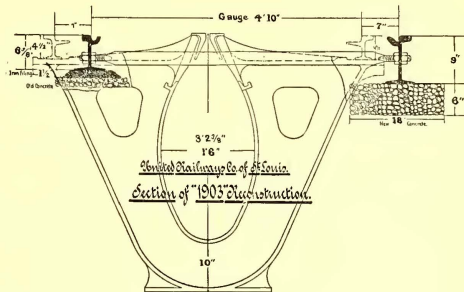


FIG. 1.—SECTION OF 1903 CONSTRUCTION

the construction would mean annoyance to the residents and shopkeepers along the street, inconvenience to the regular patrons of the line and loss of traffic to the railroad.

After a number of plans had been considered, it was decided to perform the work in two sections, building both tracks between Fourteenth Street and Boyle Avenue (29,118 ft. of track, equal to 5.51 miles,) early in the spring, and that portion between Sixth Street and Fourteenth Street (3670 ft. of track, equal to 0.69 mile,) during the middle of the summer. The work between Sixth Street and Fourteenth Street was postponed until the summer at the request of the merchants on lower Olive Street, who did not like to see their spring trade interfered with.

It was decided to use the single track on Olive Street not under construction for west-bound cars, sending east-bound Wellston cars down Washington Avenue and across Fourteenth Street to Olive Street, and the east-bound McPherson and Maryland cars over Boyle Avenue to Laclede Avenue, down Laclede Avenue and across Thirteenth Street to Olive Street. To make these changes in routing, a temporary track was laid in Boyle Avenue from Maryland Avenue to Laclede Avenue, a distance of about 1,500 ft. This temporary track was laid with 75-lb. T-rail spiked to wooden ties, the ties being placed on top of the brick pavement of the street. In passing, it is interesting to note that when this temporary track was removed after cars had been running

over it for six weeks, absolutely no damage whatever had been done to the brick pavement.

For the new track there was adopted a girder Trilby rail, 9 ins. high, laid on cypress ties spaced 2 ft. between centers. Brace tie plates and Goldie claw tie plates were used on alternate ties. The rods, 2 ins. x  $\frac{3}{8}$  ins. in section, were spaced 6 ft. apart. Six inches of Portland cement concrete was placed beneath the ties, and the concrete was carried up high enough on the rail to support the style of paving adopted, making a thickness of 14 ins. of concrete in the case of granite paving and 18 ins. for asphalt paving. In either case the wooden tie was entirely embedded in the concrete. This construction is shown in Fig. 2. For the first portion of the reconstruction the work was divided into three sections: Section No. 1, Fourteenth Street to Jefferson Avenue; section No. 2, Jefferson Avenue to Grand Avenue; section No. 3, Grand Avenue to Boyle Avenue. Each of these sections is about a mile of double track. Three separate foremen with

those in use in the repair shops, no special machines being bought for the purpose. Current for operating the air compressor motors was taken from the trolley wire over the tracks. The car was moved along as the holes were drilled, air being conveyed from the car to the drills through a flexible hose. Two drills were operated normally for each car. One of the air compressors was exceptionally large and at times operated four drills. The total number of holes drilled in the reconstruction of the track was 31,000. The total feet of hole drilled was 20,700 ft. The following figures give the average performance of the best one of the drilling outfits, which operated from two to three drills:

Depth of hole.....	8 in.
Number of holes per hour per drill.....	30
Feet of hole drilled per hour per drill.....	20.3
Labor cost per foot of hole drilled.....	\$0.027
Labor cost of drilling per cu. yd. blasted.....	0.085
Drilling cost per lineal foot of track.....	0.017
Drilling cost per mile of track.....	89.76

In these figures there is no charge for electric power or for depreciation of machinery.

For blasting, a 0.1-lb. charge of 40 per cent dynamite was used in each hole. A fulminating cap was used to explode the charge, and twelve holes were shot at one time by an electric firing machine. The dynamite was furnished from the factory in 0.1-lb. packages, and all the preparation necessary on the work was to insert the fulminating cap in the dynamite, tamp the charge into the hole and connect the wires to the firing machine. In order to prevent any damage being done by flying rocks at the time of the explosion, each blasting gang was supplied with a cover car, which was merely a flat car with a heavy bottom and side boards. When a charge was to be fired, this car was run over the twelve holes and the sideboards let down, so that the charge was entirely covered. This work was remarkably free from accidents. There were no personal accident claims whatever, and the total amount paid out for property damages for the whole six miles of construction was \$685. Most of this was for glass broken by the shock of the explosion. There was no glass broken by flying particles. The men doing this work, few of whom had ever done blasting before, soon became very expeditious in handling the dynamite, and the work advanced rapidly. The report made by the firing of twelve holes was no greater than that made by the giant firecrackers so common in the streets on the Fourth of July.

For the drilling and blasting the old rail had been left in place to carry the air compressor car and the cover car. After the blasting, this rail was removed and the concrete excavated to the required depth. In most cases the cable yokes had been broken by the force of the blast. Where these yokes had not been broken, they were knocked out by blows from pieces of rail. The efficacy of the blasting depended largely upon the proper location of the hole. Where the holes had been drilled close to the middle of the concrete block, so that the dynamite charge was exploded a little below the center of gravity of the section, the concrete was well shattered and could be picked out in large pieces. Where the hole had been located too close to either side of the concrete block, however, the charge would blow out at one side and a large mass of solid concrete would be left intact on the other side. The total estimated quantity of concrete blasted was 6558 cubic yards, or 0.2 cubic yard of concrete per lineal foot of track. The cost of the dynamite delivered in 0.1 lb. packages was 13 cents per pound. The exploders cost \$0.0255 each.

The following statistics represent the average work of the three gangs working on the west-bound track between Fourteenth Street and Boyle Avenue.

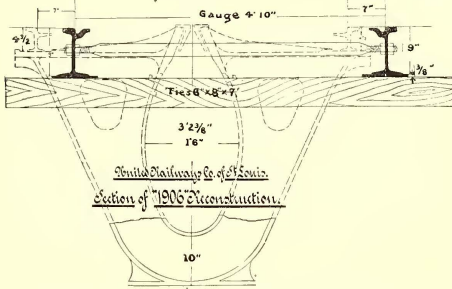


FIG. 2.—SECTION OF 1906 CONSTRUCTION, SHOWING OLD CABLE YOKES NOW REMOVED

independent gangs were put in charge, each foreman in charge of a section. Work was carried on day and night.

#### EXCAVATION

In order to build the track, it was necessary to make an excavation 21 ins. in depth in a concrete which had been setting for eighteen years, and which experience in whatever excavations had been made had shown to be extremely hard. If it had been necessary to pick out 6 miles of this concrete by hand the cost would have been excessive, and, disregarding the cost, the time involved and the number of men required would have been prohibitory of that method.

#### DRILLING AND BLASTING

The method adopted for excavating the concrete was by blasting with small charges of dynamite, the object being to make these charges strong enough to shatter the concrete so that it could be taken out in large pieces, but not heavy enough to do other damage. Holes were drilled 7 ins. to 8 ins. deep in the concrete, four holes between each pair of yokes. The hole was so located that the bottom of the hole was a little below the center of gravity of the section of concrete to be removed. For drilling the holes there were used No. 2 Little Jap drills made by the Ingersoll Rand Company, operated by compressed air at 90 lbs. pressure. This tool drills at 1.25-in. hole. A dry hole is drilled, the exhaust air from the hollow drill steel blowing the dust from the hole and keeping it clean. Common labor was used to run the drills, and very little mechanical trouble was experienced. Three cars were fitted up, one for each gang, each car being equipped with a motor-driven air compressor, water for cooling the compressors being obtained from the fire plugs along the route. The air compressors were taken temporarily from



Cost of dynamite charge per hole.....	\$0.013
Cost of exploder per hole.....	0.0255
Four holes blasted in each 4 ft. of track:	
Lineal feet of track blasted per hour.....	138
Cubic yards of concrete blasted per hour.....	27.6
Cubic yards of concrete blasted per pound of dynamite..	.2
Labor cost per cubic yard, blasted.....	\$0.076
Cost of dynamite and exploders per cubic yard, blasted..	0.192
Cost of labor and material per cubic yard, blasted.....	0.268
Cost of blasting per lineal foot of track.....	0.054
Cost of blasting per mile of track.....	285.12
Cost of drilling and blasting per cubic yard.....	0.353
Cost of drilling and blasting per lineal foot of track....	0.071
Cost of drilling and blasting per mile of track.....	374.88

When the excavation was completed, the ties were placed in the trench, the rail spiked down, the tie rods pulled up to gage and temporary fishplates put on the joints. Work trains were then run on this track and the excavated material hauled away. The excavated material in this job amounted to 11,410 cubic yards, or 0.348 cubic yards per lineal foot of track. The United Railways Company purchased a sink hole on North Grand Avenue and completely filled it with excavated material from Olive Street. All excavated material and all new material with the exception of the cement used in this work was handled on cars, no teams being used at all. It would have been impossible to do the work in the time occupied had wagons and teams been depended upon.

**RAIL**

The rail used in this work was Lorain section 333, furnished in lengths of 60 ft. A cross-section is shown in Fig. 3. The standard section has 7-16-in. web, but it was considered desirable to have it rolled with 1/2-in. web, and the rail with this change weighs 112 lbs. per yard. Its height is 9 ins., and the base is 5 1/2 ins. The composition of the rail is as follows:



COVER CAR USED FOR BLASTING IN OLIVE STREET

Carbon .....	0.55 per cent
Silicon, not to exceed.....	0.20 per cent
Phosphorus, not to exceed.....	0.10 per cent
Sulphur, not to exceed.....	0.10 per cent
Manganese .....	0.80 to 1.20 per cent

This carbon is unusually high, as girder rail of this weight seldom is rolled with carbon to exceed 0.45 per cent. The

increase in carbon makes the rail much harder, but also much more likely to break. No trouble has been experienced from this source, however, only one rail having been broken in unloading. The head is what is known as the Trilby type, having a groove for the wheel flange and a turned-over lip for the street traffic. It is a very desirable rail head for street traffic, as vehicles can cross it without bumping, but any rail with a wagon tread has an extremely limited life. The depth of the groove in the rail is 1 1/8 ins. The flange of the car wheel is 3/4 in. deep. Therefore, whenever 1/2 in. is worn on the head of the rail, the wheel is running on its flange and the rail is worn out for railway purposes, although it may be in perfect condition otherwise. This merely demonstrates the advantages of the T-rail, the use of which is unfortunately prohibited by our city ordinances.

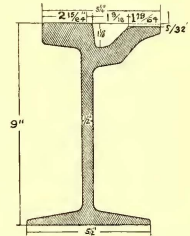


FIG. 3.—STANDARD RAIL

**TIES**

The ties were of hewn cypress, 6 ins. x 8 ins. in section and 7 ft. long. It has been the usual practice in St. Louis to use white oak ties, but it was considered that a soft wood tie entirely embedded in concrete would be just as satisfactory as a hard wood tie. The ties were spaced 2 ft. between centers. Tie plates were used under the rail, each alternate tie plate being a brace plate.

**CONCRETING**

After the excavated material had been hauled away and the street cleared up, the track was lined and surfaced by means of wooden blocks and wedges placed beneath the ties. Concrete was then tamped beneath and around the ties, the concrete being deposited in the track from a concrete mixing machine running on the rails. The concrete used was composed of a mixture by volume of one part of Portland cement, 2 1/2 parts of river sand and 6 1/2 parts of crushed limestone rock. The cost (delivered) of the materials, composing this concrete was as follows:

Crushed rock, \$2.85 per sq. yd.	= \$0.0285 per cu. ft.
	= 0.77 per cu. yd.
Sand .....	= 0.025 per cu. ft.
Portl'd cem't., 1.70 per bbl.	= 0.675 per cu. yd.
	= 0.425 per sack.

For the track work, 7.36 cu. ft., or 0.273 cu. yds., were required per lineal foot of track, 1 1/4 sacks of cement per lineal foot of track, or 1650 barrels of cement per mile of track, were used in this work. The value of the materials used (cement, rock and sand) was \$0.108 per cu. ft. of concrete, or \$2.92 per cu. yd of concrete.

The material for the concrete was distributed on the street beside the tracks in advance of the machine, the sand being first deposited, then the crushed rock piled on that, and finally the cement sacks emptied on top of this pile. The materials were shoveled from this pile into the concrete mixing machine without any attempt at hand mixing on the street. Great care was taken in the delivery of materials on the street to have exactly the proper quantity of sand, rock and cement, so that there would be enough for the ballasting of the track to the proper height and that none would be left over. Each

car was marked with its capacity in cubic feet, and each receiver was furnished with a table by which he could easily estimate the number of lineal feet of track over which the load should be distributed.

CONCRETE-MIXING MACHINES

The concrete mixing machines were designed and built in the shops of the United Railways Company. Three machines were used in this work, one for each gang. The machine is composed of a Drake continuous worm mixer, fed by a chain dragging in a cast-iron trough. The trough is 36 ft. long, so that there is room for fourteen men to shovel into it. Water is sprayed into the worm after the materials are mixed dry. This water was obtained from the fire plugs along the route. In the first machine built, the Drake mixer was 8 ft. long. In the two newer machines the mixer was 10 ft. long. Both the conveyor and the mixer were motor driven, current being obtained for this purpose from the trolley wire overhead. Two types of machines were used, one in which the conveyor trough was straight and 45 ins. above the rail, and the other in which the conveyor trough was lowered back of the mixer, being 25 ins. above the rail. The latter type had the advantage of not requiring such a lift in shoveling, but the trough is so low that a motor truck cannot be placed underneath it. In the high machine the mixer is moved forward by a standard motor truck under the conveyor. In the low machine the mixer is moved by a ratchet and gear on the truck underneath the mixer. A crew of twenty-seven men is required to work each machine, and under average conditions concrete for 80 lineal ft. of single track, amounting to 22 cu. yds., can be discharged per hour. The following figures give the average performance of the three machines in concreting the westbound track from Fourteenth Street to Boyle Avenue:

Number of men employed at machine.....	27
Number of men shoveling into machine.....	14
Lineal feet of track concreted per hour.....	80.95
Cubic feet of concrete discharged per hour.....	595.79
Cubic yards of concrete discharged per hour.....	22.06
Labor cost of concrete per lineal foot of track.....	\$0.071
Labor cost of concrete per cubic yard.....	0.26
Cost of materials composing concrete per lineal foot of track.....	0.791
Cost of materials composing concrete per cubic yard.....	2.92
Total cost of concrete (labor and material) per lineal foot of track.....	0.862
Total cost of concrete (labor and material) per cu. yd.....	3.18
Total cost of concrete (labor and material) per mile of single track.....	4,551.36

In these figures there is no charge for electric power or for depreciation.

JOINTS

The rail joint adopted for this work was the cast-welded joint. This joint has been in use since 1896, the first use of it having been in this city. This method of joining rails has been the occasion of considerable debate among street railway engineers, the process having warm adherents and just as warm opponents. Without entering into a discussion of the matter, it will suffice to say that the process, when properly and carefully carried out, will produce excellent and permanent joints, and has the advantage of a reasonable cost where the work is done by the railway company as in this case. The process is an extremely simple one and consists merely in pouring melted cast iron into an iron mold placed around the abutting rail ends. The iron is allowed to harden, the molds knocked off and the joint is finished.

In performing the work, the fishplates which were temporarily placed on the joints for the lining and surfacing of the track are taken off and the rail ends thoroughly cleaned by

means of a sand blast. Iron molds are then placed about the joint, a heavy screw placed on the rail to keep it in perfect surface during the operation and melted iron poured into the mold. The iron is melted in a portable cupola, and consists of a mixture of one-third selected scrap and two-thirds soft charcoal iron. The secret of success with this process consists in thoroughly cleaning the rail ends, removing every particle of oxide, and in having the iron intensely hot when poured. Where these two precautions are taken, an actual welding takes place between the cast iron and the steel, a joint sawed in two showing an eating away of the base of the rail where the melted cast iron has struck it. Good joints have an electrical conductivity equal to, if not greater than, the same length of rail.

Objections have been made to this process on account of the heating of the head of the rail, it being stated that this heating anneals and softens the rail and causes it to wear away at this point. To prevent any annealing action, the molds used by the United Railways Company are so shaped that the cast iron is kept low on the back of the rail, thus minimizing the heating of the rail head. The cast-iron joints used on the 9-in. rail shown in Fig. 4 weigh 170 lbs., and the cross-sectional area is 65 sq. in. Assuming a tensile strength of 15,000 lbs. per sq. in. for cast iron, the tensile strength of the joint is 975,000 lbs., which indicates that the joint is stronger than the rail.

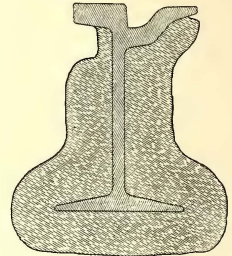


FIG. 4.—SECTION OF CAST-WELDED JOINT

It is a source of wonder to laymen that miles of track in paved streets may be welded without any allowance for changes in length due to changes in temperature, and the question is often asked what becomes of the expansion and contraction of the rail. In answering this question, it should be remembered that the rail is embedded in a paving which soon packs so closely that any motion of the rail would be attended by great frictional resistance, and also that only 20 per cent of the perimeter of the rail is exposed to the air, the rest of the rail being surrounded by a poor conductor of heat, so that the changes in temperature of the rail are not so violent nor are the extremes so great as those of the atmosphere. Nevertheless, there is a strain in the rail due to changes in temperature, and if there is no longitudinal motion to the rail, this strain is probably taken up in an infinitesimal change in the cross-section of the rail.

In order to estimate what this strain amounts to, let us assume that the maximum deviation from the welding temperature is 75 deg. F., which is approximately correct for this climate. Assuming a coefficient of expansion of 0.000005 for steel, a rail would contract, for a decrease of 75 deg., 0.0000065 by 75, equal to 0.0004875 of its length. Assuming a modulus of elasticity of 30,000,000, this would correspond to a strain of 14,625 lbs. per sq. in., which is well within the elastic limit of steel, showing that no harm is done by the alternate strains of tension and compression due to changes in temperature. As the cross-section of the rail is 11.2 sq. ins., the pull in the rail due to contraction would be 11.2 by 14,625, equal to 163,800 lbs., which is well within the tensile strength of the rail and the cast-welded joint.

PAVING

The last process in the track construction was the paving. Olive Street east of Grand Avenue is a granite street, and the



track was paved with granite blocks resting on a sand cushion 1 in. deep. West of Grand Avenue the street was asphalt, and the tracks were paved with 3 ins. of asphalt laid on the concrete, the asphalt being finished up against granite blocks set next the rails. This construction makes a smooth and sightly pavement. In all cases both sides of the rail were plastered underneath the head with a cement mortar, so that the paving blocks rested against a vertical surface and were prevented from sliding under the head of the rail. A cross-

this 5½ miles of track was about \$170,500. For the entire work, after making the credits for scrap material from the old track, the average cost per mile of completed track was about \$27,000.

DURABILITY OF TRACK

In the track consumption adopted by the United Railways Company only the best materials are used, and by the use of a concrete foundation it is hoped to obtain the most substantial and durable construction possible, and one which will

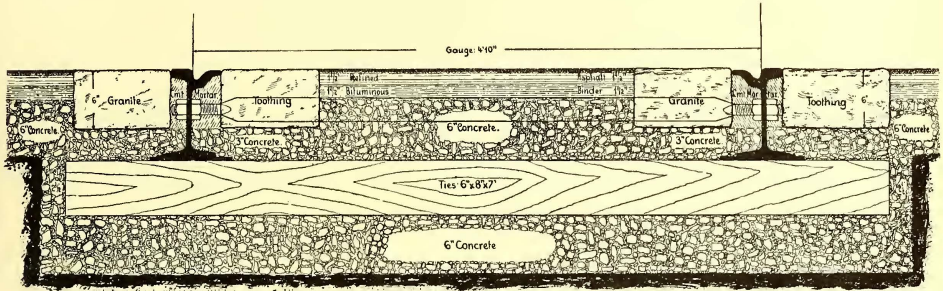


FIG. 5.—CROSS-SECTION OF COMPLETED 1906 CONSTRUCTION

section of the finished track is shown in adjacent Fig. 5 and an isometric view in Fig. 6.

After the concrete work was finished, the concrete was allowed seven days to set before cars were allowed to run over it. This interval sufficed for the paving, so that the track was entirely finished before it was opened for traffic.

SPEED OF CONSTRUCTION

The United Railways Company officials are especially proud of the speed with which this difficult work was performed. For the section between Fourteenth Street and

maintain the street paving in good condition. The question is often asked how long such a track as that laid on Olive Street will last. Of course the wear on a track is directly proportional to the number of cars run over it. As has already been stated, the type of rail used in this construction is worn out for railway purposes when the wheel flange runs on the rail, which will occur when about ¼ in. is worn off the head of the rail. It is hoped that with the rail supported so firmly as in this case, so that there is no deflection as the car wheel passes over it, the rail wear will be minimized, but with the heavy traffic of this street, it is doubtful if the rail

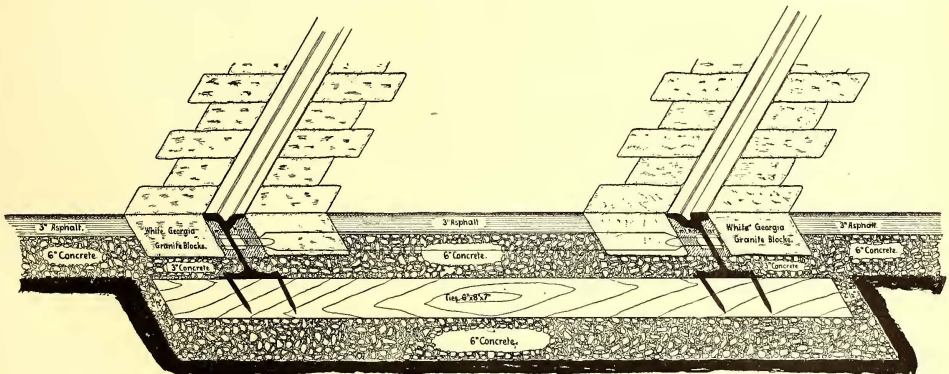


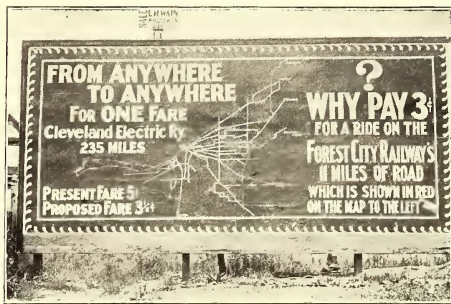
FIG. 6.—ISOMETRIC VIEW OF COMPLETED 1906 CONSTRUCTION

Boyle Avenue (5.51 miles), work was begun April 30, 1906, and the cars were turned back on the street on June 11, 1906, exactly six weeks having elapsed since ground was broken. Of this time, two weeks were allowed for the setting of the concrete, so that the entire work, with exception of the paving, was done in four weeks, which is an average of 1040 lineal ft. of single track (0.20 mile) per day. The cost of

will have a life of more than ten years. The roadbed itself, however, should outlast several sets of rails. The ties are entirely embedded in concrete and are not subject to decay, and it is proposed that when the present rails are worn out, new rails shall be put down on the same roadbed, making the matter of renewing the rails a comparatively inexpensive process.

**POSTERS IN THE CLEVELAND CAMPAIGN**

The Cleveland Electric Railway Company's publicity department is doing a great work for the company in the way of showing the advantages of its proposition in the fight for franchises in Cleveland. Numerous methods have been adopted to bring the company's views before all classes of people. In the leading daily papers the company has been using large spaces in its daily "talks" with the people, and in these it has been setting forth its arguments in a dignified



ONE OF THE CLEVELAND ELECTRIC RAILWAY'S POSTERS IN THE LOW-FARE CAMPAIGN

and convincing manner. In the street cars the company has made its appeals by means of cards placed in the forward end of the car, separate from other advertising. Much good work has also been done by bill-board advertisements. One of the latest is an enormous map in black and white, showing the extent of the old system as compared with that of the so-called 3-cent fare company. These posters are to be seen all over the city.

**TWO NEW RECORDING REGISTERS**

John F. Ohmer, president of the Ohmer Fare Register Company, of Dayton, Ohio, has recently invented two recording registers, which will be known as Nos. 19 and 20. Both are especially designed for large city heavy traffic prop-

3	D.	0	3	8	0	AUG	8	INS <sup>4</sup>
3	D.	1	3	8	0	AUG	5	11
3	U	1	2	6	9	AUG	4	11
3	D.	1	1	8	0	AUG	3	11
3	U.	1	1	0	5	AUG	2	11
3	D.	1	0	2	1	AUG	1	11
3	D	1	0	2	1	AUG	8	INS <sup>4</sup>

SINGLE RECORD OF THE NO. 19 REGISTER

*Conductor's Record*

AUG	9	D.	0	4	3	4	-	5¢
AUG	8	U.	0	4	2	3	-	5¢
AUG	7	D.	0	4	0	9	-	5¢
AUG	6	U.	0	4	0	2	-	5¢
AUG	5	D.	0	3	8	8	-	5¢

*Harry Jones*

*Conductor's Record*

AUG	5	D.	0	3	8	8	-	5¢
AUG	4	U.	0	3	7	8	-	5¢
AUG	3	D.	0	3	6	4	-	5¢
AUG	2	U.	0	3	4	9	-	5¢
AUG	1	D.	0	3	3	8	-	5¢
AUG	7	D.	0	3	3	8	-	5¢

*Joe Smith*

AUG	7	D.	0	3	3	8	-	5¢
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RECORD FROM THE DUPLEX REGISTER

*Auditor's Record*

5¢	-	0	4	3	4	AUG	7	INS <sup>2</sup>
5¢	-	0	4	3	4	AUG	9	8
5¢	-	0	4	2	3	AUG	8	8
5¢	-	0	4	0	9	AUG	7	8
5¢	-	0	4	0	2	AUG	6	8
5¢	-	0	3	8	8	AUG	5	8
5¢	-	0	3	8	8	AUG	5	6
5¢	-	0	3	7	8	AUG	4	6
5¢	-	0	3	6	4	AUG	3	6
5¢	-	0	3	4	9	AUG	2	6
5¢	-	0	3	3	8	AUG	1	6
5¢	-	0	3	3	8	AUG	7	INS <sup>2</sup>

erties, and are one-fare recording machines. They print a record of all the fares collected on each trip, and with each printed record is combined a note of the direction in which the car moves, the register number, the trip number, the month and day, the identification of the conductor, and the denomination of fares which are registered, for instance, 5 cents or transfers. The machines comprise, in addition, the

total counting passenger or trip wheels, and also visible indicators showing the direction. At the end of each trip the trip wheels turn to zero and the direction indicator reverses, the direction printer also reversing at the same time. With these machines it is necessary to turn the trip wheels to zero at the end of each trip in order to change the direction indicator, and by so doing the machines are locked until the fares collected on the previous trip are recorded.

The No. 19 register prints a single record, which may be removed by the conductor, or it may be removed, at the option of the company, by the inspector. The No. 20 machine, however, has two compartments, into each of which is fed a copy of the record. The latter register will be known as Ohmer's duplex recording register. The conductor has access to one compartment, from which, at the end of his run, he removes his individual record, which is given to the cashier with his collections. The other record remains in the machine and is accessible only to the inspector, or duly authorized agent who is given a key to the private compartment.

Each succeeding conductor removes his own record, and at the end of the day the auditor's record is removed. This record shows a duplicate in detail by the trip for the conductors who operated the car for the day, and which can be compared with the several individual conductors' records for auditing the cashier's record, to whom returns are made by the conductors.

The following exhibit reproduction record from the "Duplex" register shows that Inspector 2 opened the record

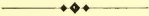
with 338 on Aug. 7; Conductor Smith (identification No. 6) took the first trip out. He made four half trips. Conductor Jones succeeded at the beginning of the fifth trip, his opening record, 388, being the closing record for Smith, and Jones' closing record is 434. The detail work for each conductor is duplicated on the auditor's record. Each conductor signs the record, which is removed by him, and the duplicate auditor's



record is identified by the conductor's identification number. The advantages of having the work of each conductor registered and recorded in duplicate are many, and will be readily appreciated.

Attention is also directed to a copy of reproduction of a record from a No. 19 register. This record shows that it has been made from register No. 3, No. 19 type; it shows that 5-cent fares have been registered. Inspector 4 took the opening and closing record on Aug. 8, and Conductor 11 operated two round trips. This record sheet is accessible to the conductor, or it may be excluded from him, at the option of the company.

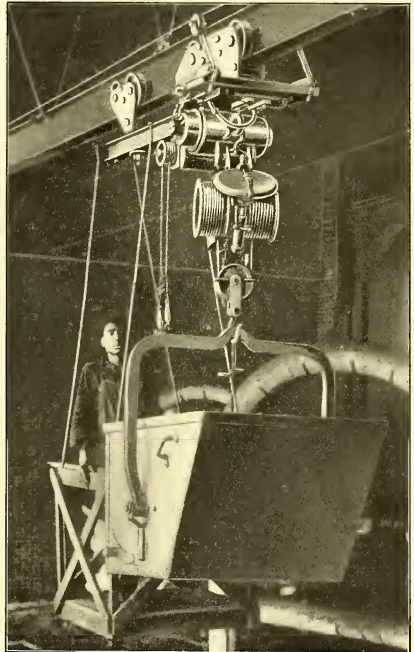
These machines are manufactured upon plans which have been carefully worked out by the company's expert engineers, and the company's large experience in manufacturing plurality fare recording registers should insure the success of the new type machines. They are simple in construction and not liable to become impaired. They are operated from the ordinary rod or cord such as are used with any one-fare registers.



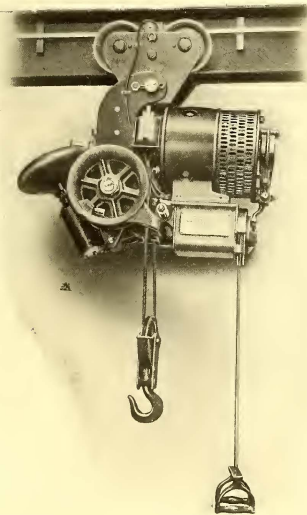
**ELECTRIC HOISTS FOR RAILWAY POWER HOUSES**

Electric hoists and trolleys have not been generally adopted in street railway power houses because of the severe demands resulting from the great fluctuations in voltage. The requirements to meet these conditions constitute a machine that will operate on a circuit which may be anywhere from 500 to 650 volts. This necessarily causes a great variation in the speed of the motors used, and also subjects the installation to conditions that are hardly met by the ordinary hoisting motor. A further condition which must be met in this service

The service on the machine is considerably aggravated by the fact that the machine must traverse very closely in front of the boilers in delivering coal and removing ashes. The operator's cage is so constructed that the operator can manipulate the trolley and hoist and at the same time dump the bucket from the cage. An equipment of this class enables an unskilled laborer to handle a very large tonnage in a day.



PORTABLE ELECTRIC HOIST HOOKED IN MOTOR-DRIVEN TROLLEY HANDLING COAL AND ASHES



ELECTRIC HOIST OF THE TYPE INSTALLED IN SEVERAL ELECTRIC RAILWAY POWER HOUSES

is the extreme heat usually resulting from the boilers, especially where the machine is required to handle coal and ashes.

The upper illustration shows the details of a high-voltage equipment designed by the Yale & Towne Company, of New York, for handling coal and ashes in the plant of the Nashville Railway & Light Company. The voltage of the line often reaches 650, and at times drops considerably below 575.

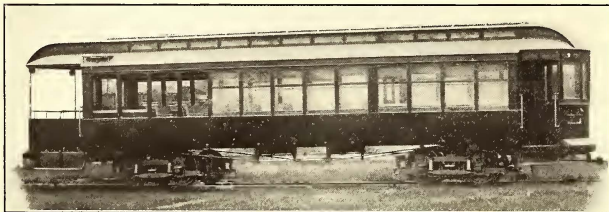
Being suspended from the overhead girders, it is entirely up out of the way, requiring no floor space or cleared passages. The hoist is equipped with a 3-hp motor and the trolley with a 3/4-hp motor. The lifting speed with the ordinary load of 2000 lbs. is from 20 to 25 ft. per minute, and the traversing speed is 350 ft. per minute on straight track, as a maximum. The current is conducted to the trolley and hoist through the bar copper wires alongside the track. It should be noted that the position of the rheostat is such that the heat radiated from the resistance elements is quickly dissipated through the ventilated casing. This precludes injury to the motor or hoisting gear through heating. The easy accessibility of the controller contacts, the commutator and brush holders also deserves attention. At the same time each part is thoroughly enclosed so that the hoist can work in hot, dusty or damp places. The machine is capable of traversing curves of 10 ft. radius or larger. The overhead track may contain switches and consequent lateral tracks, so that a large area may be covered. This track may consist of a few feet or several thousand feet, enabling the material to be very economically handled for a great distance.

These machines are suitable also for service in the repair shops and car houses. They are built in sizes ranging from one to fifteen tons. They have single top hooks so that they may be attached to any stationary support or hooked in any

kind of a trolley. The hoists may be controlled from an operator's cage, or by pendant cords from the floor. They may be installed or operated by any intelligent laborer. They are thoroughly enclosed, making them suitable for use in hot or dusty places and also when exposed to the weather. These hoists may be further equipped with solenoid attachments for control from a distant point. The trolleys may be constructed for running on the lower flanges of standard I-beam track, or on the top flanges of two parallel girders.

### NEW SEMI-CONVERTIBLE CARS FOR THE LAKE SHORE ELECTRIC RAILWAY

The Lake Shore Electric Railway has purchased five



SEMI-CONVERTIBLE CAR FOR THE LAKE SHORE ELECTRIC RAILWAY

Brill grooveless-post semi-convertible cars built by the G. C. Kuhlman Car Company. Traffic during the past summer has shown a marked increase, especially to the Lake Erie resorts, Avon Beach Park, Linwood Park and Shattuck's Park, the latter located at Vermillion, on the Vermillion River, as well as on the shore of Lake Erie. Further west is Ruggles Grove, and lastly Sandusky. At Sandusky the great attraction is Cedar Point, the Atlantic City of the West, this resort alone during this year handling over one million people. Johnson's Island, Kelley's Island, Put-in-Bay, and Middle Bass are among the many popular watering places easily accessible by boat from Sandusky.

The five new cars are of the combination passenger and smoking type, the latter compartment having longitudinal seats. The 6-ft platform at the rear end of the car is of the "Detroit" style, the dividing rail feature greatly facilitating the handling of passengers entering and leaving the car.

Looking at the front end of the car will be seen the inclined shield over the projection of the angle-iron bumper to prevent passengers from gaining a foothold thereon. Aside from the semi-convertible window system, which is the distinctive feature of the car, will be seen the steam-coach roof. The truck used is the No. 27-F-1 with a wheel base of 4 ft. 6 ins.

The inside finish of the cars is in cherry; ceilings of three-ply veneer. Following are the chief dimensions: Length over the end panels, 36 ft. 6 ins.; over the vestibules, 47 ft. 6 ins.; width over the sills including the sheathing, 8 ft. 6 ins. These latter figures also apply to the width over the posts at the belt. The distance between the centers of the posts is 2 ft. 8 ins.; height from the floor to the ceiling, 8 ft. 4 $\frac{3}{8}$  ins.; height from the track to the under side of the sills, 2 ft. 10 $\frac{1}{4}$  ins.; height from the under side of the sills over the trolley board, 9 ft. 3 $\frac{3}{4}$  ins.; height from the track to the platform step, 1 ft. 4 $\frac{3}{8}$  ins. The framing consists of side sills 4 ins. x 7 $\frac{3}{4}$  ins.; end sills, 5 $\frac{1}{4}$  ins. x 6 $\frac{7}{8}$  ins., and sill plates, 3 $\frac{1}{2}$  in. x 15 ins. The corner posts are 3 $\frac{5}{8}$  ins. thick, and the side posts 3 $\frac{3}{4}$  ins. thick.

### PORTABLE ELECTRIC TOOLS FOR RAIL-BONDING

A new portable electric drill, to operate on street railway circuits, has just been placed on the market by the Chicago Pneumatic Tool Company, and is attracting marked attention. Its 110 and 220-volt drills have been favorably known to the railway world for the past two years or more, and the mechanical features of these drills have been retained in the new drill.

The accompanying cut shows a 550-volt drill in operation on rebonding work. It is shown drilling  $\frac{7}{8}$ -in. holes in hard steel rails, and a fair idea of its size can be obtained by comparison with the man in the picture. This size of drill weighs 35 lbs., and will drill a  $\frac{7}{8}$ -in. hole through an ordinary rail in less than two minutes. The electrical parts are built to operate at 500 to 650 volts without external resistance, and a quick break barrier type switch many times the normal ampere rating of the drill is mounted directly on the housing. The insulation is of the very highest type throughout, and the drills are built to withstand the conditions of severe service in street railway construction and maintenance. Special precautions have been taken to prevent any danger of shock to the operator should any part of the windings become grounded, and in the hands of operators of average intelligence this danger has been eliminated. The company has also brought out a portable electric grinder wound for 500 volts to 650 volts, for use on railway



PORTABLE ELECTRIC DRILL IN SERVICE

work. This grinder weighs 20 lbs. and drives an emery wheel 8 ins in diameter and with a 1 $\frac{1}{4}$ -in. face at 2500 r. p. m.

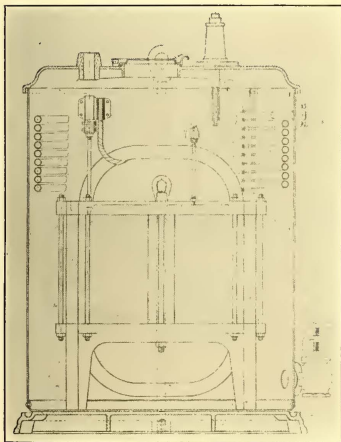
The Indiana, Columbus & Eastern Traction Company has made arrangements for handling passengers and freight with the Southeastern Ohio Railway, operating from Zanesville to Crooksville.



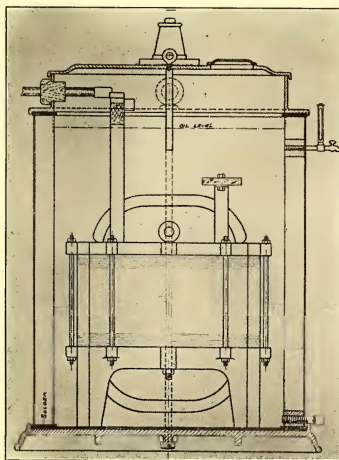
**OIL INSULATED TRANSFORMERS**

In the accompanying illustrations are shown sections of two types of transformers built by the Allis-Chalmers Company, namely, the water-cooled and self-cooled transformers. Both are oil-filled, but in the latter type the heat is carried off by radiation from the case, while in the former water circulation is used to insure cool running.

The self-cooled transformers are built in sizes up to 300 kw. Above this size the external surface of the case is not sufficient to radiate the heat developed in the transformer core and coils, unless the enclosing tank is made abnormally large. The water-cooled transformers are made in sizes from 100 kw up. Water is circulated in a coil of seamless copper or brass tubing immersed in the oil, and the heat is effectively carried off. Whenever the water is available and not expensive this method is preferable to air-cooling, even with comparatively small transformers, as it permits operation at lower temperatures and allows more margin for overloads.



SECTION OF OIL-FILLED, WATER-COOLED TRANSFORMER



SECTION OF OIL-FILLED, SELF-COOLING TRANSFORMER

Where water is not available, there is a choice of two kinds of air-cooled transformers—the oil-filled, self-cooled type, and the air-blast type which is cooled by a forced circulation of air through the core and coils. The air-blast transformers, however, are unreliable for pressures much above 25,000 volts.

Much has been written about the relative fire risks of air-blast and oil-filled transformers, but this is a matter that depends as much on surrounding conditions and the location of the transformers as on the construction. The air-blast transformer contains a small amount of inflammable material as compared with the oil transformer, but advocates of the oil-cooled type of transformer claim that this material is much more easily ignited; moreover, that a breakdown is usually followed by an electric arc that sets fire to the insulating materials, and the flame is liable to spread under the action of the forced circulation of air.

The chances of an oil-filled transformer catching fire on account of any short circuit in the windings are extremely small, because oil will burn only in the presence of oxygen, and, as the transformer is completely submerged in oil, no

air can get at it. Moreover, the oil used in transformers is not easily ignited; it will not burn in open air unless its temperature is first raised to about 400 deg. F., and with the oil at ordinary temperatures a mass of burning material can be extinguished as readily by immersing it in oil as in water. In fact, the chief danger of fire is not that the oil may be ignited by any defect or arc within the transformer, but that a fire in the building in which the transformers are installed may so heat the oil as to cause it to take fire.

The oil-filled, water-cooled transformers are placed in boiler-plate tanks, cylindrical in form and provided with a substantial cast-iron base and cover. The tanks, which are riveted and calked, are supplied with eye-bolts extending from the cover to the base, so that the transformers as a whole can be lifted without straining the tank. The cooling coils are made of 1 1/4-in. tubing, without joints throughout the portion immersed in the oil; all coils are tested with a water pressure of 200 lbs. per sq. in.

With coils constructed in the usual manner it is very difficult to drain all the water from them, and trouble has been

caused in some cases by water freezing and bursting the pipe. This has usually occurred either during shipment or some time before the transformers have been placed in operation. To avoid this, and also the danger of condensation on exposed parts not covered by oil, the ends of the cooling coils in this transformer are brought out through stuffing boxes arranged below the surface. The lower end is thus below the level of the lowest coil so that all water can be easily drained off. The coils are permanently fastened to the case and are of such diameter that the transformer can be lifted out without disturbing the coils or water connections. Water-cooled transformers are supplied with an oil gage,

drain valve, and thermometer with contacts for an electric alarm attachment that gives a signal in case the temperature exceeds the allowable limit.

For self-cooled transformers, the case is made of terne sheets formed into a cylindrical tank with deep corrugations that present large radiating and cooling surface. The tank has a double bottom made of two flanged pieces of sheet iron riveted together, and the cylindrical corrugated part is soldered into the annular channel-shaped space between the flanges, thus making a tank that is perfectly oil-tight. The tank is provided with a substantial cast-iron base and cover, a lid being placed on the latter to allow inspection and give access to the terminal board in case it is necessary to make any changes in the connections.

All transformer coils are wound with double cotton-covered strip copper, one turn per layer, with fullerboard insulation, in addition to the cotton covering, between turns. Exceptions to the foregoing are made only when the size of the conductor is so small as to make this connection impracticable, and in such cases the coils are wound with round

double-cotton covered wire with few turns per layer, so that the voltage between layers is kept within safe limits. The primary and secondary windings are subdivided into a number of these flat coils which present large cooling surface to the oil. When the coils are assembled the primary and secondary sections are interleaved to reduce magnetic leakage and secure good voltage regulation.

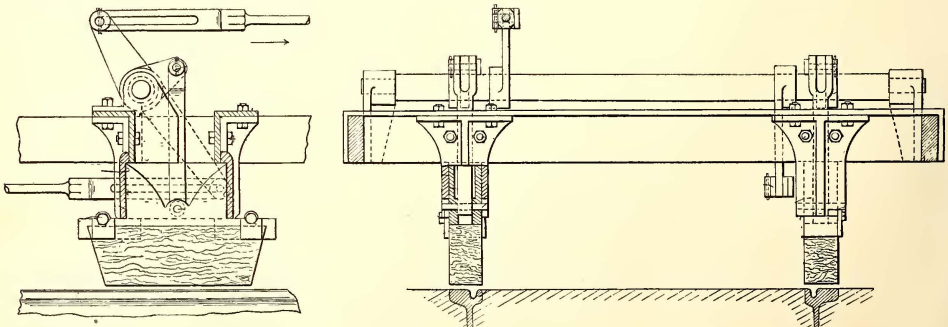
When the conductor is large, several strips are used in parallel and insulated from one another to prevent eddy currents. The coils are neatly and tightly bound with extra long linen tape, and no varnish or insulating compounds are used on the windings. Such materials deteriorate with continued use in hot oil, and in many cases are the cause of a deposit on the water-cooling coils or on the bottom of the transformer.

The transformer core is built up of sheet steel 0.014 ins. thick. The steel is thoroughly annealed in the company's furnaces to insure uniform material and excellent magnetic qualities. The laminations are thoroughly insulated from one another by a coating of varnish which reduces the eddy current losses to a minimum. The steel is of such good quality that it is practically non-ageing, i. e., the core loss does not appreciably increase under long continued operation. There is no steel which will not age slightly when subjected to temperatures above 75 deg. C., but with normal load and temperature the core loss in these transformers is guaranteed not to increase, within one year, to such an extent as to decrease the full load efficiency more than one-tenth of 1 per cent. In larger sizes space blocks are placed every few inches in the core, thus providing ducts through which the oil can circulate and carry off the heat.

The oil used in these transformers contains no acid, has very slight evaporation at 100 deg. C., and its flashing point is about 190 deg. C. or 375 deg. F. It is thin and therefore circulates rapidly throughout the transformer, thereby quickly carrying off the heat.

### SLIPPER BRAKE USED IN ENGLAND

Owing to the recent serious accidents in Great Britain caused by brakes not acting at the proper time, much attention is being given to the subject of braking. It is therefore an appropriate time to present some details of a slipper brake



FIGS. 1 AND 2—END AND SIDE ELEVATION OF THE BRIGHTON SLIPPER BRAKE

invented by Thomas B. Holliday, the general manager of the new tramway system at Hastings, England. Mr. Holliday has had a large experience in street railway work, having for years been general manager of the tramways at Brighton, some of the routes of which are on heavy grades. In cities

where there are many hills, Mr. Holliday is a firm believer in the slipper brake, and all his motormen receive imperative instructions to put on the slipper brake at once at the top of each severe descent. Hence the car can never develop runaway speed, the actual stoppage being afterward undertaken by the other brake.

Fig. 1 is an end elevation of this brake with parts in section, and Fig. 2 is a side elevation with partial section. The main frames on the car are connected by bridge pieces. To the under side of the latter are bolted guide boxes whose interiors are arranged for the slipper or shoe carriers to which the shoes are connected. As the faces of the guide boxes are vertical, any movement imparted to the slipper or shoe carriers will also be vertical, inasmuch as their faces engage with the faces of the boxes. The vertical movement is imparted to the carriers as follows:

Brackets which are mounted on the bridge pieces carry a rocker bar provided with arms connected to the slipper carriers by links and pins. To the rocker bar other rocker arms are attached and connected to a slotted draw-bar operated by the motorman. When the motorman operates the draw-bar, say in the direction of the arrow, the bar rocks in its brackets, causing the rocker arms and their links to descend and with them the carriers, forcing the shoes vertically downward on to the rails, thereby braking the car. On pressure being withdrawn the carriers and their shoes under the action of suitable springs return to their normal position.

To effect the easy insertion of the shoes, the base of the carrier is provided with dovetailed ends and on one side of the base are depending guard plates and on the other side lugs. A block of wood forming the shoe is inserted in the dovetail groove till it butts against the guard plates, thus preventing further movement in this direction. Guard plates are bolted on to the other side of the carrier by bolts engaging the lugs on the base of the carrier, so that the movement of the block (as it is of the same width as the carrier) is prevented in this direction. At the same time movement in a lengthwise position is prevented by the block engaging in the dovetails. To renew the shoe it is only necessary to remove the guard plate. This brake is now made by Brecknell, Munroe & Rogers, Ltd., of Bristol, Eng.

The Lake Shore Electric and the Toledo & Indiana Electric Railways have arranged to run special excursions to

the theaters in Toledo this winter, and will sell round-trip tickets having a coupon attached admitting the bearer to the theater named on the coupon. The railroad agents will telephone the number of tickets sold, so the theater managers will know what seats have been purchased.

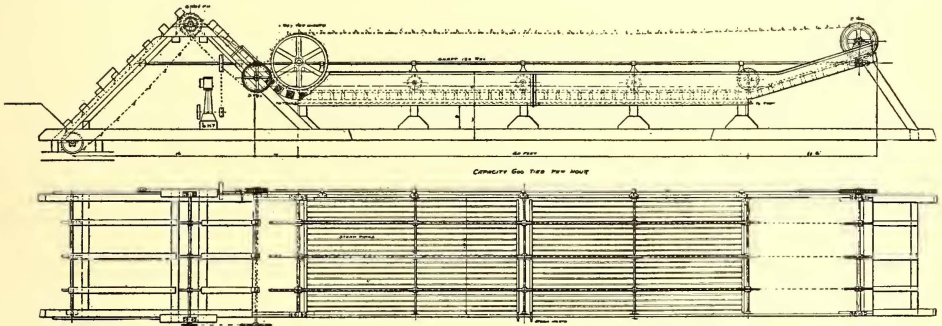


**PRACTICAL WOOD PRESERVATION**

Often as the subject of wood preservation is mentioned, it cannot be brought before electric railways too often, for it is one that, through the decreasing timber supply, grows in acuteness yearly. The paper on "Poles, Posts and Ties" read before the Columbus Convention by C. A. Alderman was evidence of the importance of this matter to the interurban railway companies of the Central States. This paper was particularly valuable for the data quoted on the comparative economy of treated and untreated ties. The preservatives mentioned were the zinc-tannin, zinc-chloride and zinc-creosote processes. Through the courtesy of the Carbolineum Wood Preserving Company, Inc., of 349 Broadway, New York, it has been possible to supplement this data with some comparative figures actually quoted to an important New England street railway for preserving timber with this company's Carbolineum Avenarius.

As the object of wood preservation is to increase the life of short-lived timber, or, in other words, make treated short-lived woods outlast the untreated long-lived but higher-priced woods, cedar, white oak and chestnut were not taken into

The object of all preservatives is two-fold: First, to inject a sufficient quantity of antiseptic material into the wood structure so as to neutralize the rot-producing elements or germs contained therein; and second, to seal up the pores on the outside with an insoluble compound to exclude air and water. That the material is insoluble to a much greater extent than creosote is demonstrated by the volume distilled at a temperature of 455 deg. F. In Reprint No. 315 of the 1903 Year-Book of the United States Department of Agriculture, the Forest Service recommends the adoption of the standard specifications for creosote, specifying among other things that the volume distilled at 455 deg. F. shall not exceed 25 per cent. Specifications No. 2758 of the American Telephone & Telegraph Company state that the distillate at 235 deg. C. (455 deg. F.) shall not exceed 2 per cent, a condition met by Avenarius Carbolineum. It is this difference that makes the latter of so much greater value for preserving pole butts, posts and ties wherever the cost of a plant enters into consideration. The total cost of the plant at Portland shown herewith, together with engine and boiler but without the ground, was only \$5,000. A plant of sufficient size for a street railway company can be built for considerably less.



ELEVATION AND PLAN OF TIE AND POLE PRESERVATION PLANT IN PORTLAND, ORE.

account. This resulted in the following classification of life and results:

Classes of Wood.	Natural Life	Guaranteed Life if Treated
Red and black oak .....	4-5 years	10 years
Ash, beech, or maple .....	4 years	8 years
Tamarack .....	7-8 years	14 years
Hemlock .....	4-6 years	10 years
Spruce .....	5 years	10 years

	Untreated Tie, 5 Years' Life	Treated Tie, 10 Years' Life
Cost of Tie and Annual Charge .....	\$0.40	\$0.40
Cost of tie .....	00	.15
Cost of treatment .....	00	.15
Interest charge for seasoning .....	00	.01
<b>Total cost of tie .....</b>	<b>\$0.40</b>	<b>\$0.56</b>
Annual charge on basis of 4 per cent compound interest .....	.089	.069
Annual charge for renewal at a cost of \$0.19 for handling and placing .....	.035	.016
<b>Total annual charge .....</b>	<b>.124</b>	<b>.085</b>
Annual charge for 200,000 ties .....	\$24,000.00	\$17,000.00

In considering the Avenarius Carbolineum process for treatment of any wood, too much attention cannot be paid to seasoning. This process has been very successfully used on air-seasoned ties, poles, posts, trestles and other woodwork, and it is in respect to the seasoning that this method prevails over the oft-described creosoting and Burnettizing methods.

Tie treatment by this method was begun in the United States as early as 1885.

Regarding the treatment of poles to which Mr. Alderman refers, and the statement as to the lighting company of Memphis, Tenn., not using creosoted poles, owing to current leakage, S. T. Carnes, president of the Memphis Light & Power Company, wrote in 1898 that they had been treating cross-arms and poles with Avenarius Carbolineum for six years, and "are satisfied that it prolongs the life of the wood so treated and makes it worth several times its cost." That leakage through creosoted lumber affects the operation of signal systems would appear from studies by B. H. Mann, now signal engineer of the Missouri Pacific Railway at St. Louis, Mo., but formerly connected with the Union Signal Company, who tested the Avenarius Carbolineum as against creosote for oak tops as well as wooden conduits. Although the former preservative is widely used by electrical companies similar complaints have not appeared.

Very satisfactory results have been obtained where treatment, instead of extending 4 ft. below and 2 ft. above ground, was only 2 ft. below and 1 ft. above the ground line. Two-coat treatment, of course, had the preference for this class of work, and the results secured by tests made near Madison, Ill., with the preservative in sandy soil proved highly satisfactory on white cedar poles.

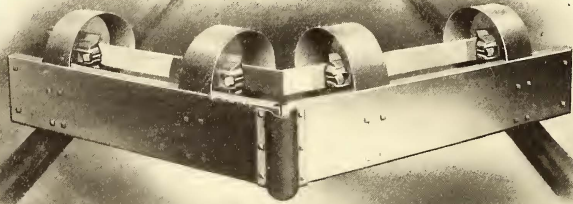
The estimation in which this material is held in Germany, where it was invented by Dr. Avenarius, appears from the

"Telegraphbauordnung" (Telegraph Building Standards) of the German Imperial Telegraph & Telephone Service, which states: "For the prevention of fungus growth on poles, butts are to be treated in the pole yards with one coat of Avenarius Carbolineum, which should reach 50 cm above the ground line when set. In case of necessity an additional field coat may be applied."

It is hoped that the tests begun by the Forest Service, acting jointly with the Postal Telegraph Cable Company and the American Telegraph & Telephone Company, on pole lines will prove of great value to all interested in pole work, as complete records are being made of all such tests so that the results when published will be authoritative.

### A COMBINATION FENDER AND TRACK SCRAPER

The Kalamazoo Railway Supply Company, of Kalamazoo, Mich., has brought out another useful adjunct for street railway companies in the form of a spring fender, which can be



COMBINATION SPRING FENDER AND TRACK SCRAPER

installed from 2 ins. to 4 ins. above the rail with perfect safety, as the springs yield when coming in contact with any rigid object in the roadbed. It will install to trucks or at any point on the body of any style of car, as the height of the fender over all is only 13 ins. Once in place this contrivance needs no attention from the motorman, and is always in position to do its work.

From the style of construction shown in the accompanying cut, it is apparent that this fender will not roll anything along on the track, because on striking any obstruction the springs yield and their recoil deposits the object of contact clear from the track. When installed at the extreme front of the car as a pilot, the braces and frame form a foundation for a basket which can be furnished of either wire or rope netting.

In connection with the Root scraper, placed in the rear of this fender, an excellent snow cleaning device is secured, as the fender keeps the snow between the rails at a uniform height and the scraper gives a clean rail and groove. This combination is guaranteed to handle easily 12 ins. of snow.

The construction of the fender is simple and compact.

Once applied it requires little attention from the motorman or master mechanic. The faces of the wings are made of spring steel  $\frac{1}{8}$  in. x 8 ins., 3 ft. 6 ins. long, backed by oak boards 1 in. x 8 ins., 3 ft. 5 ins. long, attached to steel springs  $\frac{1}{4}$  in. x  $4\frac{1}{2}$  ins. wide. The springs are attached to a steel frame, which is connected to body or trucks of car by steel braces and brackets. The oval cushion at the point of the wings is made of rubber which yields when coming in contact with any object. The manufacturer advises installing the cushion point of this fender flush with the end of the car body, as by so doing the fender will then take up no additional room when desiring to store cars closely in barns.

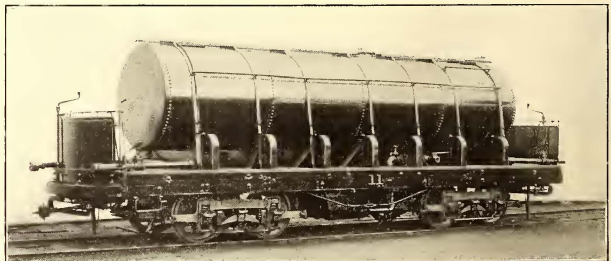
### A DOUBLE-TRUCK SPRINKLING CAR FOR THE YORK STREET RAILWAY COMPANY

The York Street Railway Company, of York, Pa., has recently placed in service a Brill sprinkling car which is noteworthy for the large tank capacity (4000 gallons) and the

fact of its being mounted on double trucks. On roads where much sprinkling is done, it is of course the aim of the operating company to save as much time and labor as possible by equipping the car with a tank that does not need frequent fillings, but a car with a capacity as large as the one illustrated is often not feasible where there are heavy grades. This is one reason why the majority of sprinkling cars average a maximum capacity of 2480 gallons. The sprinkler for the York Street Railway Company is equipped with the Brill centrifugal pump. It will be noticed that there are brakes at each end of the car; the trucks are of the No. 27-G-2 pattern with a wheel base of 4 ft. The chief dimensions are:

Length of the car over the sills, 31 ft.; width outside sills, 7 ft. 6 ins.; size of the side sills,  $5\frac{1}{2}$  ins. x  $11\frac{3}{4}$  ins.; end sills, 8 ins. x 12 ins. The tank is 5 ft. 4 ins. in diameter and 24 ft. long.

Just previous to the shipment of the car described, the



DOUBLE-TRUCK SPRINKLING CAR FOR THE YORK STREET RAILWAY CO.

same builders shipped two double-track centrifugal sprinkling cars of the same capacity to the Rhode Island Company, Providence, R. I. This type of sprinkling car with centrifugal pumps is finding a wide field in street railway work, as it fulfils demands so satisfactorily.



**THE ATLANTIC CITY & SHORE LINE RAILROAD OF NEW JERSEY**

In the STREET RAILWAY JOURNAL of Sept. 29 brief mention was made of the Atlantic City & Shore Line Railroad Company, but the detailed report which follows, supplied through the courtesy of Stern & Silverman, under whose supervision the entire line was constructed, gives the complete itinerary and constructional features.

The road starts at the Atlantic City boardwalk, at the foot of Virginia Avenue, opposite the steel pier, the very center of population. Running out Virginia Avenue to Adriatic Avenue and from that point over private right of way to the Thoroughfare Creek which divides Atlantic City from the mainland, it crosses the Thoroughfare on a double-track steel plate girder drawbridge of 110 ft. span; from this point it continues out over the Meadows, crossing the tracks of the Pennsylvania and Philadelphia & Reading Railroads by means of overhead bridges; these bridges are of steel plate girder type and are double-tracked; the approaches are composed of trestle-work having very easy grades; the entire length of the trestle is approximately 2500 ft. After crossing these two railroad bridges, connection is made with the lines of the West Jersey & Seashore Railroad with split track construction, avoiding any adverse movement of trains across tracks. After forming this junction the cars are operated for a distance of 4 miles over the double-track line of the West Jersey & Seashore Railroad as far as Pleasantville; this

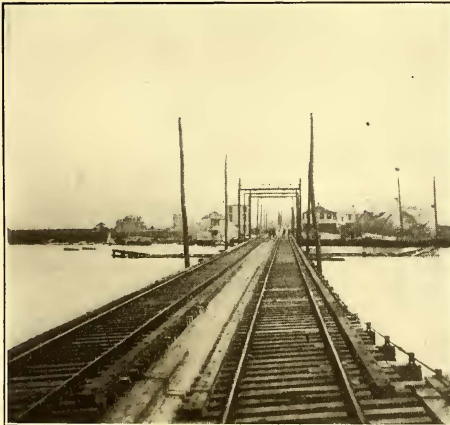
throughout and laid with 85-lb T-rails on oak and chestnut ties and well ballasted. For the first mile, when operating through the city streets of Atlantic City, the overhead trolley is employed, but on reaching the outskirts of that resort the third-rail system is used on reconstructed granite insulators, as far as Pleasantville. The run to Somers Point from Pleasantville is made by again employing the overhead system, with cross suspension catenary construction, poles spaced 150 ft. apart. One side of the pole line from Pleasantville to Somers Point is constructed with poles of extra



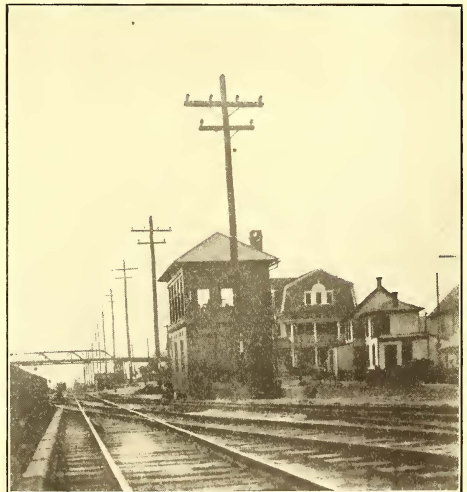
ARRANGEMENT OF CROSSING OF THE PHILADELPHIA & READING AND THE PENNSYLVANIA RAILROAD TRACKS

length, carrying at the top a high-tension transmission line of three No. 4 B. & S. hard-drawn copper wire and a 5-16-in. galvanized ground cable run on top of the pole.

The current is obtained from the main power station of the West Jersey & Seashore Railroad located at Westville, the transmission voltage being 33,000. At Somers Point is



APPROACH TO DRAWBRIDGE ON THE ATLANTIC CITY & SHORE LINE RAILROAD



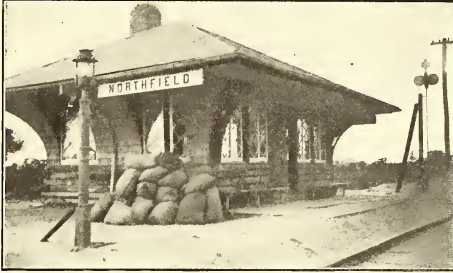
PLEASANTVILLE TOWER ON THE ATLANTIC CITY & SHORE LINE RAILROAD

is part of the third-rail electric line which runs from Philadelphia to Atlantic City. From Pleasantville the road branches off and continues in almost a direct tangent to Somers Point, the terminus, a distance of 7 miles, making the total length of the line from the Atlantic City boardwalk to Somers Point 14 miles. The road is double-tracked

located the sub-station, the distance of transmission from the power house being upward of 60 miles. In the sub-station are located the necessary 33,000-volt oil-cooled step-down transformers with lightning arresters; oil switches, panels, etc., and two 300-kw rotary transformers. The sub-station building is of brick and spaced for an additional unit. With the ex-

ception of the first few blocks in Atlantic City the entire line is constructed over private right of way. It is expected to make the 14-mile run between the termini in thirty minutes, including all stops. Traffic is greatly facilitated by the signal system used to protect the drawbridges.

Rolling stock just completed for this line by the John Stephenson Company comprises twenty 36-ft. double grooveless-post semi-convertible cars built under Brill patents. Two of



THE NORTHFIELD STATION

the cars contain a compartment for baggage, 10 ft. 5½ ins. in length, but otherwise the dimensions of the cars are similar, and are as follows: Length over the end panels, 36 ft., and over the vestibules, 45 ft. 5 ins.; width over the sills, 8 ft. 8 ins., and the same dimensions apply to the posts at belt; centers of posts, 2 ft. 8 ins.; height from the floor to the ceiling, 8 ft. 6 ins.; height from the track to the under side of the sills over the trolley board, 9 ft. 6½ ins.; height from the track to the platform step, 20¾ ins.; height of the risers, 16 ins.; size of the side sills, 3¾ ins. x 8¾ ins.; size of the center sills, 3¾ ins. x 5¾ ins.; size of the end sills, 5¼ ins. x 7¾ ins.; size of the sill plates, ¾ in. x 15 ins.; thickness of the corner posts, 3½ ins.; thickness of the side posts, 3¼ ins. The semi-convertible feature permits the use of a seat 39 ins. in length and an aisle 23 ins. wide. The car bodies are mounted on No. 27-EI M. C. B. trucks having a wheel base of 6 ft. Cherry constitutes the inside finish.

The seats, which have arm rests, are of Brill manufacture, as are also the specialties used throughout the cars, such as channel-iron drawbars, angle-iron bumpers, alarm gongs and signal bells, sand boxes, etc. The same company's system of vestibule door control is also employed.

Four motors of 60-hp capacity each per car of the latest type were installed, wound for 650 volts, which will be the voltage at the sub-station and on the third rail. The type M multiple unit control has been adopted so that the cars can be operated singly or in trains. Each car is equipped with an independent motor air compressor outfit. Two overhead trolleys are used and four third-rail shoes; the third-rail shoe is of a special pattern, designed to fold up and latched while the cars are being operated through the city streets. Arc headlights with dimming screens are used.

C. M. Bates, of Trenton, N. J., president of the Newtown & Hathoro Street Railway Company, says the company is surveying a route between Newtown, Richboro, Hathoro and Willow Grove, Pa., preparatory to construction work in April, 1907.

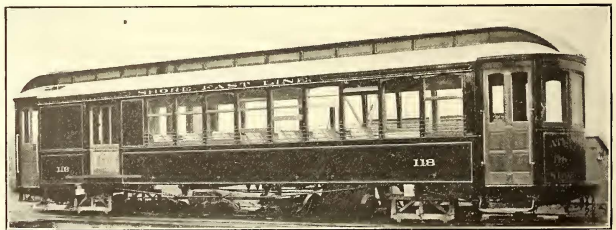
## DISCUSSION ON ELECTROLYSIS AT THE WATER-WORKS MEETING

At a meeting of the Central States Water-works Association, held in Cincinnati, Sept. 29, the topic of electrolysis was discussed. Joseph J. Pater, formerly of the Hamilton, Ohio, water-works plant, argued in favor of the double trolley system as used in Cincinnati, which he said would avoid electrolytic action. He thought that rail bonds in six months became absolutely valueless through oxidization. In good, clean soil and with no electrical circuits near, a gray cast-iron pipe ought to last 100 years, but when the single trolley system is used not only do the water pipes depreciate rapidly but the steel in neighboring buildings is also being affected. According to the speaker, for a mile on one side of the Brooklyn Bridge the people who have shops where 100 or 200 girls and men are employed on sewing machines go out into the streets, put in copper plugs and run wires into their plants, getting sufficient current to run ten or fifteen sewing machines from one little plug put into the water mains.

Another speaker was George Horning, formerly superintendent of the Newport, Ky., water-works and now a consulting engineer in Cincinnati. Mr. Horning said the amount of electrolysis produced by railway circuits was trifling compared with that caused by stray currents from the leakage of high-tension lighting and other power wires. Theoretically the double trolley system is a preventative, but the experience with the Cincinnati double-trolley system does not warrant the assertion that the double-trolley system prevents leakage. He said that for a short distance on Main Street in Cincinnati the double-trolley line is paralleled by a single-trolley line. He had tried as an experiment removing the trolley pole from the wire of the single-trolley line and had put it on one of the double-trolley wires. The lamps remained lighted. He then tried to start the car, but while it would not move there was a perceptible torque.

## ACCIDENT STUDIES IN LOS ANGELES

The committee appointed jointly by the Chamber of Commerce, Merchants and Manufacturers' Association and Municipal League to inquire into the causes of the many street-



COMBINATION PASSENGER AND EXPRESS CAR FOR THE ATLANTIC CITY & SHORE LINE RAILROAD, OF NEW JERSEY

car accidents occurring daily in Los Angeles, and to suggest remedies, has submitted its report. The committee recommends that a department of transportation be established, under the Board of Public Works, to inspect all car lines and their method of operation, that the wages of car operatives be increased, to the end that more competent men be generally employed, and that official schools of instruction for the training of prospective motormen be established. The committee, among other recommendations, also advises strongly in favor of enforcing the "day off" rule.



# PROCEEDINGS OF THE AMERICAN STREET AND INTERURBAN RAILWAY CLAIM AGENTS' ASSOCIATION AT THE COLUMBUS CONVENTION

## MONDAY AFTERNOON SESSION

The third annual meeting of the American Association of Street Railway Claim Agents was held at 2 o'clock p. m., Monday, Oct. 15, 1906, in the Administration Building, State Fair Grounds, Columbus, Ohio, with President S. L. Rhoades, of Philadelphia, Pa., in the chair, and B. B. Davis, of Columbus, Ohio, as secretary.

In calling the association to order Mr. Rhoades presented Mr. Davis, who welcomed the delegates in the following address:

### MR. DAVIS' ADDRESS

It is up to me, as the representative of the Columbus Railway & Light Company in this association, to make the address of welcome. I trust that your sojourn in our city will be one round of pleasure, and that you will carry back to your respective homes pleasant thoughts of the city of Columbus, and the treatment you received while in our midst. Personally, I like the capital city, to which I came here a perfect stranger in 1895. It was to be for about ten days, and I have been here nearly twelve years. I have seen the city grow in population and its street railway system expand from \$500,000 gross earnings per year to over \$1,500,000 gross earnings per year.

I trust that your relations with your management and operating department have been as pleasant as mine with those departments of this system. In nearly twelve years, not an unkind word. But it doesn't take hard work to bring that result. It can be found in the following rules: Work for your company at all times; study its interest; feel that when you are making a settlement that the money to pay it is coming out of your own pocket; be pleasant to all employees, from the man who works in the track gang up to the president, and success will crown your efforts and make your work more pleasant and full of good results.

I am transgressing a little from the subject, which is one of welcome. So, for the Columbus Railway & Light Company, I bid you all welcome to the capital city of the Buckeye State, and trust that none of you will feel any regret for having attended this convention.

President Rhoades said he was very sure the Claim Agents' Association appreciated the kindness of Mr. Davis and his company as expressed in his address of welcome. They were to be favored that afternoon, he added, by the presence of W. Caryl Ely, but he noticed that the first vice-president of the parent organization was in the assembly. He was sure that Mr. Beggs would say something of great interest to them. He knew from what the claim agents of his various systems had said that he was much interested in the accident business.

Mr. Beggs, after being introduced, spoke as follows:

I came simply for the purpose of showing my interest in the association's work—in this very important part of the operation and administration of every street railway. While no doubt most of you are very agreeable and courteous gentlemen, nevertheless we do not have you in the organization of a street railway company from choice, but rather from necessity. (Laughter and applause.) I am glad to bear my testimony to the fidelity that is generally shown by those connected with the claim department of a large street railway system, in a service that is most exacting in a very exacting business. In the event of notification of accident—a serious one—it is necessary many times that they stop in the midst of a meal to get out, so that the evidence that may enable the company to protect itself from imposition and fraud may be obtained before it escapes. Therefore the duties of the investigators in a claim department are very arduous and exacting, because many times if the evidence cannot be obtained immediately it is lost to the company, and some ambulance chaser gets it and puts it in a different coloring entirely. This shows the great importance of obtaining the evidence promptly before the witness may be coached and his testimony possibly colored to suit the case of the plaintiff. I think, as a general rule, that the amount paid out for claims in our several companies go about hand in hand with the amount of taxes. We hear more about the taxes than the damages, but nevertheless they are inseparable. I feel that this gathering of the claim agents is highly important,

that you may exchange experiences and become familiar with the practices and methods of the different companies which show the best results in the various sections of the country. A change of position makes necessary a different policy. The rule or policy which should be pursued by a street railway company, or any other company liable to a multitude of accidents, is to be absolutely fair with the injured party; to ascertain, if we can, whether or not we are liable. We should aim to train every one connected with a claim department to learn how to analyze carefully the common law and the particular statutes of the various States in which we are operating to ascertain and determine for ourselves our liability.

My advice to all of those who are associated in the claim department of the companies I represent is to get accident claims off the books upon any fair basis of settlement, and get it off quick; don't wait to think you will get it off next week or next month or possibly next year, but if it is a fair claim for damages, an injury for which we are liable, be willing to pay a fair and reasonable amount for it before it gets into the hands of an attorney. It makes a better impression throughout the country and is far-reaching in its effect. I have found it highly advantageous and profitable to the companies that pursue such a policy. I emphasize upon every occasion that, if we are liable, I don't wish to escape the proper penalties for carelessness on the part of our operatives or for unavoidable accidents for which we know we are responsible.

Another thing in the administration of a claim department, and the most difficult to impress upon the claim department, is that it is highly important—in fact it is in my judgment more important—to know the worst side of a case against the company than it is to know the best. That is one of the things that we are constantly against, that an investigator or the trainmen, motorman or conductor, are naturally inclined to act according to the first law, self-preservation; to put the best face upon the accident, and possibly withhold some little cause that could possibly have produced it. That hidden fact gets into the hands of the counsel for the plaintiff, and the counsel for the company is taken by surprise through this entirely different condition of affairs. It is highly important, therefore, to impress upon those sent out to investigate these accidents and claims, that they get all there is. We do not of necessity have to publish all that we learn, but we should take into account what is likely to be brought against us.

These cases are arising continually. I pursue a policy in the companies that I administer that all the investigators in the claim departments must come from the platform of the car. So when you have less intelligent motormen and conductors, if they have an accident you need a man that knows the conditions under which the car operates, the conditions under which the accident might have occurred, thus drawing conclusions from his own experience, because the motorman and conductor will not always tell it all.

I frequently compel cases to be contested when an attorney wishes to settle. In other cases I compel settlement when an attorney wants to fight. I try to look at it from the practical side. I believe I have yet to lose the first case that I have ever compelled an attorney to fight instead of settle; and whenever we have settled a case, we have settled it on a basis that we thought was fair from a knowledge of the law and common sense and common honesty, with a thorough knowledge of the conditions under which cars operate.

In case of an accident in our companies—take for instance the city of Milwaukee, where we have 85 per cent of the population foreign born, or of foreign born parentage. There is a very large Polish element that cannot speak anything else; a large Danish population and a very large German population. We select our investigators with reference to their knowledge of those languages and of the people, because they act differently. We get three or four men on to an accident just as promptly as we can that we may see it from three or four different standpoints. The result of that policy, carefully followed, is that we have kept the accident fund down to nearly 2 per cent of the gross receipts; and that, too, carrying a large number of pas-

sengers for the amount of gross receipts, because we have six tickets for a quarter and twenty-five for a dollar, having to handle a great many more people to get the same gross revenue. We possibly have a record that is not surpassed in this country and I think is seldom equaled.

In the year 1904, notwithstanding the prejudice of juries and the inclination of courts to be swerved to some extent by public clamor, we did not lose a single case that came before a jury, nor were any damages allowed; and the year 1905 we lost only two, both of which have been appealed to the Supreme Court of Wisconsin with fair chances of winning.

I try to keep our docket clean of cases. The tendency, of course, of a claim agent is to put a large amount over to next year; you want to shove things off and make a good showing this year, and you charge off a large amount in the months of January and February. I have a very good claim agent, by the way, a man who thinks a dollar is as big as a cart wheel—that is the prerequisite of a claim agent. A couple of years ago I said, clean house; have as few cases on your books as possible.

I don't know, Mr. Chairman, that that is what you invited me to talk about at all, but I wish to say to you—we who have been associated with the parent association for a great many years—are just beginning to realize through the importance of these auxiliary associations. It was not possible for the president of the parent association or for any of the managers of large properties to talk to the same number of men engaged in this particular line of business which is just as important as that of the renewal of wheels. We pay out a great deal more money for the payment of damages than we do for the renewal of wheels, and yet we pay a great deal of attention to the standardization of apparatus and have not paid very much attention to this at all. Yet there are broad fundamental principles that may be advantageously applied in any company, and I think we can help each other in this way. I have no doubt there are methods employed by some of the larger companies in other cities that we have not dreamed of that would be of great benefit to us. Therefore I will be very glad to have that knowledge.

On the conclusion of Mr. Beggs' talk, President Rhoades said he was quite sure that the claim agents appreciated what he had said. They should feel more confidence in themselves, for it was not often that a great railway manager would admit that an accident man is an absolute necessity; and if that accident man is experienced, he can get work with any such a manager as Mr. Beggs.

The meeting, he said, was favored by the presence of another executive officer, the president of the American Association, who had come here at their invitation and who would address them. He then introduced W. Caryl Ely, who spoke as follows:

#### MR. ELY'S ADDRESS

Mr. President and Gentlemen: I am very glad to meet you. I know how young your organization is. I know how difficult it is to get an organization started; how much work there is to do. But these meetings with the importance of the work in your department must have impressed themselves upon the minds of the managing officers of your respective companies, or it would not have been possible for you to have gotten together the organization you have. I congratulate you all upon it. I listened with a great deal of interest to the remarks of Mr. Beggs, concerning the method of settling claims, the principles affecting the same, and the splendid results of management of the companies with which he is identified, which all go to emphasize the benefit we ought to derive from his suggestions and experience.

I come not, however, to speak to you concerning those matters, but to talk briefly to you about your organization and the work of the parent organization, the American Association, and the other affiliated organizations. We have done much in the past that makes for and ought to make for success. But success has not yet been achieved; and upon the way that this convention is managed and upon the manner in which it is conducted will largely depend the earnest co-operation, throughout the country, of those who have to foot the bills and pay the expense, as to whether this reform movement, or reorganized sets of associations are worth what they cost. A big company, one of the largest companies, has now to pay \$600 a year on account of these organizations in addition to the other expenses that are necessarily attendant, instead of a \$25 fee that was paid heretofore. It is a big jump, and many of the managing officers and executive officers of these corporations are like the fellow from Missouri—"they want to be shown." Now you have to help to "show."

Several criticisms were aimed at the old organization. One was that it seemed to take on the form in the minds of a great

many in attendance of an annual junket. That criticism has been made to me by one of the general managers of one of the largest companies in this country within the last three weeks. Another criticism made was that it took a great many men away from their respective companies at the same time—important men—and that injury was liable to be inflicted upon the respective companies by so many people being away. The resultant benefits, to his mind, did not outweigh these disadvantages. There were other disadvantages mentioned which do not so much appeal to you as to some of the other organizations.

The Supply Men's Association—now called the Manufacturers' Association—made that criticism. The answer to all criticisms must be afforded by the results and the work of these several organizations. I enforce upon you all the desirability, throughout these entire sessions, of having moderation prevail in all things. There are many things that tend to make conventions of this kind rather lively meetings, and to a certain extent that is all right, but if carried too far, then it provokes criticism and does injury.

I congratulate you, Mr. President, and your associates, upon the results which you have achieved in such a very short time. The contribution that you are about to make to the proceedings of these conventions is well prepared and is in every way worthy of you and worthy of a great business and a great organization. I believe that other affiliated associations will be created, as time goes on, and that the importance of one and all of them, in the minds of the managers and executive boards, will finally be conceded, and that you will have achieved results, two or three years from now, which will be of such tremendous benefit that all will wonder why your organization was not thought of and started before.

As Mr. Beggs said, you disburse a lot of money and you are at the head of a very, very important branch of the business. The operating department works very hard to take in the nickels necessary to pay bond interest, dividends and operating expenses, but yours is a department that almost every one looks upon with aversion. You are the "rat hole" of the business. The money comes in through the cars, through the receivers, the officers and the car houses, and finally it comes up into the auditor's department and is husbanded by the treasurer. The manager fingers it, and then you come along, and you pry up first the little finger and then the third finger and slip the money away. At the end of the year it is realized that a tremendous amount has gotten away.

Therefore, it is all the more important that your methods should be right; that you should standardize the business; that you should formulate a set of principles that would properly govern you in a business-like way in the transactions of the business of your department. If you get it well settled and you finally establish something that impresses itself upon the people, the people who ride in the cars and from whom are taken the jurors, and then the judiciary, if you can make them realize that you intend to be just and fair, that meritorious cases are settled and only non-meritorious cases burden the calendars of the court, it will save millions of dollars to the street and interurban railway corporations. It has always seemed simple to me. I have been on both sides of the question. I used to be out with an axe myself. I was a practicing lawyer and I needed business. I know just how the fellow feels, with his shingle out, acting as his own stenographer and typewriter and trying to start in the practice of the law. They did not have typewriters to any extent when I commenced, but I handled the broom right along with the pen when I first commenced to practice. I know what confronts you in every department of your work, how hard it is to settle a case for a hundred dollars or five hundred dollars or a thousand dollars, and in the transaction not to allow more or less dollars to get away from you that ought not to get away. You work for years in a community where you are known as the pay-master of this character of claims, and everybody tries to "work" you. The doctors, the lawyers, the people themselves. You are afraid of the jurors and of contested cases, and almost always when cases go to court against your advice, you see your corporation stuck to a much larger extent than if you had settled it in the way you thought it ought to have been in the first instance, notwithstanding the excellent record that has been made by brother Beggs.

Now I think that the same rules ought to prevail in the management of every department of a corporation, which prevail in the management of an honest man's business by an honest man. I think the great trouble with corporations has been that there has grown up in the minds of the people throughout the country the idea that they do not apply to the transaction of corporate



business the same rules that the members of the corporation apply to the transaction of their private business. I believe that the people think that in these street railway corporations there are a great body of men who are actuated by principles different from the principles that they practice at home, in their family, in their private business, and the daily walks of life. But when you make it understood that these corporations are managed and that your branch of the business is managed as you would manage your private business; that you have a set of principles founded upon fairness and justice; that you have a way of doing business that is followed by all honest men, it will win for the individual members of these corporations the approbation and approval of all fair-minded people, and your corporations will be far better off.

There is absolutely nothing inherent in our business to make it unpopular. Now we all think and we all look at it at first blush in a different way. We say we are bound to be unpopular. I deny it. I say we are not bound to be unpopular; that we ought not to be unpopular, and that we do not deserve to be unpopular. That sounds rather harsh, but I think the business is more and more deserving to be popular. If any man, of twenty years' experience in the business, will look at the methods that prevail to-day and contrast them with those of twenty years ago, or even fifteen or ten years ago, the reason for the unpopularity is perfectly plain and obvious.

You are performing a service that deserves the thanks of a grateful community. As that service is better and better performed, and as all branches of the service are better and better done, this sentiment which prevails against us at the present time will be diminished and ultimately pass away. There will never be a time but that you will have to pay for torn dresses that you ought not to pay for, because there will never be a time, until the millennium arrives, when unjust claims will not be preferred. But I do believe that, with honest management in the claim department, with the settlement of meritorious claims and the non-settlement of non-meritorious claims—I do actually believe that it is necessary for you to establish the principle of "millions for defense but not one cent for tribute." That worked before in a great controversy, and I believe it always will work.

If you have an unjust suit pressed against you as a private individual, you never settle that suit except for some good reason of expediency and potency, but there are exceptions, of course, to all rules. The rule, however, of a man's life—a square man—an honest man, is that he will pay to his neighbor the things that are due to the neighbor, but he will never give up to his neighbor in an unjust controversy the things that his neighbor ought not to have and ought not to take away from him. I believe that that rule is right, and I believe that it ought to prevail in our business. More than that, I believe that we ought to have an established reputation, so that the people know it and the jurors know it and the judges know it—an established reputation for fair dealing.

A Justice of the Supreme Court of the State of New York, an intimate friend of mine (I had the honor once to be a candidate before the people for that high office), said to me "Ely, why don't you settle a lot of those suits that are on the calendar?" I said, "Judge, after we get through lunch, come down to my office and I will show you in 20 minutes why you would not settle one of those cases." He did go with me down to my office and we looked over the cases. We had a pile of evidence and we looked it over together. After we got through he said, "Well, it is certainly extraordinary that such a condition of things should prevail." And it is extraordinary. I do not believe it ought to prevail. I believe that in the main, the American people are fair; and I believe that the time will come when your conditions will be happier, and the work of this association ought to hasten and will help to hasten the arrival of that day.

After this year I am going out of the office which I have occupied for three years. I have worked hard in that time. I have assumed a great deal of responsibility. I have done the best I could. You as an association, you as members of it and all these other associations have worked together splendidly and have assisted me wonderfully in the work I had to perform. When my successor is chosen, I bespeak for him from you and from your association and all of its officers the same loyal support and interest that you have evidenced in the short time of your organization toward me. I wish you one and all well as an organization and as individuals. (Applause).

President Rhoades said that, judging from what Messrs. Ely and Beggs had said, the claim agents would begin to think that they amounted to something.

It was decided that the registration would answer the purpose of the roll call, after which President Rhoades delivered the address which was published on page 736 of the Oct. 20 issue of the STREET RAILWAY JOURNAL.

At the conclusion of his address, President Rhoades extended to both Mr. Ely and Mr. Beggs a cordial invitation to be present at all of their meetings, and hoped that they would participate in the discussions.

Mr. Ely thanked him, and invited the delegates to attend the American Association's meeting on Wednesday morning, which invitation President Rhoades accepted.

The next order of business was the reading of the minutes of the last meeting by Secretary B. B. Davis.

The secretary then read the following report of the executive committee:

Your executive committee begs leave to report that at a meeting held at the Bellevue-Stratford Hotel, Philadelphia, on Sept. 29, 1905, the question of a budget for the Claim Agents' Association was considered and action on same postponed until the next meeting of the committee. That meeting was held at the offices of the American Street and Interurban Association, 60 Wall Street, New York City, on Feb. 6, 1906. The committee estimated that \$600 would be a sufficient appropriation for the Claim Agents' Association for the first year, and this amount was promptly allowed.

At this meeting, the new constitution and by-laws were discussed, and some minor suggestions made. The question of making these changes was left with the executive committee, with power to act. The changes were immaterial, and, as far as possible, made to conform with the constitution of the Accountants and Engineers' Association. They were finally approved and adopted and copies sent to the members of the association. Your association also requested an appropriation of \$900, which was allowed.

The question of topics and papers was submitted to your executive committee, and Messrs. Bradley of Chicago, Weh of Cleveland, Hare of Philadelphia and Farrell of Buffalo consented to prepare papers on subjects suggested by the members of the association. Acting upon the suggestion of Vice-President O'Connor at the last annual convention of your association, the executive committee inaugurated a Question Box.

In preparing the program for this convention you committee thought it proper to allow a specified time to hear from Messrs. Hoopes and Holmes, of the National Information Bureau, and from Chauncey S. S. Miller, secretary of the Alliance Against Accident Frauds. These gentlemen desired to present their plan for the prevention of the collection of money for fraudulent claims. Respectfully submitted,

S. L. RHOADES, Chairman,  
H. C. BRADLEY, Vice-Pres.,  
ANDREW P. FARRELL.

The above report, on motion duly seconded and carried, was approved and ordered filed.

President Rhoades stated that last year there seemed to be some doubt in the minds of members of the association as to whether the parent organization would stint them in any way. He simply desired to say that he had attended the meeting of the executive committee of the parent organization in New York, and it was only necessary to say a dozen words and inform them how much was wanted, whereupon it was voted immediately. He felt perfectly safe in saying that nothing asked for within reason by the Claim Agents' Association of the parent association as at present organized would be refused.

The secretary then read the report stating how much and what character of correspondence had been handled by him during the year.

After approving this report, that of Mr. Davis, as treasurer, was received, showing receipts of \$800 for the use of the association, and expenses for the year, \$766.76. The association now has 201 members.

The president said that it had been necessary to change the program in one particular. Instead of the Question Box being taken up and disposed of at the session prescribed by the printed program, it would come up for discussion and disposition the following morning.

Very many people had responded to the request to send in blank forms for the inspection and information of the members. These forms were to be found at the side of the convention hall, and if any particular form was desired by a member, he need only write to the particular claim agent furnishing that form, who would be glad to send a copy of it. After the association

adjourned they were to be turned over to the parent organization to be filed in the New York office.

He said that on Tuesday evening, through the kindness of Mr. Davis, a stereopticon exhibition would be given at 5½ West Broad Street. The Engineers Club had a comfortable and commodious hall which they had given the association permission to use, and Mr. Silcox, of Philadelphia, would show slides from photographs of people taken at work, although in their damage suits they had claimed under oath to have been entirely incapacitated from doing anything. He also would show slides of thirty or forty crooks who have operated in Philadelphia, and whom the company had in some way or other been able to trap.

As other entertainments had been provided for Tuesday evening, this exhibition would begin as near 7 o'clock as possible.

At the suggestion of Mr. Carpenter, Secretary Davis stated that he would have a number of tables brought into the convention hall Tuesday, so that the various blank forms for inspection by the members could be spread out where they could be inspected more readily.

Samuel Dorsey, of Denver, Col., suggested that the secretary be instructed to have a photographer take a picture of those present at the convention. As an instance of mutual benefit possible, he cited letters from two different claim agents, one Mr. Pratt of Baltimore, and the other the Chicago City Railway, asking him to transact certain business in Denver for them. In both cases he was successful in giving them the information desired.

It was arranged that a group picture of the members of the Claim Agents' Association would be taken Tuesday at 12 noon, immediately upon the adjournment of the morning session. The association then adjourned until Tuesday, Oct. 16, 1906, at 10 o'clock a. m.

#### TUESDAY MORNING SESSION

The meeting was called to order by President Rhoades, at 10 o'clock a. m. The president announced that the first order of business would be the reading of a paper by A. J. Farrell, claim agent, International Railway Company, Buffalo, N. Y., on the subject "Which is the Better Policy, Quick or Delayed Settlement?" This paper is published in full on page 902.

Mr. Moore, of New Jersey, opened the discussion on Mr. Farrell's paper, which was quite spirited and somewhat lengthy. Mr. Moore contended for quick settlements, and stated that under the laws of New Jersey a release, gotten up in proper form, was binding and would estop the claimant from a further claim for damages. He maintained that a delayed settlement worked oftentimes to the injury of the railway company, because it would be hard for it to keep its witnesses in the jurisdiction of the court so as to have the true facts with reference to the accident develop. Many instances were cited by Mr. Moore and by Mr. Farrell. The result of their discussion of the question apparently being that, after all, it depended on the circumstances of the particular case as to whether there should be an early settlement or a delayed settlement. Mr. Pierce spoke with reference to the condition of affairs at Galveston, Tex., and advocated in many cases a quick settlement rather than a delayed one. Mr. Farrell made the interesting statement that during the Pan-American Exposition, in the course of four months, he settled two thousand claims.

The discussion then digressed somewhat from the topic treated of in the paper and related to the form of releases which should be taken in these quick settlement cases. Mr. Harrison said that their form of release now included the words "for injuries now known or unknown or which will hereafter arise." Mr. Bennett, of Massachusetts, stated that he believed in quick settlements, especially if the company was bothered by ambulance chasers, bicycle lawyers, etc. Mr. Nickel stated that in all cases a settlement ought to be based on a knowledge of existing conditions. It was best to be fair in all of such matters, and in this way one could gain the confidence of the public by a mode of fair dealing which would inure to the benefit of the company in many ways. The paper was discussed also by Mr. Bradley, Mr. Carpenter and other members of the association.

W. F. Weh, claim agent, Cleveland Electric Railway Company, then read his paper on "The Policy of the Claim Department Toward the Public," which is printed on page 903.

The discussion was opened by G. Thomas Dunlop, of Washington, D. C., who commended very highly the sentiment expressed by Mr. Weh in his paper, and facetiously suggested that, in short, it pointed the "Way" for the conduct of claim agents in securing a popular public feeling in their favor by the honest conduct of their office in the settlement of meritorious claims at a reasonable

and fair basis. He spoke of the inauguration of the claim department in the street railway system at Washington, D. C., and how under his direction the number of suits had been decreased until at the present time there were pending but nine lawsuits against his company.

Mr. Dorsey, of Denver, Col., stated that he treated all cases of injury as measured by the test of whether or not there was liability on the part of the company. If there was liability, he endeavored in every possible way to secure a speedy settlement; if there was no liability, then fight the case to the end. Mr. Farrell stated that he believed that all just and fair claims should be settled for a reasonable amount. He said that in Buffalo, out of fifty-two cases tried, in forty-two of them the judgment was in favor of the defendant, and that only ten cases had been lost, and in these ten cases a verdict was secured for a less amount than they could have been compromised for before going to trial. Mr. Weh, in concluding the discussion on his paper, stated that on Jan. 1, 1906, there were pending ninety-six cases against his company.

A vote of thanks was extended to Mr. Farrell and to Mr. Weh for the admirable papers prepared and read to the association.

A recess was then taken until 1:45 p. m. of same day.

#### TUESDAY AFTERNOON SESSION

At the afternoon session the claim agents took up for consideration and discussion the Question Box, which will be found on page 907.

During the reading of the Question Box, Question No. 1 was discussed quite fully by Mr. Carpenter, Mr. Hardin, Mr. Forbes, of Fort Worth, Tex., and Mr. Schoenen, of Allentown, Pa.

Question No. 3 was also discussed fully, President Rhoades stating that in Philadelphia claimants had been indicted for perjury in connection with the pursuit of claims against the railway company for alleged damages, where they had sworn falsely, but in no case to his knowledge had there been a conviction for such offense, as jurors in criminal cases would naturally give the defendant in such a case the benefit of a reasonable doubt.

A lengthy discussion followed the reading of Question No. 4, which was "What is the best way to break up ambulance chasing?" The consensus of opinion seemed to be that this was one of the greatest evils with which the claim agent has to contend.

In the discussion following Question No. 8, it developed that it was the opinion of all of the claim agents present that in the settlement of a claim for damages against a street railway company, the claim agent should use no deceit whatever, but that all of his methods should be honorable and open to public inspection, so that in the event of a suit on the claim no advantage could be taken by the claimant's counsel of any deception or underhand practice on the part of the claim agent in the adjustment or attempted adjustment of the claim. In no event should the claim agent fail to disclose his identity if it became necessary for him to deal personally with the claimant.

During the discussion of the Question Box a diversity of opinions was developed as to the different methods pursued by the different companies throughout the country. As, for example, the question was propounded by one of the delegates as to the method pursued by the various companies with regard to the department under which the claim agents' department was operated; that is, whether it was under the legal department of the road or under the operating department or under the personal supervision of the president. A rising vote disclosed that it was divided about half and half between the legal department and the operating department.

At 4 o'clock it became necessary for President Rhoades to attend an executive committee meeting of the American Association at the Great Southern Hotel, and the chair was assumed by Vice-President Bradley. After the Question Box was disposed of a paper was read on the subject of "The Claim Agent's Work of the Future," by C. Willis Hare, United Gas Improvement Company, Philadelphia, Pa. This paper, which appears on page 906, was read by H. R. Goshorn, who stated that Mr. Hare was unavoidably absent from the convention because of a very serious accident in the nature of an explosion occurring to his company and in which a number had been injured.

F. W. Johnson, of Bridgeport, Conn., was called upon by request to address the association with reference to the mode employed by him and by his company in the training of motor-men and conductors on the subject of their conduct in case of emergency and accident. He gave the members a very interesting talk along this line.

William DeMitt Hooper read a paper to the association on the subject "The Relation of Statistical Bureaus to the Claim Agent's



Work," which was followed by many inquiries and considerable discussion.

It was then stated that it was the opinion of the officers of the association that a session lasting an hour and a half or two hours would conclude the proceedings of this convention, and, in order to give the delegates an opportunity to attend the sessions of the American Association to-morrow morning, an adjournment was had until 1 o'clock p. m. Wednesday.

#### WEDNESDAY AFTERNOON SESSION

The Claim Agents' Association met pursuant to adjournment at 1 o'clock.

H. C. Bradley, adjuster, Chicago Union Traction Company, Chicago, Ill., then presented his paper on "Methods of Management of Claim Departments," as printed on page 905.

Mr. Weh said that the only objection to Mr. Bradley's paper was that there was not a sentence in it but that the members would agree to.

It was then moved by Mr. Hardin, duly seconded and unanimously adopted, that resolutions of regret at the untimely death of Mr. Feeny be incorporated into the minutes of the association, and that a cordial vote of thanks be extended to all the writers of papers presented at the various sessions of the association; that a vote of thanks be extended to the Columbus Railway & Light Company, to the Scioto Valley Traction Company and to the Columbus, Delaware & Marion Railway Company for courtesies shown; that a similar vote of thanks be extended to Mr. Silcox, of Philadelphia, for the stereopticon exhibition afforded the members of the association Tuesday evening, and to President Rhoades, Secretary Davis and the officers of the executive committee of the association for the amount of labor performed and the excellent services rendered in bringing to a successful termination the most interesting and profitable meeting thus far held by the claim agents' organization.

In response to the suggestion contained in President Rhoades' annual address, a committee of five was authorized to be appointed on ways and means for the purpose of carrying out and effectuating the purposes and objects stated in his address for the specific duty of such committee. The president announced that this committee would be appointed after conference with the executive committee. It was suggested by Mr. Weh that this committee work in conjunction and in co-operation with the Alliance Against Accident and Fraud. The president then explained that C. S. S. Miller was expected to address the association at the afternoon session, but that he was unable to be present and had sent his regrets.

Mr. Brown, of Schenectady, N. Y., handed to the secretary for the purpose of reading to the association a bill which was presented to the last session of the New York Legislature with reference to ambulance chasing and bicycle lawyers. The bill was read and was referred to the ways and means committee.

It was then moved, seconded and carried, that the secretary furnish to each member of the association a complete list of the companies, members of the parent organization, and also the name and address, so far as obtainable, of the claim agents representing each respective company, and by an asterisk indicating the active members present at this convention.

To emphasize the appreciation of the members present of the services rendered by the president and secretary, an additional motion was made extending to them a hearty vote of thanks for the excellent services rendered in connection with this meeting, which motion was unanimously adopted by a rising vote.

The president then stated that his work had been rendered less burdensome by the fact that the secretary had assumed a great deal, and in fact practically all, the detail work, and said that he did not believe a better official for that office could be procured from the active membership of the association.

On motion of Mr. Dorsey, duly seconded and carried, the following committee on nominations was appointed: Messrs. Dorsey, Hardin, Nickel, Harrison and Dunlop.

It was then moved by Mr. Davis, and seconded by Mr. Goshorn, that the president be authorized to appoint an employment committee consisting of five members, which committee was suggested and recommended in one of the addresses made to the association. The president announced that this committee would be appointed after a conference with the executive committee. A recess of five minutes was then taken in order to permit the committee on nominations to formulate and present its report. At the conclusion of the recess the following was submitted:

#### REPORT OF COMMITTEE ON NOMINATIONS

To the Members of the American Street and Interurban Railway Claim Agents' Association.

Your committee appointed to select names of officers of the

association for the ensuing year, beg to submit the following: For president, S. L. Rhoades, of the Philadelphia Rapid Transit Company; for first vice-president, Henry C. Bradley, of the Chicago Union Traction Company; for second vice-president, Andrew J. Farrell, International Railway Company, Buffalo, N. Y.; for third vice-president, W. F. Weh, Cleveland Electric Company, Cleveland, Ohio; for secretary and treasurer, B. B. Davis, of the Columbus Railway & Light Company, Columbus, Ohio.

It was then moved, seconded and unanimously adopted, that the secretary of the committee be instructed to cast the ballot of the association for the election to office of the various members nominated for the respective positions last above indicated. The secretary then did as directed.

President Rhoades then made a brief and appreciative acknowledgment of the honor conferred upon him in re-electing him as president, stating that while he did not believe the administrative office of such an association should remain in the hands of any one man for a term longer than one year, yet inasmuch as the association had seen fit to re-elect him, he would do all in his power to see to it that the association prospered under his guidance, aided by the efficient assistance of the other officers of the association.

First Vice-President Bradley, Second Vice-President Farrell, Third Vice-President Weh and Secretary and Treasurer Davis each then responded in turn, expressing their appreciation of the honor conferred and pledging their best efforts for the future. On motion of Mr. Vories, seconded by numerous delegates throughout the convention hall and carried amid a burst of applause, Col. Samuel Dorsey, of Denver, Col., was re-elected to the important and arduous position of sergeant-at-arms. Mr. Dorsey replied, saying that he cheerfully accepted the appointment and that he would try to preside with dignity for the ensuing year in attempting to fulfil the duties of the position.

Mr. Johnson, of Bridgeport, Conn., by request, then read some humorous verses, entitled "Dorsey's Dream in Colorado."

The president then appointed for the ensuing year the following as members of the executive committee: Charles B. Hardin, of St. Louis; Peter C. Nickel, of New York City; F. W. Johnson, of Bridgeport, Conn., and E. C. Carpenter, of Anderson, Ind. It was then moved, seconded and carried, that the president appoint a committee of five, to be known as the employment committee, and to receive the names of claim agents desiring to change their positions or to secure new ones, and to answer communications from presidents or general managers of railway companies desiring to procure the services of competent adjusters and claim agents.

The various members desiring to avail themselves of the group photographs taken at the conclusion of Tuesday morning's session were then requested to leave their names with the secretary, who would take upon himself the duty of seeing that a copy thereof was forwarded to him. On motion, duly seconded and carried the association then adjourned *sine die*.

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D. E. Baxter & Company, of New York, have completed specifications for the power and line equipment for the Charleston & Summerville Electric Railway, which the Baxter Company will begin to construct at once. The road will be a single-phase railroad, and will run from the Battery, in the city of Charleston, out of Charleston to Summerville, a distance of 27 miles, and the right of way passes with easy curves over a practically level country, the maximum grade being less than 1 per cent. The power house will be located about 9 miles out of the city of Charleston, where two steam railroads intersect. Its equipment will include two 800-hp Snow gas engines, with a maximum capacity of 920 hp each. At the city limits of Charleston will be located the transformer station, which will supply a 550-volt current to the eight cars intended principally for city use. The specifications include the following equipment: Two 600-kw single-phase 25-cycle generators, two 70-kw motor-driven exciter sets with transformers, switchboard with bus below at exciter panel, one lamp bracket and shade, one field motor, two ammeters, two rheostat hand wheels, two double-pole single-throw switches, one double-pole double-throw switch for throwing battery on either exciter, one single-pole single-throw equalizer switch, two circuit breakers with reverse current relays for use with field exciter battery. The exciter field rheostat is to have proper range for use with Tirrill regulator, generator panels complete, feeder panels complete, motor-starting panel complete, exciter regulating battery. The builders will use catenary line construction, with 120-ft. spans; No. 000 hand-drawn copper trolley wires, corrugated porcelain insulators, standard stud bracket, stud strain bracket, section break and strain insulators.

## PAPERS AND QUESTION BOX READ AT THE COLUMBUS CONVENTION OF THE CLAIM AGENTS' ASSOCIATION

### WHICH IS THE BETTER POLICY, "QUICK OR DELAYED SETTLEMENTS?"

BY A. J. FARRELL,

Claim Agent, International Railway Company, Buffalo, N. Y.

There are several classes of accidents that occur on surface roads that are cases of clear liability, such as collisions between cars, cars leaving track, starting of cars when passengers are boarding or alighting, blowing out of controllers. There are several others, but these are the principal ones and generally the most expensive.

When an accident happens, such as a collision between cars, this is a case of clear liability, and every person on either car can make a claim for injury or shock. The better way, after an accident of this kind occurs, is to see these people, or as many of them whose addresses you have and you can find, and if their cases can be disposed of for a fair sum this is the policy that should be pursued. It is much cheaper to settle cases immediately after the occurring of an accident, where the same can be done, than to wait or delay such settlement, if the same can be made. The sooner settled, the cheaper it can be done. These quick and fair settlements are almost without exception with people who have but slight injury or slight shock, and they are especially advisable because such injuries, in a great many cases, are liable to multiply with age or time, especially if you are unfortunate enough to have people who are looking to get something for nothing, and there are a great many of them at the present time. But, as said before, it is only the slightly injured or shocked that can be settled with at time of accident or shortly after. Only a portion of them that can be settled with, and sometimes a small portion, for people exaggerate their injuries, and very generally ask more for the settlement of their claims than is policy for a company to pay.

What is the result? The case is given into the hands of an attorney. It usually takes from one to three years to bring the case to trial in New York State for an amount of \$500; and this is a long wait for a slight or an imaginary injury, and it is hard to work against nature. When a case is tried, if tried, your claimant is looking better than when the accident happened, and he has nothing but subjective symptoms to offer, and they are not often taken seriously by the court or jury. So your chances are as good, if not better, than when you started out; and I would say that, nine times out of ten, you can make a much better settlement with this kind of a person through the attorney than you could at first with the claimant.

To illustrate: In the spring of 1903 we had a head-on collision between two cars that were going in opposite directions. One car took a switch and both cars came together with considerable force. A passenger on the northbound car (a man who held a prominent position with a steam railway) claimed to have been seriously injured, and at no time could we talk settlement with him for any sum that was within the bounds of reason. The best offer of settlement we could get from him was \$5000. He brought suit against the company for \$25,000. The case was tried; the jury brought in a verdict of "no cause of action." The cause of this was that when the case was tried this man was the picture of health, and all his complaints were subjective symptoms and were not taken seriously by the court or jury. This is only one of a large number of cases that are dealt with in this way by this company, but time and space will not permit of more illustrations.

A person bringing an action against a railway company, no matter how clear his case may be, has got to show some injuries before he can get any large sum. It is well to settle, if it can be done fairly and in justice to passenger and railway company, if not it is cheaper and a better plan to dispose of such cases in court. By being afraid because this party has a clear case, and settling, although you know that the person is unreasonable in his demand, you work by such a settlement an injustice to your company and to yourself, and create a bad example for others in the same accident or in similar accidents. It has been my experience that when people get more in a settlement than is justly due them they are very fond of talking and telling their friends

how they "did up the railway company"; and this often works against you later on; you are told how much you paid such a person and how slightly he was hurt.

Is it safe to make quick settlements with seriously injured people, if the same can be done? This is sometimes done, although not often; but is it good policy? Suppose you settle a claim with a person who has serious injuries, and you make the settlement within a short time after the occurring of the accident, and the sum paid to this person is a small one, what is usually the result? The person presents another claim, or you have got to defend a lawsuit, and, what is your defense? You put in your release. What does the claimant say about the settlement? That at the time he or she did not know that it was a settlement, thought that the money paid was for current expenses, or denies signing it at all, or claims that he was under the influence of drugs and in no condition to make a settlement. You may have witnesses to the signing of the release, but usually they are friends of the injured person, and what do they say? Simply that they understood, as the injured person did, that the settlement was for current expenses, or that the person was not in proper condition to make a settlement. Where is your release?

To illustrate: Some eight years ago a driver of a cab came into collision with a car, and his right leg was caught between the forward part of the car and the cab, seriously bruising his leg. He was taken to the hospital. The writer went to the hospital the next morning; settled the case for a small sum, the doctor and two nurses signing the release as witnesses. Some week or ten days later the leg was amputated above the knee. This man brought another claim. What was the strength of his claim? That when he made the settlement he was in no condition to do so, as he was under the influence of drugs; and the doctors and nurses, though friendly with the company, could not conscientiously go on the stand and state that the man was not partly under the influence of drugs. What was the result? The company was forced to pay, in my opinion, a much larger sum to settle than would have been done if the case was not settled so soon after the accident.

So that usually only the people who are slightly injured are the ones that can be settled with at time of accident, or a few days after; the people who are seriously injured can only be settled with after they find out how seriously they have been injured, or after consulting their physicians and friends. This is certainly right. No person with ordinary common sense is going to settle his claim for less than he deserves, knowing that the same is gilt-edged; and it comes down to this—can the person get more money than he can call his own, by settling with a company direct and getting his money quick. If this is for his best interest, then you can settle with him, and not otherwise.

Take it to yourself or one of your family. Suppose they were injured on some steam or other surface road. Will you settle, or are you going to let them settle for a small sum, and before they know how their injuries are going to affect them in the future? I don't think you are, and I don't think that any smooth-talking claim agent or adjuster can talk you into doing something that is against your own interests and common sense. People who ride on street cars are not such fools, and this empty talk of claim agents and adjusters, who tell their management and others in authority, that they have settled with a person who has a broken arm for \$25 or \$30, and a person with two or three broken ribs for \$30 or \$40, and another person with a compound fracture of the leg for \$60 or \$70. This is all rot, and the claim agent or adjuster who takes the release is either deceiving himself or his employers, or the person they settle with is insane, as the doctor bill in any of these cases would be as much or exceed the amount paid. You may, and often do, make a good settlement, but the other side also makes a good settlement. You must expect this.

A man insures his house or furniture; he has a fire; it is the first thing he does? After the fire is out he gets ready for the adjuster and sees how high a price he can put on each article. Have you ever been there? If so, you know what you have done and how you did it. Your conscience may have pricked you a little, but you saw the dollars in sight. So with persons injured. As soon as the first excitement is over, what do they do? The same thing, and if they don't know they will find plenty to tell



them. Sometimes their friends will help in making the settlement, but this is not often. Sometimes the physician advises settlement, but it is all done for a purpose, the doctor for his pay and future favors, and his friends for ready cash.

Every case your company wins in court has a check on people who are anxious for lawsuits; and if they hear of the results of trials (which they generally do, as cases of this kind are given a great deal of notoriety through the press and talked of generally among people) they are not so apt to rush to an attorney to sue or collect their claim, but will go to the claim department and try to effect a settlement, which is usually done; and the same is beneficial to both parties; or, in other words, the claim department only pays for the settlement of a claim what they think is fair and just; and the same can be said of the majority of attorneys who have cases that have been sued, or cases that have not been sued—they will write to you, asking for a settlement of their case, or go to the claim department, and usually an adjustment of their case can be made. No attorney wants to take a case in court and try it and be beaten; though it often happens that we settle cases after all interested parties are in court, and often when the jury is drawn and the case partly tried and at a loss, or the same sum that had been offered for settlement of case, and rejected. My experience has been the more successful your attorneys are in court, the more successful the claim agent or claim department. The secret of effecting close settlements and the keeping down of the number of lawsuits is largely due to the success of your legal department in court.

The different localities and different classes of people make great difference in the settlement of cases. The ordinary person is much easier to settle with than the highly educated. At least this has been my experience. They multiply their time and ability to such an extent that it is seldom without the aid of an attorney that an adjustment can be made.

What I have said, therefore, has had reference mainly to the average class which patronize the street railway.

You see then, that there is much to be said both for quick and for delayed settlements, and I have tried to state the reasons for each and the objections to each. But, in my judgment, the whole matter comes down to this: Make a quick settlement if it can be fairly and reasonably made. If the claimant is unreasonable don't be afraid of delay, for if the claimant is asking for an unreasonable amount the lapse of time will prove better than any medicine to bring him to reason; and the reasonable settlement is, in my judgment, the best settlement, whether made with a rush or after a delay.

## THE POLICY OF THE CLAIM DEPARTMENT TOWARD THE PUBLIC

BY F. W. WEH,

Claim Agent, Cleveland Electric Railway Company, Cleveland, Ohio

The attitude of a street railway claim agent toward the public is important, not only to his own success in his chosen calling, but in its effect upon the earnings of his company. A course may be adopted whereby he will, in a short time, get the public "by the ears"; or he may, without losing a particle of his self-respect, so operate his department as to command the confidence of the people. The expense of his department from the true barometer as to which method of operation has been adopted.

That a strong prejudice exists against corporations, and especially street railway companies, cannot be questioned. Why is it that the ordinary jury is predisposed to find undisputed facts, almost without regard to the evidence, against the railroad companies? They almost entirely disregard any conflict in testimony and limit their deliberations to the assessment of damages; the duties conferred upon them are most flagrantly abused everywhere. There may be several reasons for this predisposition on the part of juries. In the first place, they are generally composed of men who are not wealthy, and they may feel that the corporation has grown wealthy improperly at the expense of the people. Then, again, the corporations are greatly misrepresented by persons who seem to think it to their interest to misrepresent them, and while such persons go through the country misrepresenting corporations, abusing and accusing them of all kinds of offenses, there is rarely any person ready, or prepared, to refute the false charges. And further, a great deal of the feeling against corporations has been created by the treatment of the public by street railway companies. They have, in too many instances, stirred up bad feeling and strife, and a desire to kill off, rather than a friendly feeling to encourage and to keep alive.

Here is the field for the accomplished claim agent. Promptness and fairness in adjusting the grievances of the public will command its respect; if not for your company, at least for you personally. The claim agent cannot turn the tide himself, but he can do a great deal toward it. He meets the public more than any other officer; he meets not only the persons having claims, but their friends, their doctors and their lawyers; he meets the witnesses to each particular accident, and each accident widens his acquaintance and influence; he meets all classes of people, rich and poor, native and foreign born, honest and dishonest. He must know how and when to reach them all, and to accomplish the best results, not only for the time being, but for the future, and for the benefit of his company. Tell them of some of the unjust claims and "hold-ups" he has to deal with; show them that the company contests claims not from a desire to shirk its just obligations, but because injuries are greatly magnified and values increased with the hope that the company will pay rather than submit the matter to a jury; how claims are built up and manipulated by "shyster" lawyers and "shyster" doctors as well; and how the lawyer boasts that it is only necessary for him to "push the button" and the jury "will do the rest"; recount some of the frauds which are practiced against the company; and when a meritorious claim is presented endeavor to make a settlement fairly satisfactory to all parties, so that the claimant will go away with a friendly feeling toward the company. He will tell his family and friends of his experience; they, in turn, will tell others, and soon the company will get the reputation of being fair and contesting only claims in which there is no merit, and judges and juries will become cognizant of this fact. The claim agent must, wherever possible, engender a good feeling for his company; he must bear in mind that every friend made on behalf of his company will redound some time, and to some extent, in its favor. A sharp trick to-day in making a settlement may cost more some day later in settlement with some one of whom that practice has made an enemy.

The claim agent must be shrewd, and an excellent judge of character, so as to distinguish between fraud and honesty, frankness and cunning; he must always have his ax out for the rogue and impostor, for the people like fair play, and he can gain their confidence in no easier way than by exposing trickery and fraud.

One of the best attributes a claim agent can have in dealing with the public is an even and equable temper; no matter how angry a claimant may be, no matter how insolent or insulting his attitude toward the claim agent, if he has a just claim, this fact should be taken into account and allowances made therefor, and the fact kept before the claim agent's mind all the time, that the interests of his employer demand a settlement of that claim.

By not handling such claim properly he may drive the claimant to the courts, and make him such an inveterate enemy that no reasonable adjustment can be made of the case thereafter. The result may be a very large verdict which the company will have to pay, and that verdict may have a greater influence than in that particular case. I have frequently seen large verdicts rendered in damage suits acting for years as precedents for juries and the public in subsequent cases, to the great injury and damage of the defendants. I have in mind one particular county where certain meritorious cases were tried, and large verdicts recovered. That county, before that time, had no attraction to claimants of this character, but it has ever since those verdicts were rendered been the Mecca of persons who have damage suits against corporations. The mistake in not settling those cases has had its detrimental influence upon corporations in that locality ever since. So I say that when there is a meritorious claim it may, if not properly handled, be driven to the courts and the result be disastrous, not only in that case, but for many years to come. This is one of the things that a wise claim agent keeps in mind, and handles an irascible claimant with gloves, but with mind always intent upon a proper adjustment.

There is, unfortunately, a prevailing idea that the claim agent of a street railway company is the incarnation of everything that is dishonest; that he will resort to any trick, adopt any sort of imposture to take advantage of the unfortunate, and to settle just claims far below the proper amount that should be paid therein; that he is, in short, not a man to be trusted, for he will take advantage of any person who puts his trust in him, a man who rides rough-shod over the rights of the people, especially the unfortunate who are injured, or who have a just claim against the company and justifies all his conduct by his endeavor to keep down the expenses of his department; a man whom society tolerates rather than takes pleasure in, knowing that he is a member thereof.

All this should not be. The claim department of a street railway company can be operated in such a way as to compel the respect of the public for the head of the department, and the claim agent should be able, by adopting a proper course with the public in the administration of his department, to acquire and maintain a position in society which is equal to that occupied by a member of any other calling; but it must be by adopting a course in which the public are justly and honorably dealt with. Every person who has a just claim against the company should be fairly treated; every one made to believe and feel that if they have an honest claim, they will secure justice at the hands of the claim agent. The influence which the claim agent exerts must lead the claimants to come to him, rather than to drive them to lawyers and to the courts.

It is not always, but it is generally, true that a meritorious claim can be settled on more favorable terms directly with the claimant, and before suit than with a lawyer after suit. The claim agent's organization must be perfect; no accidents must go without immediate investigation by competent, careful, intelligent and honorable investigators.

Street railway cases are usually determined upon facts. If a claim goes into litigation, a careful investigation will either win the case or tend to reduce the amount of damages. In negotiations for a settlement a carefully prepared statement of facts is a strong lever in forcing favorable terms; and not only this, but the claim agent is thereby enabled to correct some erroneous impressions of the claimant, and he is made to realize the fairness of the adjustment, and when the terms are finally agreed upon, he feels that he has been properly treated. Always endeavor to establish the absolute truth by your investigation. It is a false presumption for any claim agent to build up a fictitious defense for his company upon facts which cannot be substantiated in court. He may think that he is making a record for himself, but he is only building up a disastrous monument that will fall upon him with such force that it will rebound, not to the benefit, but to the disadvantage of the company he represents.

A part of the claim agent's duty towards the public is to reduce accidents as much as possible. While it is not within the province of the claim agent to formulate rules which he may think proper for the prevention of accidents, it is due to the public and the company he represents that he call the attention of the proper officers to the causes which make considerable disbursements in the settlement of damage claims necessary. Nothing brings to the attention of the operating department more forcibly the result of some negligent method in operation than the law of averages. Careful statistics should be kept of the number and kind of accidents, and the extent and character of injuries. I attach to this paper some forms which are used by the company with which I am connected—the Cleveland Electric Railway Company—which may interest some of you. Every negligent method corrected, every accident and injury avoided, is a benefit to the public as well as to the company. No greater duty rests upon the claim agent than to keep pounding away in opposition to negligent method of operation, for, in the correction of any of these methods of operation, he is bestowing not only a benefit upon the public, but upon his employer as well. It is common to find rivalry existing between officers of a railway company, and you may be silenced by a sheer force of influence of the department against you. But the man who is easily rebuffed, who, when he knows he is in the right, can be turned aside because some superior officer disagrees with him, has no business to be a claim agent. He should be made of sterner stuff or he will lose all independent thought and fall rapidly into the role of a mere automaton. No management should be so narrow and conceited in its method of operation as to be unwilling to co-operate with the claim department in correcting faults from which both the public and the company suffer.

It seems to me that a great many of our companies have reached a stage of perfection; that is to say, we have about reached the limit of economy in the way of improvements to tracks and to rolling stock and the expeditious handling of passengers, and whatever is done to cheapen the cost of carrying passengers must be in the way of small economies. It is the little things in life that count; it is the little things which cause or prevent accidents. Here, it seems to me, is where the claim agent may properly step in, and by reason of the knowledge he has gained in the investigation of claim; and his familiarity with decisions of the court in negligence cases, make suggestion for the prevention of accidents.

Bear in mind I do not favor an extravagant or reckless ex-

penditure of money in connection with the claim department; nor do I favor a stingy or niggardly expenditure therein. I do not favor the expenditure of a single dollar for the settlement of any claim unless there is a good reason for the expenditure, and one which the department can explain and justify to the directors of the company, or to the public. I particularly enjoy a prompt and careful investigation of all accidents and a careful selection of witnesses thereto; for I contend that no department can be operated intelligently and carry out the principles herein advanced unless the department is so organized that the facts in each case can be promptly collected and relied upon by the claim agent and his attorneys, and no claim agent can properly know the value of any claim unless it has been properly investigated and the facts collected. All claims must be fairly and honestly dealt with, and whenever fraud appears upon the other side, either by the claimant or by his attorney, it must be struck down, and struck down so vigorously as to deter others from attempting a like scheme.

The position which should be taken in reference to claims which have no merit whatever—claims which are brought solely

CLAIM DEPARTMENT—THE CLEVELAND ELECTRIC RAILWAY CO.—  
COMPARATIVE DETAILED STATEMENT OF EXPENDITURES.

	Month of.....		From January 1st	
	190.....	190.....	190.....	190.....
	\$	\$	\$	\$
1. Collisions with Persons (A. Adults.....				
(B. Children.....				
2. Collisions with Vehicles and Animals.....				
3. Collisions of Cars.....				
4. Struck by Trolley.....				
5. Employees injured.....				
6. Fell off Cars.....				
7. Fell in Cars.....				
8. Fell getting on Cars.....				
9. Fell getting off Cars.....				
10. Electric Shock.....				
11. Cars leaving Track.....				
12. Railroad-crossing Gates damaged.....				
13. Miscellaneous.....				
14. Passengers ejected.....				
15.....				
16.....				
17.....				
18.....				
19.....				
20. Witness Fees and Expenses.....				
21. Expert Testimony.....				
22. Doctor Bills.....				
23. Hospital Bills, Ambulance Bills, etc.....				
24. Special Services.....				
25. Incidentals: Office Expenses, etc.....				
26. Salaries.....				
27. Wages of Motormen, Conductors, Inspectors.....				
28.....				
29.....				
30. Court Costs and Expenses.....				
31. Court Stenographers and Printing.....				
32. Attorneys' Fees.....				
Total.....	\$	\$	\$	\$

CLAIM DEPARTMENT—THE CLEVELAND ELECTRIC RAILWAY COMPANY—  
COMPARATIVE REPORT OF NUMBER OF ACCIDENTS  
FROM VARIOUS CAUSES ON ALL LINES.

	Month of.....		From January 1st	
	190.....	190.....	190.....	190.....
Collisions with Persons (Adults.....				
(Children.....				
Collisions with Vehicles and Animals.....				
Collisions of Cars.....				
Struck by Trolley.....				
Fell in Cars.....				
Fell off Cars.....				
Fell getting off Cars.....				
Fell getting on Cars.....				
Electric Shock.....				
Cars leaving Track.....				
Railroad Gates damaged.....				
Running-board Accidents.....				
Miscellaneous.....				
Total.....				
Passengers ejected for trouble about				
Fares or Transfers, for.....				
Disorderly Conduct, etc.....				
Cars Derailed at Derailers.....				
Employees injured.....				
Cars damaged.....				
Personal injuries.....				
Fatalities.....				
Incidents.....				
Car-miles run per Accident.....				
Car-miles run per Passenger injured.....				
Passengers carried per Accident.....				
Passengers carried per Passenger injured.....				
Rides (Transfers included) per Accident.....				
Rides (Transfers included) per Passenger injured.....				



CLAIM DEPARTMENT—THE CLEVELAND ELECTRIC RAILWAY CO.

Report of Number and Nature of Accidents on Each Line in Month of.....190....

NATURE OF ACCIDENT.	Shop and Car-House Men.	Trackmen.	Line and Power-House Men.	Motormen and Conductors.	Euclid.	Euclid-Jennings.	Mayfield.	Euclid Creek.	Totals.
Collisions with Persons (Adults... Children.)									
Collisions with Vehicles and Animals.									
Collisions of Cars.									
Struck by Trolley.									
Fell in Cars.									
Fell off Cars.									
Fell getting off Cars.									
Electric Shock.									
Cars leaving Track.									
Railroad Gates damaged.									
Running-board Accidents.									
Miscellaneous.									
Total.									
Passengers ejected for trouble about Fares or Transfers, for.									
Disorderly Conduct, etc.									
Cars Derailed at Derailers.									
Employees injured.									
Cars damaged.									
Personal injuries.									
Fatalities.									
Incidents.									

CLAIM DEPARTMENT—THE CLEVELAND ELECTRIC RAILWAY CO.

Statement of Amounts Expended in Month of.....190....On Account of Accident.

	ACCIDENTS OCCURRING IN.					Total.
	190...	190...	190...	190...	190...	
1. Collisions with Persons (A. Adults... B. Children...)	\$	\$	\$	\$	\$	\$
2. Collisions with Vehicles and Animals.						
3. Collisions of Cars.						
4. Struck by Trolley.						
5. Employees injured.						
6. Fell off Cars.						
7. Fell in Cars.						
8. Fell getting on Cars.						
9. Fell getting off Cars.						
10. Electric Shock.						
11. Cars leaving Track.						
12. Railroad-crossing Gates damaged.						
13. Miscellaneous.						
14. Passengers ejected.						
15.						
16.						
17.						
18.						
19.						
20. Witness Fees and Expenses.						
21. Expert Testimony.						
22. Doctor Bills.						
23. Hospital Bills, Ambulance Bills, etc.						
24. Special Services.						
25. Incidental: Office Expenses, etc.						
26. Salaries.						
27. Wages of Motormen, Conductors, Inspectors.						
28.						
29.						
30. Court Costs and Expenses.						
31. Court Stenographers and Printing.						
32. Attorneys' Fees.						
Total.	\$	\$	\$	\$	\$	\$

METHODS OF MANAGEMENT OF CLAIM DEPARTMENTS

BY HENRY C. BRADLEY,  
Adjuster Chicago Union Traction Company

The basis or starting point, naturally is, the "accident," followed by a report of the train crew, upon the receipt of which the duty of the claim agent begins.

1. A record is made of said report, a brief account of same is given to an investigator, who is instructed to call upon the injured parties; ascertain what their injuries consist of; how serious they are, and procure an affidavit of claim from all who will give it to him. If the case is a wreck or of unquestioned liability he is instructed to settle all cases that is possible up to a certain figure—say \$50 or \$100, if, in his judgment, the amounts are not excessive—otherwise to telephone the department and confer with the general claim agent for further instructions. In all cases where the injuries are of a serious nature a medical examination is requested, and if it is consented to, it is made by the company's surgeon after a reasonable time has elapsed for the injuries to develop into a definite condition. After the report of the surgeon is in the hands of the claim agent he is in a position to determine what is a proper amount to offer in settlement, and act accordingly.

This method, I find from inquiries, is about the same in all claim departments; is nothing new, and applies only to cases where there is no defense for the company, and where only a question of the amount to be paid is involved.

2. There is a class of claims that are a source of annoyance to all claim agents. They are termed by me as "blind or un-reported claims," and all are more or less tainted with fraud. I have found them very difficult to handle. The company is entirely in the dark and must get evidence the best way it can, and more often than otherwise is unable to obtain any at all. My general method is to insist on an affidavit setting forth all the facts complained of by the claimant, his address and business, also the names and addresses of all witnesses, if possible, after which an investigation is made—taking affidavit of all witnesses and inquiring into the character and standing of both claimant and witnesses. If they appear to be of reasonably fair standing and respectability, settlement is made if it can be effected on a fair and reasonable basis. If the investigation proves unsatisfactory the case is declined payment—depending on time and Providence to enable the company to find a defense, which does not always happen, and the company may be compelled to pay more than is asked in case of a verdict by a jury.

I never feel satisfied in my own mind, no matter how disposed of, that it was the best method to follow in dealing with this class of claims. If they are in the hands of a shrewd and dishonest attorney and suit is instituted, there is no way of determining what they will cost the company; so experience has taught me that if the demands are not exorbitant a settlement for a small sum, even in doubtful cases, is money saved to the company. On the contrary, if a corporation follows such a method it is liable to establish the reputation of being an "easy mark," and invite other persons to attempt to hold them up, which keeps the claim agent in an uncertain frame of mind all the time as to what is the best method to pursue.

WHAT CASES SHOULD BE INVESTIGATED AND WHAT SHOULD BE LEFT ALONE?

It is my opinion that all accidents should be carefully investigated, and all facts relating thereto obtained as early as possible when fresh in the minds of witnesses and parties concerned therein. They should not be put aside, as is done by a great many claim agents, and after a lapse of time suit is brought and most of the facts and evidence are lost through inability of witnesses, etc., to recall to mind the facts and circumstances of the accident, which places the company to a disadvantage to defend itself through neglect of its claim agent.

Another important factor as an aid to the claim department is the manner and thoroughness of the train crews in getting the facts and circumstances of all accidents, in obtaining as many eye-witnesses as possible to same, and making a full report of all the details, which in a large percentage of the accidents, is sadly neglected.

Also if the operatives of the company faithfully performed their duties, as required by the rules, a very large percentage of the accidents daily occurring would be avoided. Unfortunately, however, the innate fallibility of men to become careless, precautionless and indifferent to their duties will not permit a railroad to

for the purpose of forcing a settlement at a nominal figure, my policy is to fight with the same vigor as cases where actual fraud is apparent.

By the adoption of the policy herein advocated it is barely possible that in the settlement of some meritorious claim too much may be paid, but, in the long run, I have found that it is the better policy to pursue, and that the law of averages will show that by adopting the attitude herein recommended towards the public, the expense of the operation of the claim department will be materially reduced. It will also result in getting the good will of the people, and if your company has the reputation of being fair, persons who are injured, instead of rushing off to lawyers, will first see the company and endeavor to make amicable settlements, which are always preferable. And I have found that in this business it pays to have friends and the confidence of the public, rather than enemies and the public's distrust.

attain a degree of perfection in operation, and the accidents will continue to occur.

#### HOW SHOULD A CLAIM AGENT TREAT CLAIMANTS?

It is my experience that fairness and justice is the best policy to pursue; impress upon them the fact that the corporation you represent has a policy of according claimants, who deal with them directly, honestly and fairly, the same treatment; try to obtain their confidence, which, if successful, will make it easy to effect a settlement. You must remove from their mind the prejudice existing that all claim agents are sharks employed to defraud claimants out of their just rights.

#### AUTHORITY OF CLAIM AGENTS

The policy of railway corporations varies considerably in this matter. Some give their agents unlimited powers, in which case the agent is usually the general claim attorney.

Others require the claim agent to submit to and confer with the general manager or general claim attorney all claims that exceed a fixed amount, which amount varies from \$50 to \$1000. As to which is the most efficient method to adopt I cannot say; they all have merit.

I believe it is wise to impose restrictions on claim agents, as it is better to have the opinion of more than one on matters involving a settlement, especially where the amount to be paid is large.

I have had experience under both systems, and I have found them both to work fairly successful. I think, however, where there is a general attorney, he is, by nature of his legal knowledge, better qualified to decide what is proper to do with a case, and a decision can be reached much quicker, which is a potent factor in a majority of cases.

Another important factor is the honesty and ability of the investigators. Much of the success of a claim agent depends on his assistants. He should have sufficient power and authority over them and not be hampered by restrictions in his management.

Experience has shown me plainly that diligence and efficiency can be better obtained through allowing the claim agent full scope in the management of the department as in his judgment is best for the best interests of the corporation.

## THE CLAIM AGENT'S WORK OF THE FUTURE

BY C. WILLIS HARE,

General Claim Agent, the United Gas Improvement Company,  
Philadelphia, Pa.

The success of the claim agent's work of the future will depend very largely on what is done for him, as well as what he does for himself. In other words, unless certain legislation is enacted, a large part of the efforts of the claim agent in making prompt and low settlements, in fighting where a fight is advisable, and in compromising where a compromise is to the best interests of his company, cannot meet with the success it deserves.

While in certain respects it is astonishing with what rapidity the claim business of the country has grown within the last few years, when one considers the forces which have been at work to this end, it is even more astonishing that the accident business has been confined within any reasonable limits in any one of the larger Eastern cities. There is little question that if a corporation were enabled to settle its just liabilities in an accident case on a basis considered equitable by a body of fair-minded and impartial citizens, the total sum paid in any given year would be an astonishingly small one compared with the amounts paid to-day; but this is not the case, and the records of all large traction companies to-day tend to prove that the heavy expenditures of the claim department are not made necessary by serious injuries due to the negligence of the company, nearly as much as they are made necessary by that type of case which, starting with a minor injury, or no injury at all, is worked up with extreme cleverness by the unscrupulous claimant, aided by equally unscrupulous physicians and attorneys. It is this type of case that is the source of constant worry to the claim agent, and I doubt not will continue to be the source of worry for many years to come.

While nearly every claim department to-day is fighting this particular evil through a well-trained corps of adjusters and detectives, it can only be permanently relieved through the enactment by our Legislature of certain laws tending to make the

perpetration of a fraud far less easy of accomplishment than the laws of to-day permit of. Some little work has already been done in this direction, but in order to secure a successful outcome, it will be necessary for the various traction companies in every State in the Union to combine in a united effort in their respective States to force upon the notice of their State Senators and Representatives, a general idea of the evils as they exist in this branch of the claim business to-day, and unless some measures are taken for relief, one may expect to find a gradual increase in the cost of the accident business in the Eastern cities, and a very marked increase in the Western cities, where at the present time the spirit of graft has not entered to the alarming extent which it has reached in the East, due largely to two reasons: First, that the Western public is not fully aware to the advantages to be secured through fraudulent litigation, and have not been sufficiently educated along these lines by unscrupulous attorneys and physicians. Second, that the larger proportion of emigrants have chosen to settle in the East rather than in the West, and it is the foreign element in every city which has identified itself more closely than any other element, with the fraudulent bringing of claims.

The first act to be urged upon the Legislature should be one making it a criminal offense for an attorney to advance money for the maintenance of a suit. If this were done, a large number of cases which are carried to a successful conclusion to-day would fail, owing to the claimant's inability to remain away from work for the period necessary successfully to maintain a fraudulent suit.

A law should also be passed making a claim invalid unless written notice be given the corporation within thirty days from the date of the accident, and the statute of limitations should be so changed as to make one year the time limit in which a suit may be brought.

An act should also be passed making it compulsory to try with the main issue of a case, all actions for loss of service of wife or child.

Some of these statutes exist to-day in certain States, but they should exist in every State, and when they do, I am convinced they will result in a very material saving to all claim departments, and no disadvantages to plaintiffs with just causes of action.

To-day, nine men out of ten believe that the accident business is only one form of corporate activity to secure much for little. They believe the claim department to be composed of a band of adjusters endeavoring to dupe the poor and obtain settlements from them for grossly inadequate amounts, or rather they take this general view of the situation for granted, without having given the subject any thought whatsoever. They do not believe you when you tell them the large majority of cases settled, are settled for sums far in excess of the amount which would compensate the individual for any time lost, or suffering caused by an accident, and will not realize that such sums are only paid because of the knowledge that unless paid, an unjust verdict of an unfriendly jury for a far greater amount, may be sustained by the highest court in the State.

It would therefore seem advisable to draw the attention of the people of your community to the real nature of the claim work by publishing from time to time in the newspapers stories covering different sides of the work. If this is done, little by little, you will find the heaven working in your favor, and it will not be long before your Legislature will be enacting the statutes mentioned.

I personally know of a town of some 200,000 inhabitants, where the traction company had been preyed upon for years by an unscrupulous set of attorneys, doctors and claimants, whose actions were considered perfectly justifiable by the better class of attorneys, as well as by the better class of business men. In several instances, men of prominence were brought to the office and shown some of the cases, which, starting from practically nothing, had through the clever manipulation of lawyer, doctor and claimant, been worked up to a point where the injuries were apparently of a permanent and most serious nature, and where thousands of dollars would be required to effect a settlement, where hundreds should have sufficed. They were astounded; they spoke of what they had learned to their friends. Some of the very attorneys employed to fight the cases had previously had no experience in accident work, and were equally thunder-struck by the amazing amount of graft which was constantly being disclosed to them while preparing their cases for trial. Little by little, the impression gained ground that the corporation was not so much of a grinder of the poor as had been formerly believed; the difficulties that beset the claim department were more thoroughly understood, and the company is seeing to-day a



gradual change of opinion which is helping materially in its settlements. This, then, should be one branch of the claim agent's work of the future, if he hopes to hold expenditures down to a reasonable basis.

The claim agent's position fits him peculiarly to look on both sides of traction work, the commercial side as well as the operating side, and his suggestions along lines of operation should be given a fair hearing, even although they may be against the personal opinion and wishes of the superintendent. If, for instance, the operating department increases the speed on a certain division, the claim agent finds that due to this increased speed he is having a larger number of accidents, and that these accidents are costing the company more money than is being saved the operating department in its platform expense, then the proper course would seem to be to return to the slower schedule. Again, if the claim agent finds that accidents are becoming more frequent through allowing passengers to ride on the seat directly behind the motorman, thereby distracting his attention, the fact that the company may be receiving a greater return in money than is being expended by the claim department on account of accidents arising from this cause, should not be permitted to influence the company in their decision to remove these front seats, or where this is impracticable, to chain off the front platform from the possible invasion of passengers. If a motorman is to be held strictly responsible for the proper running of his car, it is advisable to remove every possibility of having his attention distracted through the presence in his immediate vicinity of personal friends or acquaintances.

There are certain changes which I feel must eventually be made if the cost of the accident business is to be materially decreased. The most important change in my opinion, is the abolishing of the present type of open car, and the substitution of the type of car with a central aisle, and entrances at either end. I think we all find that running board accidents form a very large portion of the total number occurring during the summer season, and while it may be difficult to-day to convince the management of a traction company that open cars should be abolished, I believe it to be one of the most important changes which the next few years will bring about.

Another and very serious difficulty with which the claim department has continually to deal, is the type of men employed as motormen and conductors. The present class of men in these positions is infinitely inferior to the class employed a few years ago, and is made up generally of men who seek these positions as a temporary means of support while looking around for something better; this in spite of the fact that the wages paid have been constantly increased. I believe, however, that it would pay to increase the wage of the newly hired employee, who when first employed to-day is put on the extra list by establishing a minimum wage per day, which wage shall be something less than he would receive if he had a regular run.

These suggestions, if put into effect, will undoubtedly increase the expense of operating the road, but the money saved in the claim end of the business will more than make up for the additional cost.

Let us hope, therefore, that the claim agent's work of the future will result in bringing about these changes; the education of the public to the true inwardness of the claim business and their subsequent denunciation of its fraudulent side; the enactment by our Legislatures of the laws suggested in this paper and the co-operation of the operating departments in making certain changes which will be of undoubted benefit to the claim department, as well as the company as a whole.

**QUESTION BOX OF THE CLAIM AGENTS' ASSOCIATION\***

**KEY TO IDENTITY OF REPLYING COMPANIES**

Atlantic Coast Electric Railway Company, Asbury Park, N. J.; Geo. B. Cady, claim agent.....	1
Birmingham Railway, Light & Power Company; C. A. Avant, claim attorney.....	2
Boston & Northern Street Railway Company; W. A. Rice, general claim agent.....	3
The Cleveland Electric Railway Company; W. F. Weh, claim agent....	4
Chicago Union Traction Company; Henry C. Bradley, adjuster.....	5
The Denver City Tramway Company; Sam C. Dorsey, claim agent.....	6
Duluth Street Railway Company; Herbert Warren, general manager....	7
Detroit United Railway; F. E. Rankin, general claim agent.....	8
Fitchburg & Leominster Street Railway Company; H. K. Bennett, claim agent.....	9

\* In publishing this report, no endeavor has been made to give all of the replies, but rather an assortment varied enough to reveal the different shades of opinion, without printing many answers of similar tenor.—(Eds.)

Fresno Traction Company, Cal.; C. A. Jenkins, superintendent.....	10
Hartford & Springfield Street Railway Company; H. S. Newton, general manager and claim agent.....	11
W. H. Hare, claim agent, United Gas Improvement Company, Philadelphia, Pa. ....	12
Utica & Mohawk Valley Railway Company, Utica, N. Y.; R. E. McDougall, claim agent.....	13
Indiana Union Traction Company; Ellis C. Carpenter, claim adjuster..	14
The Memphis Street Railway Company; C. B. Porter, claim agent.....	15
New Jersey & Hudson River Railway & Ferry Company, New York City; W. N. Barrows, third vice-president.....	16
Oklahoma City Railway Company; M. L. Spitzer, claim agent.....	17
Providence & Danielson Railway Company; D. F. Sherman, president..	18
Philadelphia Rapid Transit Company; S. L. Rhoades, president C. A. A. Public Service Corporation of New Jersey, Newark, N. J.; A. H. Moore, claim agent.....	20
The Paducah Traction Company; John S. Bleecker, manager.....	21
Scranton Railway Company; Stephen Dyer, claim agent.....	22
Schenectady Railway Company; F. A. Brown, claim agent.....	23
The United Railways & Electric Company, Baltimore; James B. Pratt, assistant general manager.....	24
Houghton County Street Railway Company, Hancock, Mich.; F. O. Mayotte, claim agent.....	25
International Railway Company, Buffalo, N. Y.; Andrew J. Farrell, claim agent.....	26
F. W. Johnson, claim agent, Connecticut Railway & Lighting Company, Bridgeport, Conn. ....	27

Q. 1. Is it good policy to settle personal injury claims in which there is, according to the investigation, no liability, when it can be done along close lines, or shall we stand on these cases and settle only those which are close or for which we are clearly liable?

I am of the opinion that settlement could only be made in liability cases, giving the plaintiff the benefit of the doubt. (2)

I believe it good policy to settle serious injuries for the cost of medical treatment when there is no liability. (3)

In cases where there is apparently no liability it is best to compromise by paying a small amount to the claimants if they present their claim to the company in person, but if they are represented by an attorney and the company is well fortified with testimony the claim should be contested. There may be a few exceptions to this rule where attorneys do not make a practice of taking damage cases. (4)

It is my opinion that where a claim can be settled for a small sum, say 50 per cent of what it would cost to defend, as a matter of policy, it would be best to settle. (5)

I do not believe it good policy to settle personal injury claims, if the investigation shows clearly that there is no liability, provided evidence is available to make a fight, even if such cases can be settled for small amounts, as I think settling such cases only encourages others to bring unmeritorious claims. There may, however, be cases in which you are satisfied that there is no liability, but owing to lack of evidence have no means of proving it. In such cases a settlement might be considered, as a recovery through the courts is more widely advertised than a compromise settlement. I do not believe in going into a fight in which you are likely to be whipped, for every case lost encourages others to bring suits and every case won discourages them. (7)

It is profitable to settle for small sums claims in which there appears to be no liability, especially where there is a great volume of claims, because the settlement of such claims helps in settlement of other claims in which there is liability or great doubt as to the successful defense. A good many attorneys, as well as claimants, do not know a strong case from a weak one. Another thing to be considered is the fact that in most of the cases we cannot be absolutely sure of the facts. This applies more particularly to street railway cases, as in steam railroad cases there is often an absolute legal defense. (8)

I believe that in these days of much shyster work on the part of lawyers, who are on the lookout for good, bad and indifferent cases, if the case can be settled for a small amount, compared to what it would cost to try it, when it is seen that a lawsuit is inevitable, it is best to do so. There is but one exception to this rule, and that is when a person places himself in a position of voluntary danger, not being a passenger or being one as the case may be, and there being plenty of reputable witnesses. I quote the case of Richards. vs. Fitchburg & Leominster Street Railway Company, in which the plaintiff, who was not a passenger, stood on the edge of a running board and leaned over the side bar, which was down to protect passengers and prevent their leaving the car on the side next to another track, and was either brushed off by another car or fell in attempting to get off and was severely injured. This case was allowed to go to court,

and at the last moment was withdrawn and a verdict entered for the defendant. (9)

On the whole, it is bad policy in the long run to settle any claims where there is no liability. Ordinarily, however, the no liability condition is only apparent and frequently evidence is brought out on trial which changes the whole appearance of the case. Therefore, practically, it is usually best to settle where the amount involved is small. (11)

It is not a difficult matter to decide upon given evidence, whether or not any liability exists upon the part of the company, but it is quite another question to decide just how much the evidence will be altered by the time the case comes to trial, and what additional evidence will be presented. Therefore, cases, which on their face would be stamped to-day as of no liability, might bear a very different aspect six months hence. As a general rule, however, cases of no liability should not be settled, but in some instances it is advisable to settle cases where the evidence shows no liability on the part of the company, but where it is the evident intention of the claimant to bring suit, providing such cases can be settled for a sum less than the cost to the company trying same. This is a question, however, which every claim agent must decide for himself, after going over the individual case. This applies also to the calling upon injured persons. It is often advisable to call upon a claimant, even where no liability exists, but where the injury is a severe one. (12)

It is good policy to settle claims where death or serious personal injury has resulted where there is no liability on the part of the company, provided same can be done along close lines, such as the allowance of actual funeral expenses, or surgeon and hospital expense, but this should only be done where the settlement of such cases is in a perfectly friendly way and is appreciated, and it is certain you are making friends by so doing. The benefit will come indirectly from the parties themselves or their friends by the good feeling that is brought about by such settlements, and where persons or their friends are called upon to serve as jurors in future cases, the company is sure to reap its reward. (14)

The answer to this depends entirely upon the individual injured in the accident; as a general proposition it has been our experience that it is not best to settle, and to pay the claims only where there is a probable or clear liability. (17)

Settle everything if it can be done within reason, whether liable or not, provided suit will follow if settlement is not made. It costs money to go into court even to declare "not guilty," and a long drawn out annoyance is undesirable. (18)

If case is strong, contest; if only one witness beside crew and injury is severe, well to settle cheaply as a matter of insurance; if, however, injury is slight, contest; in case of females, however, it is oftentimes advisable to settle for a nominal sum even when case is fairly strong. In case of aged people or cripples it is difficult to convince a jury that they attempted to board or leave a moving car. (20)

The question of economy is the first one considered. We don't resist cases, whether liability exists or not, to the point of suit, when the demand is for a small sum. (21)

Much depends upon the kind of jury before which the case would be tried. If there is sufficient evidence to take the case to the jury and the injury is serious, I would consider it a case for a small settlement. A claim agent should not stop or conclude his investigation as soon as he has had the defendant's witnesses examined, but should by all means endeavor to get the plaintiff's statement. It is pretty safe to say, however, that in nine cases out of ten, the plaintiff in the hands of a skilled plaintiff's lawyer, who traffics in damages, will say whatever is necessary to be said in order to take his case to the jury. (24)

Q. 2 What steps are taken, and by whom, to collect damages for injury to cars on the street by vehicles, etc., owing to neglect or recklessness of drivers, or the breaking of glass by persons outside or inside of cars through no fault of the company?

Conductors are required to collect from passengers breaking windows of cars. We have never collected damages from vehicles that have run into cars, as we are perfectly satisfied if we do not have to pay damages. (1)

Claim department looks after the collection of all damages sustained by the cars. (2)

A letter sent by the claim agent to the person responsible, stating cost of repair of such damages and requesting a check. We have been fairly successful. If a refusal is returned, unless we have a strong case and the damage is heavy the matter is dropped. (3)

This company rarely takes any steps to collect damage for repairs made on cars. (4)

Our company does not make a practice of claiming damages for injury to cars caused by collisions with vehicles, or breaking of glass by persons outside or inside of cars. In a few instances it has been done, and in such cases entirely by the operating department. (5)

Our conductor usually tries to collect for broken windows, but generally fails; and damage for injury to cars, if paid, are usually collected two for one when claimants have bills against the company. They do not forget to add interest to the amount they paid. (6)

We have not done much in the way of attempting to collect for damage to our property caused by reckless drivers, and have not felt that it was worth while, as in a majority of cases the drivers are not responsible. We have, in some cases, where drivers employed by responsible firms have caused damages made some attempt to collect from the owners of vehicles, but have not been very successful and have never carried it to the point of bringing suit. (7)

The claim agent has, in several instances, collected for glass broken under circumstances quoted. In cases where damage is done to both car and vehicle through perhaps questionable liability, it is better to get a release and say nothing about car damages. (9)

We take no steps to collect damages for injuries to cars due to vehicles colliding with same. Where glass is broken by passengers conductors are instructed to insist on payment and usually succeed in collecting some compensation. (11)

When company's cars or other property are damaged through carelessness or negligence of other people, a statement showing the amount expended in repairing same is submitted by the master mechanic's department to the superintendent of transportation, who renders an account against guilty party. In case party refuses to pay, the bill is then turned over to company's attorneys for collection. (26)

The necessary expense involved in endeavoring to collect damages for injury to cars by vehicles, etc., would not be warranted by the amounts recovered, as in most instances it would require a suit to secure any payment. (12)

Damages for the breaking of glass and injury to cars, where possible, are collected by the conductor; if unable to collect he secures name of party doing damage and name is sent to the claim department. Upon ascertaining from the shop the cost of repair, claim department tries to collect same where negligence of party is clear. (13)

So far we have never attempted to collect such damages, feeling that it would have a tendency to antagonize the general public and cause ill feeling toward the company. (17)

First, bills are rendered by the claim department. If not paid, one or two personal visits are made to the owners of the teams which caused the damage. If the accident is due to what might be called "criminal negligence," suit is begun and vigorously pressed. Sometimes this is an unwise course to pursue, particularly if the defendant employs a large number of persons and is willing to assist in bringing about amicable settlements when his employees are injured. (19)

Our company, as a general rule, overlooks cases where slight damage is done through the agency of passengers or other parties. (21)

Little or no steps are taken by this company to collect damages for injuries to cars. The conductors collect for broken windows when then can. (23)

It is not good policy to attempt to collect from the public by legal procedure for damage done to railway company's cars, when the amount of damage is small, for the reason that it creates a sentiment against the company that pursues this practice and in the long run will prove detrimental to it. If, however, the damage to cars is done by vehicles owned by reliable persons or firms, and it can be so shown, collection can be made by amicable methods. (24)

Q. 3. What is the law in your particular State in a case where a pedestrian or teamster is struck by a car while crossing the tracks, who testifies that he looked and listened and failed to see the car; where the conditions are such that he could not help seeing it if he had looked, and where it would be self-evident from the surrounding circumstances that the man was committing perjury? Could he be convicted of perjury in your State if the jury find for the defendant in a damage case?

No. (1)

It would be a difficult matter to convict a person in Alabama for perjury growing out of testimony given in a damage suit,



and in my opinion the case stated, by question would not be sufficient. (2)

The fact that a jury found for a defendant in such a case would not be evidence of perjury. The perjury charge would have to be tried on its merits. I know of no such law in Massachusetts and I doubt if a person could be convicted of perjury under the circumstances. (3)

I would say that the rule of law in this State would be that no recovery could be had. This is upon the assumption, first, that the car when the traveler went upon the track was in such close proximity that it would be negligent to go or drive upon the track at that time and place, and second, if the motorman on the car exercised ordinary care in discovering the traveler's danger, and in operating the car thereafter tried to avoid injuring him. Including this assumption of fact in the query, it would be a question of law for the court, and the verdict should be directed for the defendant. The fact that a verdict is returned for the defendant in such a case would have no bearing on the prosecution of the plaintiff on the charge of perjury. The fact of the perjury must be proved. He may testify in the damage suit that he looked but saw no car, in the self-consciousness of the truth. He may have looked negligently and seen no car. In either case the charge of perjury would not be made out as he has not willfully and corruptly stated a falsehood. It would be extremely difficult, if not impossible, to convict such a person of perjury. (4)

The law in the State of Illinois is favorable to conviction, but it would require overwhelming evidence to make out a case, and liable in case of non-conviction to result in damages against the company. (5)

I quote two cases below which will give you an idea of the law in Minnesota. We operate also in Wisconsin, and I do not understand that the law is materially different there, but I am not so familiar with it.

"Terlen vs. St. Paul City Railway, 70 Minnesota, 532.

"It is but little excuse for plaintiff that he looked from the point at which he stood in front of the saloon. Street was well lighted with electric lights. He could see the telegraph or telephone poles and lamp poles, and did see them, and knew that they obstructed his vision. After he started across the street and had reached the curb, there was nothing whatever to obstruct his vision unless possibly the farmer's wagon, if that was then going off the end of the bridge. He knew that the proper place to look was not where his vision was obstructed, but where it was not."

"Miller vs. Trusdale, receiver of the Minneapolis & St. Louis Railway, 56 Minnesota, 274.

"The plaintiff testified positively that he stopped twice, and looked and listened, once when he was 60 ft., and again about 25 or 30 ft., from the crossing, and neither saw nor heard the train. If this testimony is true, it amply justifies the jury in finding that plaintiff exercised reasonable care; but the contention is that the uncontradicted evidence conclusively shows that the train must have been plainly visible from the point or points which plaintiff occupied when it became his duty to look and listen, and hence it must be conclusively presumed either that he disregarded that rule of common prudence, or, if he did look, that he heedlessly disregarded the knowledge thus obtained, and negligently ran into an obvious danger, and the fact that he says he looked, and saw nothing, when it was clear that if he had looked he would have seen the train, would not warrant the jury in finding that it was true."

"Syllabus. It is true as a general proposition, that one who is struck at a railroad crossing by a moving train, which must have been plainly visible from the point he occupied when it became his duty to look and listen, must be conclusively presumed not to have looked, or, if he did, to have negligently disregarded the knowledge thus obtained; and the mere fact that he says he looked and saw nothing, would not, under such circumstances, justify the jury in finding that it was true."

I think it would be very difficult indeed to convict a person for perjury who said he looked and did not see, even though it was conclusively shown that his statement was untrue. (7)

Theoretically, yes; practically, no. But prosecution might have a good moral effect. (10)

Plaintiff who swears that before crossing the track he looked, listened and did not hear or see a car coming, (view at this point being unobstructed) and was struck and injured, and jury finds verdict in favor of defendant, there is no evidence to show that this person deliberately lied or swore falsely; the civil action would have no bearing on the criminal case. If a person is found

guilty of perjury, he can be sentenced to a term of ten years in the State prison; this being the maximum penalty for perjury in the State of New York. It is hard, however, to convict a person for perjury, as you will see by the case cited hereunder:

"About ten years ago this company was involved in a case where a witness testified falsely. It was shown that this man was three-quarters of a mile distant from the scene of the accident when it occurred. It required two trials to convict this man. The first trial resulted in a disagreement, jury standing eleven for conviction and one for acquittal. The second trial was more successful, as the man was found guilty and sentenced to Auburn State Prison for six years." (26)

The matter could be presented to the grand jury, and indictment for perjury possibly found. Extremely questionable whether or not a jury would convict with a railroad company prosecuting. (13)

We understand the law in Indiana to be that a person approaching a street car or interurban track, should take the necessary precautions by looking and listening for a car, and if the conditions are such that he might have seen the car by looking, the law presumes he must have looked and seen the car and be governed accordingly. The fact of the finding of a verdict for defendant in a case of this kind would not be sufficient to convict a man of perjury, although he testified that he did look and listen and take proper precaution as he approached the railway track. (14)

In the State of Tennessee the law holds that a man sees when the conditions are such that he is bound to see if he looks. If such conditions are proven, then the law would hold that the man saw, even if he testified that he looked, listened and did not see. We have never had a conviction of perjury in a damage-suit case, though we have pending some indictments. (15)

In Pennsylvania the law is: "It is vain to say that you looked and listened, then went on and were struck in spite of what your eyes and ears must have told you." In other words, it is contributory negligence to walk across in front of an approaching car whether it is seen or not. It is doubtful if the plaintiff could be convicted of perjury. (19)

If injury is serious, get statement of injured parties as soon as possible; they are usually more truthful immediately after the accident. If case seems from report that we are not liable, see one of the witnesses, and, if report is confirmed, file case. This in case of minor injury; where injury is severe, see all witnesses immediately and work the neighborhood. (20)

If a pedestrian, teamster, or other person violates the provision of a danger sign knowingly, he assumes the risk, but this does not clear the company if reasonable caution on the part of the trainmen could have prevented the accident. We have never heard of a perjury case being pressed to a successful conclusion by a railroad company in Kentucky. (21)

Answering the last clause of No. 3, would say that if he had testified, we could convict him in Pennsylvania. (22)

Under these facts it was held in one of our cases to be a question of fact for the jury to pass upon as to the credibility or incredibility of the plaintiff's story. I do not believe that the plaintiff could be convicted of perjury on a mere failure to recover. (23)

Where a driver or pedestrian testifies that he looked and listened, and failed to see a car, where the conditions are such that if he had looked he could not have failed to see a car approaching, and is thereby injured in a collision, the courts of Maryland have decided that such testimony is unworthy of belief, and should not be allowed to go to the jury. In such a case, while the plaintiff would be guilty of perjury, it is doubtful if the jury would convict. (24)

He could be prosecuted for perjury, and the penalty is from three to five years in the penitentiary, and the company could commence proceedings in civil suit if the party was worth it. (25)

Q. 4. What is the best way to break up ambulance chasing?

Refuse to settle unless you are liable. Our experience has been that "ambulance chasers" do not get the cases that have any merit. (1)

I am unable to give the best way to break up ambulance chasing, as it has not been broken up during my experience. It seems to flourish, notwithstanding all of our efforts. I have become convinced that it is necessary in some instances to treat with them before they sell the case to lawyers. It enables us to settle the liability cases falling into their hands, before suit is filed, at a better figure than had we dealt with an attorney. (2)

Ignore them in any claim they present and settle direct with the injured persons. (4)

To have the claim agent the first man on the spot, and with the proper authorities to settle claim if possible, and if not to get a full and complete signed statement from injured party of the accident in detail. We have very little of such to contend with here, it being recognized among the legal fraternity to a large extent that we are fair and square in our attempts to settle, and that they have got to fight hard to win a case where we have had the first handling of it. (9)

In the State of New York there is no law prohibiting "ambulance chasers." The majority of prominent or respectable lawyers claim it is a legitimate business if the attorney or "ambulance chaser" does not overstep the law in some respect. There is nothing, as I can see, to prevent them looking up cases against any surface railway or corporation. (26)

The best method for breaking up ambulance chasing is: First, to see that your adjusters reach the injured before the runners from the attorney's office; second, where you are able to secure evidence of conspiracy on the part of the runners to defraud the company through false claims, prosecute them to the last ditch. (12)

Fight them on every claim, whether liable or not. (13)

The question as to the best way to break up "ambulance chasing" is indeed hard to answer. We have had, so far, little success in that line. The best plan that I know of is to reduce their revenue by the settlement, as far as possible, of all legitimate claims before such claims reach their hands and fighting them to a finish on every claim for which they file a suit. We believe that this discourages the average "ambulance chaser" more than anything else. (15)

The "ambulance chaser" works on the theory that he has everything to gain and very little to lose, and relies on his ability and chances in finding a jury that will give credit to some extent to his exaggerated claims. If he sues for \$10,000 and gets \$100 he is ahead, while if he gets nothing he has had his work only for nothing, which ordinarily is not of great commercial value, so the loss is little, if anything. The laws of the land should be such that a lawyer and his client must establish their alleged claims or have same construed as a fraud and an attempt to procure money under false pretences. (18)

Settle behind the attorney's back, or if sufficient proof of conspiracy can be obtained, have the attorney employing the "runner" debarred. (19)

In a case where an "ambulance chaser" is particularly aggressive we settle without his knowledge even if we have to pay a little more in two or three cases. We concentrate our energies on them one at a time, give them fake cases, let it to trial and then non-suit them because of non-appearance of client, thus taxing them with the costs. We have successfully defeated all our worst "chasers" and have little difficulty with them now. Our fight has been particularly aggressive, even to the extent of hounding them day and night, getting clients and witnesses away from them, and when they did win a case, making check payable to the client. (20)

We have not been troubled to any extent with "ambulance chasers." Should think a good plan to break this practice up would be to expose one of the offenders by means of a fake case. (21)

The best way to break up "ambulance chasing" in the absence of any statute to that effect, is by publicity and by educating the public in keeping before it the methods pursued by ambulance chasers. (24)

Q. 5. What is the custom or practice in regard to calling upon injured persons, especially when there is no liability?

We do not take any notice of the case as far as the injured party is concerned. (1)

We send our physician to see all injured parties requiring his attention, but in non-liability cases we let them do the talking, if they desire to communicate with the claim department. (2)

I make it a practice to call upon all injured people where the injuries are at all serious, and get a complete signed statement covering all the facts of the accident, injuries, names and addresses of their witnesses, if any, secure their statements, see their doctor, and get his story of the injury. I embody in an injured person's statement where he or she works, amount of earnings, other accidents or injuries sustained, and in fact everything that may possibly be obtained. This applies to both liability and no liability cases. (3)

I think it is best to call upon persons immediately after accidents, and if the injured person is in a condition to make a rational statement, get it. It may not only aid you in the defense of a lawsuit, but it may aid you in effecting a settlement.

I have known attorneys to drop cases after they learned of certain statements having been made and signed. (4)

Where there is no liability do not call. (6)

If injury is serious, the person is called upon. (7)

All injured persons are generally seen, irrespective of liability, in order to learn if there are intentions to follow up the same and claim damages. Where the liability is clearly with the injured parties, they are sometimes let alone. This usually results in nothing coming of the accident, where, if it had been followed closely, injured party might entertain the idea that we considered ourselves liable, and ask compensation. (9)

It is our custom to have our road surgeon call on injured parties where the injury is serious, liability or no liability. Where the injury is slight and there is no liability, we find it more expedient not to call. (11)

It is often advisable to call upon a claimant, even where no liability exists, but where the injury is a severe one. (12)

Believe it wise to call upon persons; most persons like to feel that you take an interest in the matter, and it creates a better feeling towards your company. (13)

In case of serious injury, it is always best to call and secure statement of injured persons so as to get their version of how the accident occurred. It is not always possible to tell whether or not there is any liability without securing statement from injured party. Interviews of this character often corroborate statements of train crew and disinterested witnesses, and the investigator is more likely to get the truth regarding accidents from injured parties soon after the accident occurs and before they have time to consult attorneys, friends or neighbors who are free with advice. Many times injured parties can be committed to a statement of fact, and a signed statement secured from them which will relieve the company from liability, and be very useful in court in case suit should afterward be instituted. (14)

We usually call, in all instances in order to get facts, for although from our standpoint there is no liability, yet the chances are some one will appear having a different opinion. (18)

When there is clearly no legal liability, and the conductor's report indicates a good defense, it seems to be unwise to call upon the injured party unless the injury be very serious, or a sympathetic call on the family might be in order. In cases of death it is policy to call upon the family. (19)

They are likely to believe that there is something coming to them as soon as they see the claim agent present; therefore, it is a bad practice. (22)

When there is no liability and the injury is likely to prove serious, the injured party is called upon merely to get his statement. (24)

I always call on them and get their statement in the presence of a third party, if possible, immediately after the accident, and reduce same to a form of affidavit and have them sign it before they get advice. I generally succeed. (25)

Q. 6. How can conductors and motormen be made to render reports of accidents seemingly trivial?

A hard proposition. Keep after them, and discipline them if you find that they fail to make reports. (1)

This is a knotty question, and one that we should keep hammering on, not with the view of making perfect, but diminishing the per cent of failures. Periodically we write the transportation department, calling their attention to the failure of the crews to comply with the rules, and this we find assists considerably in getting reports we would not otherwise obtain. The simplest form that can be had is most productive of results, but with all of our efforts we fail to get reports in all cases. (2)

It seems to me that conductors and motormen make out as few accident reports as possible, for the reason that they feel that they are given a certain amount of discredit every time they turn in an accident report. Explain to them why it is necessary to have reports of this character, and eradicate the idea that they will be given a demerit mark. Strict discipline in regard to making out accident reports might also be beneficial. (4)

By discharging them or severely disciplining them when they fail to make reports of such cases. (7)

We hold our men strictly responsible for a report of an accident in connection with or around any car they may be operating. In case such a report is not made they are suspended, or where the accident is directly connected with them they are discharged. (9)

The better results of securing reports from the trainmen of small and seemingly trifling accidents are derived from the superintendent of transportation and his assistants. The rules of



this company has been very successful in obtaining reports of or incidents happening upon or near the car. In this respect this company has been very successful in obtaining reports of such accidents. There is no other way I can see where better results can be obtained than through the operating department. (26)

Where claims or complaints have been made by parties regarding accidents where no reports have been received by the claim department from train crew, facts should be gathered as quickly as possible and train crew committed to written statement of fact, together with reason why they did not make report. After the facts have been ascertained, the matter should be promptly reported to transportation department, where train crew should be properly disciplined. (14)

Our present arrangement is, as soon as an accident occurs, no matter how trivial, the motorman and conductor are relieved at once, report at the office and make out their accident report, their time being paid them for the time they are off. This arrangement works better than any I have ever seen. The reports are made on practically everything, and made in a much more intelligent manner. (15)

By providing severe punishment for conductors and motormen who fail to make reports. It has been our experience that in almost all cases where the conductor and motorman fail or refuse to make a report, knowledge of the accident is brought home to the company through some of its officers. (17)

By careful instruction from their direct superior officers. These instructions should be given in a kindly manner, rather explanatory than otherwise. (19)

Conductors and motormen can be taught to render reports of accidents seemingly trivial by continued and constant coaching. Conductors probably do not at times report seemingly trivial accidents because they do not appreciate the importance of so doing. Their answer usually is: "I didn't think it was necessary." They must be taught the importance of reporting all things, and should be coached until it becomes second nature with them to report everything in sight. (24)

#### Q. 7. What qualifications should a claim agent possess to be successful?

This is the shortest question and requires the longest answer of any I have ever encountered. During my fifteen years' experience I have been unable to develop qualifications necessary to satisfy my own mind as to my efficiency as a claim agent. The second year of my experience I thought I knew all about it. Now I am convinced that I have a great deal to learn, as new questions are presenting themselves every day. As a general rule, I would say that a claim agent should have an accurate knowledge of the law pertaining to all matters likely to arise in his department. He should have the benefit of long study pertaining to human nature, and should be able to make up his mind as to the character of the claimant and the reasonableness of the claim from the first interview. He should be fearless and honest, and never surrender until whipped, and then do it gracefully. He should be able to select the liable from the non-liable, and capable of conducting negotiations from the claimants to attorneys, and be familiar with the practice in the courts, and be on good terms with the judges and other attaches. He should be so constituted as to sympathize with the unfortunate, joke with the jovial, laugh with the merry, and fight with the fussy. He should not hesitate to invite suits, when in his opinion such action is necessary. In fact, he should adapt himself to the situation and let each individual case stand on its own merit. This requires a combination-man, and if any member of the association thinks he fills the bill, I will thank him to send me his photograph. We are confronted with conditions which require complete change of front, and a claim agent should be so constituted as to act at once, not being too sympathetic or aggressive. He should be able to turn away claimants without aggravating or increasing the breach, if necessary turn a deaf ear to the widow's wail and let the crippled depart without compensation; this requires nerve on the part of a claim agent. (2)

First and foremost, a reputation of being fair. I do not mean generous, weak or stubborn; just fair to everybody. Modesty prevents enumerating other qualifications. (3)

The claim agent's conduct is gaged largely by the nature of the claim, the character of the person making the claim, and the policy of the company, so that he should be a man of various qualifications in order to meet these conditions. I should say some of the most important attributes are as follows: He must be shrewd; should be possessed of acute discernment and

good judgment; be able to judge human nature; must be patient; must have an even and equitable temper, and must be honest, as no man can succeed in any legitimate business if he is otherwise. (4)

A claim agent, in order to be successful as such, should possess the following: Be a good listener; a good judge of human nature; a man who can look at both sides of the case; whose word is good in all his dealings; polite at all times; deal with all classes of people in a straightforward and business-like manner; be quick to size up his people and the situation; quick to act for the best interests of his company, and should be familiar enough with negligence law to be able to determine approximately the liability of the company in the major portion of cases. (26)

A claim agent should combine the patience of Job with the wisdom of Solomon, supplemented with the politeness of a Chesterfield. He should be a good judge of human nature, and should be able to glean the truth from the chaff of a man's statements, also have a working knowledge of the laws covering accidents and the operation of cars in his particular locality. (15)

Diplomacy, tact, perseverance, sympathy; should possess a good control of the English language, have a fair knowledge of medicine and law, should be a good student of human nature, should be thoroughly posted on local questions and conditions. (21)

Q. 8. Is it advisable to declare your identity to possible claimants in every accident which occurs, or not? If so, why? If no, why?

I think it advisable to work in the open, and never under ordinary circumstances disclaim your identity. Treat the opponent fairly and insist on the same treatment. Of course, when you are shadowing would-be claimants different tactics are necessary to obtain the information desired. This class of work usually devolves upon assistants. (2)

It is not always advisable. The reasons are obvious to any one who has investigated cases personally. (3)

Yes. For the reason that a claim agent should never act as a detective. The most essential thing in trying to settle a claim is to get the good-will and confidence of the injured person, and you cannot do this by trickery or deception. (4)

Not always. Sometimes important information can be gained by the claim agent remaining incognito, but do not think it advisable to practice deceit in attempting to gain information, as it is very likely to react. (7)

Always declare your identity when interviewing an injured party. There is nothing gained by deception, and when you come right out flat-footed and declare yourself, you are placing your own mind and the injured party's at ease, and showing him that you are trying to be fair and square, and if your efforts fail and the case results in litigation, and you are placed on the stand, opposing counsel cannot belittle you before the jury by asking if you did not conceal your identity and try in a sneaking way to find out something detrimental to the injured party without first making yourself known. An honest claim agent is just as essential and important as a bank cashier handling millions. In one case it is a battle with wits, and the other with dollars. (9)

I see no reason why claim agent or his representative in calling upon claimant should not disclose his identity; nor can I see, without disclosing your identity, how the desired information can be obtained. The best results, it appears to me, are obtained by telling the party what your business is and who you represent. If you are desirous of a statement, ask for it. In being open and frank with the party, usually all the facts, or as much as you would expect from a claimant, can be secured. In case it is thought advisable to make a settlement, it is best to be honest and advise party what you are there for. In this manner you would be more certain to obtain the facts you first started out for than would be gained by trying to conceal your identity. (26)

In calling on possible claimants, believe it wise to say that you are connected with the railroad company; but not your exact position, unless they specifically ask for that information; if they do, see no harm in telling them. (13)

This, in our opinion, depends entirely on conditions. In certain cases it is best to declare your identity and seek settlement if there is a bona fide injury, and the party injured is honest in his desire for settlement; on the other hand, if the injured person is inclined to exaggerate the injury or to seek excessive damages, we believe it best to either leave him entirely alone, or, if invited by a member of the claim department, have it



done in a private capacity, and not as a representative of the company. (17)

No; for the reason that the claimant will possibly make you a truthful statement of the accident which occurred to him, and when he presents it later on to another assistant or the general claim agent, it will be different. (22)

Q. 9. Is it advisable or good policy to obtain medical examinations in all cases of injuries, and how soon after the accident?

Yes; as soon as possible. (1)

If the party requires the service of a physician, I think it good policy to make an examination and do it as promptly as possible, treating the patient until recovered, if necessary. (2)

If injuries are of a serious nature, yes; and, if serious, both at time of accident and after recovery. If slight, no. (6)

The ideal practice is to have the claim agent see the injured person first, and get his statement, if practicable; then to have a prompt medical examination if it seems necessary. (8)

When possible, the company should have its own physician see the case at once, taking charge of same, if possible, making out a complete report on a form prepared for that use, dated and signed; and then, in case of litigation and the unexpected death of the physician, such data as he may have prepared previous to suit being brought can be entered as evidence, otherwise in this State it is not admissible. This applies also to securing signed statements of witnesses on or off the car. (9)

It is not, in my opinion, good policy to ask for medical examination in all cases. Medical examinations should only be made in serious cases that are under adjustment, where the amount asked for by claimant is apparently too large and unjust, and claim department believes injuries to be exaggerated. By having an examination at this time the injuries can be determined to the satisfaction of claim department. In small or slight cases an examination only increases the cost of settlement, as you not only have physicians' bills, but also an exaggerated idea of claimant. Whereas, if the case is not disposed of by claim department, and it goes into litigation, the company is entitled by law to an examination. Under the latter circumstances the company receives the best results. (26)

As a rule, it is good policy to have the company surgeon call and make examination of injured parties as soon as possible after an accident, and, if satisfactory to injured party, to take charge of case and treat it. The claim department, if in close touch and sympathy with the surgical department, will be placed in closer touch with injured parties and receive fuller and more reliable information regarding injuries than is ordinarily secured from the family physicians. A much better atmosphere can ordinarily be created by the company's physician than by any other physician, as outside parties are very apt to take the position that they are serving the injured party instead of the company, even though the company assumes and becomes responsible for services thus rendered. The fact, however, should be borne in mind that communications by the patient to the attending physician, be it a representative of the company or not, are privileged in court (in Indiana), and only communications made to the attending physician can be used in court where examinations are made under agreement by the parties. (14)

Except where the case can be settled for the cost of examination and in cases where claim is not made. Even in a case where there is no liability and claim has been made, it is well to have medical examination, as the case might possibly go against you at the trial and they could put up a strong medical case which you would not be in a position to refute. It is well to have one examination made immediately after accident and one later, if necessary, in accordance with above remarks. (20)

Q. 10. What is the best method to adopt in the investigation and disposition of "blind or unreported cases?"

Investigate the character and reputation of the claimants. Interview their witness, if possible, and work your case up from their side. (1)

First ascertain actual occurrence. In order to do this we file interrogatories to the plaintiff. If it develops a blind case, fight it to a finish, giving no quarter. (2)

Get all the information possible from the injured person, getting the names of any witnesses he may have; then investigate the accident thoroughly, and if you are of the opinion that the claim is bona fide, and if there is no doubt as to the injury existing, settle the claim. If the injury is doubtful, as well as the occurrence of the accident, it would be well to delay settlement. (4)

The only set policy in such cases is to "dig," and dig hard to find some one who saw it; get all events taking place on this date (given) and then pay particular attention to the plaintiff, visiting him often to see his condition and what he is doing, but at all times be open and above board. These are good cases to settle for a very small amount, and likewise good cases to go to a jury, for it cannot help seeing that in event of finding adversely for the defendant, that there was some reason why the company was not notified in the first place, instead of a lawyer, and nine times out of ten it will bring in a small verdict, as in the case quoted. Juries will believe a woman and give her the benefit of every doubt. Case given (a woman). Lynch vs. Fitchburg & Leominster Street Railway Company; This case was reported on Dec. 23, 1905, when suit was brought against the company, claiming injury of severe nature on Sept. 9, 1905, the first intimation that there had been an accident. The claim agent at once went over all day cards of the company of that date to get names of all employees who were in the vicinity where accident was claimed to have taken place; papers were consulted to see what events were going on; if there was any reason for a large number of people being at that particular point, etc. It was found impossible to find anyone who saw the accident, and the case was allowed to go to trial, resulting in a verdict for the plaintiff in the sum of \$215. Suit was for \$5,000, and plaintiff refused to settle before case was tried for less than \$1,500. (9)

The method used by this company when a claim is made with complaint of unreported case, is to get all the information possible from the claimant or claimant's attorney, such as the number of car, date, time, place of accident, etc., obtainable from this source. Then follow investigation along these lines. (26)

Where you can learn of the exact hour and location of the accident, ascertain from the car records the crews running by the point of the accident about the time claimed; generally, if any of the crews have had an accident which they have not reported, you can learn of it from them; very often the conductor has made a mental note of some passenger on the car whose name he can supply as a witness to the accident, and you can learn the facts. If you cannot learn anything from interviewing the crews and the claimant claims to be corroborated in his version of the accident, I would insist upon an interview with his or her witnesses. In most cases, in order to convince you that they are correct, injured parties, if they have any witnesses, are willing to permit you to interview them. (13)

Get sworn statement from claimant, endeavor to locate crew, work neighborhood for witnesses, have an investigator advertise for witnesses, look up character of claimant, and if case is serious, get someone to board in or near the house. Have one of your own men represent himself as a lawyer or adjuster, and endeavor to get the case. There are other ways which should present themselves to a fertile mind. (20)

"Blind or Unreported Cases" are perhaps the most difficult cases the claim agent has to deal with. The character and general reputation of the claimant should be thoroughly investigated, and the locality where the accident is alleged to have happened should be thoroughly canvassed in order to locate any persons who may have had any knowledge of the accident, or of any circumstances surrounding the same, or which may lead to the conclusion that an accident had actually occurred. It is a good plan, however, not to settle with non-resident claimants until they have been thoroughly investigated in the locality where they have formerly lived or where their home may be at the time the claim is made. (24)

Q. 11. What is the best method of settling claims; by cash, check, or order on the treasury?

In dealing with the ordinary claimant a check is preferred, as this gives you a double signature on the voucher. When we have numerous cases to settle in a short time, I find it advisable to use the cash. It is good policy to exhibit cash to certain parties. This can be determined by the claim agent on the ground. (2)

In settling small claims it is best to use cash, but where large amounts are involved use check. (4)

I have sometimes thought that in making a settlement a display of cash was a little more tempting to the claimant than a check or order, but I am by no means sure that it amounts to much in the majority of cases. I think a check, which requires endorsement, is an additional proof of settlement being satisfactory to the claimant, and particularly if there is a memorandum on the face of the check stating for what it is given. We had one case in which the personal check of our attorney was



given, the check stating that it was in full settlement of claim for injury. An attempt was made to open up the case afterward on the ground that undue influence had been used to procure the settlement. The check was introduced in evidence, and it was shown that the claimant had held it for a long time before cashing it, and had had ample time to reconsider the settlement and return the check if he had been dissatisfied. This was the strongest point in our case and we won out. (7)

Always by money, known as the "long green." The sight of money has a marked effect on human nature, and the sight of a roll of small bills has caused many an injured party to weaken and settle, when seen coming their way, and has kept many a case from litigation. (9)

The following system is employed by this company in the settlement of claims: The adjuster is given cash; we use no checks or orders on the treasurer; each adjuster is under bond to the company; the claim agent makes a check on the treasurer for the amount he thinks necessary for the settlement of the claim, which amount is then given over to the adjuster. If claim is settled, release is turned in as cash; if not, cash is returned to treasurer. We find this method works a great deal better than using checks or orders, as many of the ordinary people refuse to accept check or order. However, where large settlements are made, checks are often given upon request of attorney or claimant, but for the current work cash is used invariably. (26)

We have found it best to use cash in claims under one hundred dollars (\$100), and checks for claims over that amount. (15)

Our method of settling claims is by check drawn to the order of the party injured, by the treasurer of the company, and upon surrender of the check to have the party receiving same receipt for it upon a voucher, which contains in the body a release from all liability, and in addition to this a separate release drafted to cover the facts in the case is invariably required. (17)

Settlements made at the homes of the claimants or at hospitals should be paid in cash. Settlements in the office should be paid through the treasurer's office. Settlements made by attorneys representing claimants should be paid by check. (24)

Q. 12. Is it a good plan to discuss cases with attorneys after case had been placed in their hands?

Yes; if the occasion arises, discuss the cases with the claimant's attorney, as this often discloses its strength or weakness of the adverse party and enables you to ascertain what it would take to compromise. I handle all compromises before and after suit, therefore it is necessary for me to discuss the matters with all concerned. (2)

I consider it a good plan to discuss cases with attorneys, as it affords the claim agent an opportunity to hear the other side of the case, not necessarily giving up any information himself. I have no recollection of any disastrous results occurring from same. (5)

It is not a good plan to show your hand to an attorney, but in some cases and with some attorneys I think it is desirable to convince them, in a general way, of the strength of your defense, as they are often misled regarding the facts by plaintiffs, and if you can convince them that they have been misled and that the plaintiff has a weak case they may drop it. (7)

Not always. But in some instances I have seen good come from such cases, for if there is a known fact that the plaintiff is faking, some lawyers will drop it entirely, and, if not that, make such concessions that are favorable to the defendant. It is a good idea to be friendly with your enemies, to wit, the legal fraternity. (9)

That will depend altogether upon what is desired to be developed by the discussion, and the ability of the adjuster to look after his side of the case. If case has been fully investigated and facts are clear, either one way or the other, especially in cases where there is no liability, a frank statement of the general facts covering an accident frequently leads to a better understanding between claim adjusters and reputable attorneys, for, as a rule, the attorneys are not as well informed regarding the facts of an accident as the claim department should be. In cases where known disreputable attorneys represent parties, the less discussion the better, except such discussion as will develop the facts pertaining to the attorney's side of the case. In all matters of this character a splendid rule to follow is, secure all the information you can, but give none in return. Attorneys, however, should always be treated courteously. (14)

Q. 13. What is the best plan to adopt when prominent physicians, who

are inclined to be friendly, present a bill for double the amount charged in ordinary cases?

If you can use them, pay it. If you do not need them in the future, dispute it. (1)

Tell them you are paying for one case and not two. Start right and you will have no trouble. (3)

I do not believe anything is gained in the long run by submitting to unreasonable charges of physicians, even though they may be inclined to be friendly. A physician who was really friendly would not make a double charge, and, if he did and it was paid without question, I do not think it would increase his friendship, and it certainly would decrease his respect. Such a physician would merely make up his mind that you were an easy mark, and the next time would charge you four times the ordinary charge, and then boast to other physicians about it. Of course, you must be very sure that the charge is unreasonable before questioning it. (7)

I believe they should be paid, recognizing the fact that a few dollars more or less makes little difference in the long run, and may, at some remote future, help in other cases to win a verdict. I should never dispute a physician of repute who made a charge for his services, unless I was sure he was overcharging intentionally, and then question it in a very mild way. (9)

This company has an understanding with physicians relative to examination of injured persons or attendance in court, and their compensation is rated accordingly. In this manner the company is not overcharged and retains the friendship of the physicians. If, however, one of those physicians should be attending the patient as his family doctor and the case should be adjusted and the physician's bill was exorbitant, we would cut the bill to what would be fair and just to both parties. Before paying an unreasonable account we would sooner lose the friendship of the physician than settle same in order to retain his friendship. We have had no trouble in this respect, as the physicians are as anxious to retain our business as we are to retain their friendship. (26)

Prominent physicians who are inclined to be friendly will not render a bill for double the amount charged in ordinary cases. They may appear to be friendly, but, in fact, they are not if they render such a bill. When bills are rendered by physicians, either prominent or otherwise, and it is desirable for the company to settle with the physician, and if it is apparent that the charge is more than a reasonable amount for services rendered, it is well to ask the chief surgeon, if one is employed, to take the bill and make a reasonable adjustment of the matter with the surgeon presenting the bill. The company surgeon can meet the surgeon rendering the bill upon his own ground and discuss the matter from a surgeon's standpoint better than a claim adjuster or anyone else can do it, except possibly in a few exceptional cases where there are special reasons for some other person looking after the matter. (14)

Have prominent physicians make written report before paying them. If their bill is too high and their friendliness of too much importance to discourage, better say nothing and pay the bill, with a smile, at the same time file in memory's store the correct opinion of such individuals for future use. (18)

Q. 14. Is it better to interview an injured person before the investigation is made in order to get his or her statement first?

Yes. (1)

As a rule, I see no reason why the injured person should be interviewed first, especially if his injuries are serious, as he will not be in a position to give an intelligent statement, and you cannot afford to wait until he recovers. I usually have investigations made with the public first, the employees next, and then the injured party afterward. (2)

This depends entirely upon the case. Where the liability is clear, such as in a derailment or collision, of course, the injured person should be immediately seen and a settlement made. If settlement cannot be made, a careful investigation should be started to secure the past history of plaintiff, etc. In cases of doubtful liability, secure statement of injured and additional statements as well. In cases of apparent no liability, it is generally advisable to make a quiet investigation without disturbing the prospective claimant. (12)

The best plan is first to secure the facts regarding an accident from the company employees so as to get their version of the matter; then interview (if conditions are favorable) the injured party, securing his statement as to how the accident occurred. This will develop the claims of both parties and will show what is needed to be covered by disinterested evidence. (14)

It is always advisable to get the statement of the claimant as quickly as possible, for the reason that the defense has an opportunity to know what to expect, and if, on the other hand, the claimant makes a statement which might preclude his recovery, an opportunity is given to rebut his testimony after he has gone through the coaching school supplied by lawyers who traffic in the plaintiff's side of damage cases. (24)

Q. 15. Should surface railway companies have a regularly employed physician?

We have a regular physician, but he is paid only for the services rendered. The size of the company should govern this. (1)

Not necessarily. It might be economy, but I do not think it is the best policy. (4)

Not in the sense of being a salaried official. They should have two or three who are honest, who will give an unbiased opinion, stating facts as they are, and able to go on the witness stand and back up their assertions without fear or favor. (9)

I believe it is far better to make arrangements with a number of physicians who are situated in different parts of the city, to act as company physicians, and that they be paid specified rates for attendance upon the injured. A list of these physicians should be furnished the operating department, in order that the conductors may know upon whom to call in cases of emergency. Of course, such a system is apt to give many of the physicians nothing more than an opportunity for first aid treatment, but if they are supplied with free transportation, you insure their co-operation, even though the medical work they may receive from the company is but little. (12)

If the amount of business warrants, it is well to have several physicians who are paid for each examination and who do not appear on the payroll as regularly employed men. It is also well to thus employ the services of some local physician of long practice who can qualify as an expert and whose good reputation is known throughout the town. (20)

All railway companies should have at least one regularly employed physician, who should be a thoroughly skilled surgeon, an easily accessible and courteous man, and one in whom the company can have implicit confidence. He must at all times be a thorough gentleman; otherwise he would never gain the confidence of, nor obtain access to, the homes of families. (24)

Q. 16. Does sending a physician in minor cases aggravate the case and make it more difficult for settlement and more expensive?

It has a tendency to do so. (1)

I do not think it advisable to send physician unless it is requested, in any case unless he can get to the scene of accident and render first-aid. (2)

It may in a very few cases, but there are very few persons who will not make claims for all they can whether a physician is sent or not, and I would not hesitate to send a physician and have a thorough examination made in all cases. (7)

The visit of the road surgeon in a majority of cases has a tendency to reduce the claimant's demands, since it is an assurance to the claimant that the railroad company is familiar with the exact extent and nature of his injuries. (11)

Sending a physician in a minor case often aggravates the case. It is not always this way, however. By showing an interest in the injured party's case, their good-will may be won. (21)

It has not been found that sending a physician to minor cases aggravates the injury. With honest people, however, it often tends to create a sentiment in favor of the company, and many minor cases are dropped by honest people, who are merely satisfied to know that the company feels an interest in them. (24)

Q. 17. Which is the better qualified, the operating or claim department, for instructing trainmen in their duty in relation to accidents?

Claim department. (1)

There may be some things in which the claim department is better posted to instruct employes, but instructions from both departments are important and necessary. (4)

The operating department on suggestion from the claim department. (8)

The claim department always. It knows just what must be obtained in the line of witnesses and detail to properly present a case, and a word now and then to trainmen will soon put them wise, so as to speak, as to what is desired from them. (9)

The operating department by all means. It is unwise in our opinion to have instructions and orders to perform labor emanate from more than one source. (11)

In my opinion the claim agent is the proper one to instruct the trainmen in their duty in relation to accidents, and believe the motormen and conductors, after they have passed the preliminary examination of the operating department for employment, should be turned over to the claim agent, who should instruct them along the lines to be followed when accidents occur, and impress upon them the vital necessity of avoiding accidents. The men should then be returned to the operating department for final examination, and that department should impress upon them the fact that a satisfactory examination on the method for avoiding and handling accidents was essential to their employment. If this were made a general rule I believe that the accident business would be materially benefited. I also believe that it is advisable for the claim agent to give short talks from time to time to the motormen and conductors and car-house foreman on the accident business. (12)

We believe the operating department is the better qualified to instruct trainmen as to their duty in relation to accidents; if for no other reason, the trainmen are under and are disciplined by the operating department, consequently instruction by the superintendent has more effect than by any one else. (15)

Conductors and motormen should be instructed by the operating department in relation to accidents, but the claim department should heartily co-operate with the operating department and bring to its attention anything pertaining to a claim or decision deciding a new point, which would enable the operating department to keep the men properly instructed. (24)

Q. 18. What is the best form of blank release to be used in settlement of cases, to safeguard it against future attacks?

I attach a copy of the form marked "Exhibit A," which has stood the test of the Supreme Court in every particular.

EXHIBIT A.

BIRMINGHAM RAILWAY, LIGHT & POWER COMPANY,

To.....Dr.,  
Address.....

Know all men by these presents, that for, and in consideration of the sum of.....dollars, to.....paid by the Birmingham Railway, Light & Power Company, the receipt whereof is hereby acknowledged.....the undersigned.....do hereby release and forever discharge the said Birmingham Railway, Light & Power Company from any claim, demand, or liability for payment of any further or other sum or sums of money for, and on account or growing out of the following mentioned matter and claim, viz.: For..... And in consideration of the payment of said sum of \$.....to the above-named payee, evidenced by..... signature to the receipt hereto below annexed, I,..... do hereby promise and agree that said payment and receipt shall and will operate as a full and complete release, discharge, and satisfaction of any, every and all cause or causes of action, claims, and demands against the said Birmingham Railway, Light & Power Company arising or growing out of the cause or matter above set forth, and also as a perpetual bar to any warrant, suit, or other process or proceeding for the collection or legal enforcement thereof, or to any claim or demand for damages under and by reason of the provisions of any statutory enactment whatsoever, or at common law, or otherwise, for the results, or in consequence of the said personal injury to..... the said....., which may have been or may be asserted or instituted. And this agreement shall further operate and be in full discharge, satisfaction, compromise, settlement and bar of any claim, demand, warrant, remedy, suit or proceeding which may have been instituted by me and be pending before any court or tribunal against said company, or of any judgment, order, or decree which may heretofore have been entered or obtained in my favor against said company, for any sum arising or growing out of the claim or demand set forth above. It being hereby expressly declared to be the intention of this instrument to forever release said Birmingham Railway, Light & Power Company from any and all other claims, demands, or rights of action of every nature, originating prior to this date, because of any like cause or causes of complaint. And it being hereby expressly understood and agreed that the above-named company is not under any obligations or requirement to take or retain me in its employment or service in any position or capacity whatever. Given under.....hand and seal, this.....day of.....190..... Two (2) witnesses [seal]. Approved:..... Claim Attorney [seal]. Approved:..... General Manager. (2)

The following is our idea of the best release:  
Received of the Duluth Street Railway Company the sum of



.....dollars, in full payment, release and satisfaction of all claims, demands, damages, actions or causes of action, which .....now have or may hereafter have against the said Duluth Street Railway Company, on account of all injuries or injurious results, direct or indirect, arising or to arise from or by reason of a certain accident or injury, sustained by....., the said....., on or about the.....day of....., 190., at or near....., in the city of....., State of....., in which..... In consideration of which.....hereby forever releases the said Duluth Street Railway Company therefrom. Witness.....hand.. and seal.. at..... this.....day of..... 190..... [seal]. Witnesses..... [seal]. State of.....County of.....ss.:....., being known to me as.....the person... who executed the foregoing instrument, being first duly sworn, says that.....has read the above and forgoing release; that.....knows the contents thereof, that.....signed the same as.....free and voluntary act, and received the money consideration therein mentioned, knowing it to be a full and complete settlement of all the rights, actions or causes of action of every kind, class and nature which.....has against the Duluth Street Railway Company as set forth in said release. Subscribed and sworn to before me, this.....day of..... 190.....Notary Public,.....County,..... (7)

The appended form is in use here:

FITCHBURG..... 190..

Received from the Fitchburg & Leominster Street Railway Company,.....dollars, settlement in full for all claims on account of an accident to person or property, on or about....., 190.. Witness:.....

FITCHBURG, MASS.,....., 190..

To the Fitchburg & Leominster Street Railway Company.

Gentlemen: I hereby exonerate....., motorman, and....., conductor, from all blame in connection with an accident occurring....., 190., and request that no record be made against them. .... (9)

A release drawn up by an attorney familiar with the statutes and court practice. (11)

This is a copy of our release. Believe it wise to have person executing same write in above their signature the words: "I understand this is a release in full of all claim," or words to that effect.

UTICA & MOHAWK VALLEY RAILWAY COMPANY.

In consideration of the sum of.....dollars, to me in hand paid by the Utica & Mohawk Valley Railroad Company, I do hereby release and forever discharge said company, its successors and assigns, from any and all actions, causes of action, claims and demands which I now have or may at any time heretofore have had; and especially from all suits, claims, demands and controversies for, or by reason of any damage, loss or injury, either to person or property, which heretofore has been or which hereafter may be sustained by me in consequence of an accident which occurred on or about....., at or near....., wherein..... And in consideration of the above payment to me, I hereby release the said Utica & Mohawk Valley Railway Company from any and all causes of action which I, or my heirs, executors, administrators or personal representatives may now or hereafter have against said company on account of said accident. And it is further understood and agreed, that the payment of said sum above mentioned is not to be considered or construed as an admission or acknowledgment on the part of the said company of any liability whatever in consequence of said accident.

In witness whereof, I have hereunto set my hand and seal this.....day of....., 190., after same has been read over to me and fully understood by me.....

Signed and sealed in the presence of..... [L. S.] (13)

Sample of release herewith:

Know all men by these presents, that....., of....., State of....., in consideration of the sum of.....dollars (\$.....) to.....paid by the Scranton Railway Company, the receipt whereof is hereby acknowledged, do hereby release, acquit and discharge the said Scranton Railway Company of and from any and all claims or liabilities, suits, actions or demands whatever, caused or arising from any acts or negligence on its part or the part of its employees or otherwise, prior to the date hereof, and particularly from any right of action or demands, which..... now or hereafter may have, by reason of any acts of its employees causing injury to.....or.....property, on the.....day of....., 190., the above payment being in full compromise and settlement, and being binding upon.....heirs, executors, administrators and assigns.

Witness.....hand.. and seal.. this.....day of.....190.. In the presence of..... [Seal.] (22)

The Houghton County Street Railway Company have only one kind of release form which works satisfactorily. I herewith inclose a copy with this report:

THE HOUGHTON STREET RAILWAY COMPANY.

Accident No.....

To.....Dr.,

Address.....

Received of the Houghton County Street Railway Company, this.....day of....., 190., the sum of.....dollars in full compromise, payment, satisfaction and discharge of and from and all claims and demands which.....have against said railway company, its employees, officers or agents, for or on account of any and all damages, injury, expense or loss of whatsoever kind which may have been sustained by.....in person, right, or property, by or through said railway company, its employees or agents, by reason of.....or for any matter or thing growing out of same, and said, the Houghton County Street Railway Company, its employees, officers or agents, are hereby, in consideration of said sum of money, forever released, acquitted and discharged of and from any and all such claims and demands. ....

Witness..... Audited for payment,..... Correct....., Claim Agent. Approved,....., General Manager. (25)

Q. 19. What statistics relating to accidents should a claim department have, and of what value are they?

Accident report very complete; surgeon's statement; statements of witnesses and investigator's statement. (1)

They should be in a position to tell on short notice the character of the car producing the greatest number of personal injuries, and the respective hour said injuries occurred, and classify them so as to enable the management to see their weak points. (2)

I think a certain amount of statistics, showing the number of accidents and the number of personal injuries resulting from them, having them classified and showing the different lines and routes upon which they occurred, so that you may be able to determine upon which line or route they are most frequent. (4)

The claim agent should have a copy of every accident report, and should keep a card index of every case, which should contain in a condensed form all facts relating to the accident from the time it happens until it is finally settled. This will guide him in cases of a similar nature that afterward occur, and be of great assistance in settling along similar lines. (9)

I believe that the claim department should keep its records in such shape so as to supply the following information when asked for: Number of accidents reported, number claims made, number claims disposed of, percentage of claims disposed of, settlements, salaries claim department, salaries legal, personal expenses, medical expenses, legal expenses, miscellaneous expenses, total expenses, total expenditures, percentage expenditures with gross receipts, average cost disposed claims, average cost per accident, number car-miles per accident, average cost of accidents per car-mile, number passengers carried per accident, cost of accident per passenger carried, probable cost of unsettled claims, total personal expenditures of investigators, percentage claims made with accidents reported, percentage suits brought with claims made. It should also be in a position to know the costs of different types of accidents. (12)

The claim department should have all the most recent decisions under their notice, and should be posted on the difficulties encountered by other companies with dishonest claimants. The value of this knowledge is considerable in the adjustment of claims, and enables the claim agent to convince the claimant that the agent is fully aware of the company's rights. (23)

Q. 20. Of what value are photographs in the disposition of claims?

Photographs in connection with certain accidents are indispensable. They should be taken with the view of making them self-proving; this perpetuates the evidence and enlightens the trial attorney more than word pictures could possibly do. (2)

If admitted as evidence they may be of some value in the disposition of a lawsuit. (4)

No value. (6)

Photographs of wrecks taken immediately after the accident are often very valuable, and it depends upon the character of the accident as to whether or not it is worth while to have them taken. Photographs and maps of the locality are, as a general thing, of more value to the defense in the trial of such cases than they are to the plaintiff. (7)

Invaluable. Cases can be quoted where plaintiffs have claimed to be unable to perform certain labor, or be unable to walk, ride,

or even be out of doors, and in such photographs taken when they are in the exercise of those functions, which they claim they cannot perform, are worth their weight in gold. Also photographs of conditions directly after an accident, before the traces of such are removed, have proved of great assistance to a jury. (9)

We have found photographs very valuable in the adjustment of lawsuits and claims. (15)

Photographs may be of great value in some instances. In our experience we have been able to keep suits from being filed or claims against the company from being pushed by reason of photographs, showing conditions that existed at the time of the alleged accident. Where possible to obtain photographs, we are of the opinion that in the great majority of cases it is advisable. (17)

Q. 21. What is the best way to maintain harmonious relations between the claim and the operating departments?

By each party looking strictly after its own affairs so as not to encroach on each other. A claim department should be as close to the transportation as it is possible, and should never lose sight of the fact that they are both working for the same end. A claim agent should so conduct himself as to merit the respect and good-will of every man from the president to the grease-wipers, and should be ready to lend a helping hand to all other departments. He should be in close touch with the railway department, and be ready to make suggestions and offer criticisms when necessary. (2)

Our claim department has always maintained the friendliest relationship with the transportation department, and am of the opinion that this course should be followed in every instance. When an accident of serious nature occurs, better results can be reached by consultation of the heads of claim and transportation departments to devise, if possible, some method to prevent a recurrence of the same. As both departments are working for the same result (that is, to make a paying institution out of the properties under their control), more can be accomplished in harmony than in dissension. (26)

It is most important that harmonious relations should exist between the claim and operating departments, and to this end it is essential that the claim agent endeavor to eradicate from the minds of the car house foremen, superintendents, etc., the general impression that the claim department is responsible for many of the penalties inflicted upon motormen and conductors. While the claim agent is responsible for the proper handling of accidents after their occurrence, he is also in a position to offer from time to time very pertinent suggestions on the method to be employed for avoiding certain types of accidents, and he should make it a point to draw the attention of the operating department to any remedies which in his opinion might benefit the service generally, and have it thoroughly understood that such suggestions are not made from any desire to criticise, but purely in the best interests of the company. He should keep in close touch with the general manager of the company, and should from time to time give short talks at the different car houses to the motormen, conductors and other employees, on the accident business, and endeavor to obtain their co-operation. (12)

The claim department should not criticise the operating department. The heads of the two departments should meet at regular intervals and discuss the cases with a view of finding and strengthening the weak places. (23)

Q. 22. What has been your experience in following up so-called permanently injured persons after their claims have been disposed of? Wouldn't it pay to keep them under observation?

The greater number fully recover after the case is settled or after the trial is over. (1)

When it is admitted by all concerned that the settlement of the case has a marvelous effect in establishing the return to health, I fail to see why time should be taken to follow up cases disposed of excepting as a matter of curiosity. We know that we are fooled many times. (3)

We have never attempted to follow up permanently injured persons after settling, but think under some circumstances it might be well worth while to keep them under observation. (11)

There cannot, it appears to me, be any benefits derived from the following up of a permanently injured person after he has been settled with; and it would seem like loss of time and money spent without any chance of return or result for the expenditure of same. What the person does after being settled with is of

no account to the claim department, except, however, at some future time they present another claim against the company for injuries received in an accident, if the injuries last received are similar to those first sustained, the case looks suspicious and will bear investigation. Such incidents happen, but not often. (26)

In cases where large settlements have been made it may sometimes be advisable to follow up so-called permanently injured claimants. Of course, where there is any evidence of fraud, detective work should immediately be commenced. The expense of keeping so-called permanently injured persons under observation after claims have been disposed of would not be warranted. (12)

We have had little experience in following up so-called permanently injured people after their claims have been disposed of. We have never thought it would pay to keep them under observation, as there is no way in this State to make such parties refund. (15)

Before we settle a claim on the basis of permanent injury, we try to be as reasonably certain as possible, from the examinations of our doctors, that the injury is permanent. Having made the settlement under advice of our doctors, we do not particularly concern ourselves with the future developments of the case. In these cases, however, that have come under our observation, that have been represented to us by our physicians as probably permanent, we have found that they were permanent. (23)

Q. 23. What is the best plan in securing full details and protecting company's interests in accidents resulting in death?

Get a full report of coroner's inquest by having your lawyer present, and work up your case independently. (1)

Get statements from all eye-witnesses, make measurements of the ground, photograph the scene of accident, if necessary, posting yourself as to the heirs of the deceased, and learn, if possible, who the probable administrator will be. (2)

This cannot be answered specifically, since the causes of death, i. e., kinds of accidents, vary. Some death cases are simple in the matter of securing evidence. A collision of cars leaves practically nothing to do but settle it. An intoxicated man asleep on the track in a dark place at night is the other extreme. Each, however, needs the necessary investigation common to such cases. In a car and team case, resulting in death or serious injury, I immediately secure a plan of the location, take photos from the exact points where the engineer places his instrument in securing his measurements, trace the course of the vehicle in the dirt of the street, if possible, for some distance before the collision, swear the motorman and conductor to full statements, and proceed thereafter as the case warrants in securing further evidence. (3)

I should say that such statements of witnesses, both on and off the car or cars at the time of the accident, should be taken immediately after injury. All facts, circumstances and any other details leading to and in connection with the accident should be carefully observed and noted, photographs of car, scene of accident, and, in fact, a fine-tooth comb search be made for every atom of evidence, favorable or unfavorable, in connection with the accident. (9)

The course pursued by this company when death occurs is to secure all the witnesses that can be found, then look up the previous health and habits of deceased. In some cases it is good policy (provided it can be had) to have an autopsy performed. Of course, this is of no benefit where the person is killed and the bruises or cuts show sufficient cause for death. But where the party dies shortly after the accident from what appears to be very slight bruises or shock, it is important to have an autopsy. To illustrate: This company had, some two years ago, a case where a man riding a bicycle, going in the same direction as the car, both approaching a cross street at almost the same time; when car was within a few feet of this man he was seen by motorman to lose his balance and fall onto the tracks, and was struck by fender or life-guard; when picked up he was dead. An autopsy was held, and it was shown that death was occasioned by heart failure. Doctors performing the autopsy claimed that man was dead before striking pavement, and that being struck by life-guard had nothing whatever to do with cause of same. (26)

Company's employees should be required to report at the office of claim department immediately after such accidents and before any information of any kind is given to any person, where full details should be secured by the claim department, after which short affidavits covering the main facts of the accident,



free from objection, should be prepared so that employees can be taken by the claim adjuster before the coroner, and affidavits sworn to by the employees. As a rule, coroners are satisfied with a general statement of fact, and they should not be misled, but coroners are usually doctors, and they are very likely, if left to their own resources, to ask about minor matters and secure statements from employees that would be embarrassing in court and hard to explain away, as such statements are reduced to writing and sworn to by the employees. It is far easier to prevent employees from making embarrassing statements in this way than to have to explain them away after they are made. The claim adjuster can signify to the coroner his willingness to assist in the investigation, thus placing himself upon friendly relations. Investigations should, of course, be conducted independent of the coroner, so as to develop the facts rapidly, and, where desirable, the names of reputable witnesses can be placed before the coroner (whose signed statements have already been procured by the claim department), who will corroborate the employee and relieve the company from criticism, while ostensibly, as well as in fact, aiding the coroner, the investigation can be retarded sufficiently to enable the claim department to first interview all witnesses, thus developing the names of the proper persons to place in the coroner's hands. All employees should understand that the proper company officials, and especially claim adjuster, are entitled to full information first, and that employees must not talk with or give information to any other person, or persons, without proper permission. (14)

A death case should be worked up with great care; all the witnesses seen promptly, the neighborhood thoroughly worked, and a sworn statement obtained from both the motorman and conductor. A call should be made as soon as possible upon the family of the deceased. In case where liability is clear it is sometimes well to see the undertaker and enlist his kindly offices, and also those of some friend of the deceased's family, and then when you make your proposition you will have the benefit of their advice to the claimant, and also be in position to obtain inside information. (20)

Q. 24. What instructions should be given conductors and motormen regarding accidents when they first enter service? In what manner should instruction be given?

Large companies should have a man to teach the employees how to avoid accidents, by constantly calling their attentions to mishaps and inattention. Instructions given the men in a body, when each one could ask questions, would prove beneficial. Applications should be passed upon by the instructor so as to weed out inefficient parties. (2)

Complete instruction, as is practical at first, regarding team cases, collision of cars, pedestrians, etc., to the motorman; and the starting of cars while passengers are boarding or alighting to the conductor. Follow up by talks on the subject of accident at frequent intervals to both motormen and conductors. Each should be required to write answers to a series of questions involving a thorough knowledge of the rule book. I believe that many accidents might be avoided were the men perfectly familiar with the rules. (3)

Think they should instruct and keep a record of how, when, where, and by whom instructed, and full and proper instruction given before entering service of company by operating department. In all such cases the claim department requests the general superintendent to call on claim department, which requests are granted in all cases, and claim agent gives his instructions in addition to those of the general superintendent. (6)

Their special attention should be called to the rules governing such, and they should be told that only careful and continuous study of the same will qualify them to act. This should be followed up by a personal talk with the men by the claim agent, and great stress laid on care in giving bell signals, paying attention to running-board passengers, and, above all else, in case there is an accident, to report the same immediately after securing enough witnesses who saw the accident, care being taken to get name and address of such correctly. They should be impressed with the idea that many reports of a trivial nature will not be counted against them, while if they miss one which after a time shows up with a claim for damages, that their services will no longer be required. In other words, they should be advised to treat such happenings as a personal affair, and for the best interests of their employers. (9)

In case of accident the first regard should be for the injured party. Ascertain if they are injured, and, if so, notify office

immediately, so that an ambulance and physician can be sent. Learn injured person's identity and names of witnesses, noting carefully time and location of accident. Keep cool about accidents, and not talk about same with anybody but officer of company. Believe a school of instruction for motormen and conductors best where it can be maintained; where not possible, crews should be thoroughly instructed by the proper officials having charge of that part of the work. Too much care cannot be given to this branch of the work. (13)

This question presumes that the operating department is employing highest class of men for the positions of conductor and motorman that can be secured for the wages paid for these services. A set of instructions should be prepared by the claim department and approved by the operating department and general manager, covering the necessity for securing full names and addresses in case of an accident; how to care for injured parties, and necessity for calling the company's surgeon, summoning of help, etc., and that employees must not discuss accidents or give information to anyone excepting the proper officials of the company. These instructions to be classified with reference to three distinct classes of accidents. First, to passengers; second, to employees; third, to third persons. Also with reference as to whether the injuries be slight or serious. With these points covered in a clear and concise way, when a man makes application for employment, after he has passed the physical and any other examination that may be required of him, he should be given this set of instructions to retain for not less than twenty-four hours, then he should report at the office of the person taking the application for employment, and these instructions should be taken up, the applicant receiving a list of questions to be answered in writing from memory, the questions being constructed to cover the points indicated in the instructions. After these questions have been answered by the applicant they should be turned over by the party receiving the application to the claim department for the O. K. or rejection of the claim adjuster. No man should be permitted to enter the services of the company without first having passed a satisfactory written examination upon the points named. (14)

Conductors and motormen when they first enter service should be instructed regarding accidents as carefully as possible. Our plan, which we have found to work well, is as follows: We have an official styled "Chief Conductor." After the applicant for the position of motorman or conductor has been broken in on our several lines and passed by the instructing motorman or conductor, he is thoroughly examined by the chief conductor and given further instructions relative to accidents. After this examination has been passed, a hypothetical accident is then stated to him, and he is required to make out an accident report and to make it out correctly. If on the first effort he does not succeed, he is then shown where his fault is, and he is not passed for services until he can make out this report fully. He is also impressed with the necessity of getting as many witnesses as possible, and no excuse is accepted for their failure to do this. (15)

In one or two of our small districts the new men are sent to the adjuster for that district, and he instructs them very carefully and thoroughly as to what he should do in case of accidents. In our larger districts the operating department attends to the instruction. It would seem advisable to me to have a man whose duty would be to instruct the men concerning accidents, and when they do have an accident send them back for reinstruction and for any laxity in making out report. I know of one road where the men are examined every six months and given a set of questions to answer, the same as is done on steam railroads. (20)

Conductors should be instructed to exercise care at all times in starting cars, and prevent people from leaving cars while in motion, if possible. Motormen should be instructed to operate cars in a proper manner; be watchful and ready at any moment to stop the cars in time to avoid accidents. In case of accident, both conductors and motormen should be instructed to render assistance to the injured; secure their names and addresses, and the names and addresses of all witnesses possible. Instructions should be both verbal and printed, covering all necessary detail. (23)

The matter of giving instruction to employees covering the prevention of, as well as the proper handling of accidents, is a most important one, and one that is receiving too little serious attention at the present time. The question asks: "What instruction should be given conductors and motormen regarding accidents when they first enter the employ of the com-

pany?" All right as far as it goes, but it doesn't go far enough. The writer has found that it requires good, solid work to gain ground in this direction, and, furthermore, that it requires good, hard work to hold that ground so gained. In other words, not only essential is it that the conductor or motorman should be instructed in this highly important branch of his work when he first enters the employ of the company, but of equal importance is it that he should receive regular and frequent instruction along this line, that he may not become rusty, careless, forgetful and indifferent to the matter of accidents, whatever his length of service. The new employee has so much information and instruction injected into his system in the week or two required to break him in that it is reasonable to believe that a goodly portion of it gets no further than the surface, where it is soon thrown off. Certainly this is a most inopportune time in which to give him his instruction in accident work, particularly so if the instruction is to end here. So that it is of the utmost importance that the subject of accident instruction should be followed up, for it is often found that the older and more experienced men will blunder and stumble upon points with which they should have been familiar. We have all heard the conductor or motorman blamed for having failed to measure up to requirements in the handling of some accident. He was "thick" and "didn't know enough to get his witsness to the accident," is a frequent complaint. And the company foots the bill. But, all too often, the responsibility does not rest upon that employee. No, not by a good deal. The responsibility rests squarely upon the man higher up who had neglected to instruct that employee properly in this very feature of his work. He instructed him regarding the operation of his car, but he took it for granted that the man would know just what to do at the time of a serious accident, without any previous instructions.

We come to the question of instruction.

The writer has been intensely interested in this very subject for some years past, and has devoted time, energy and thought to the subject. That all men cannot be reached to advantage in the same manner; that some men derive no benefit whatever from instruction of any sort on any subject; that some men read without understanding what it is all about, and that many forget as fast as they are instructed, are facts upon which we all agree. The questions resolve themselves into the greatest good for the greatest number. And the work must necessarily be governed and directed largely by local conditions.

For the past three years we have been giving summer accident instruction talks to all of the conductors, motormen and inspectors of the various divisions of our system. They were taken in classes of from fifty to a hundred, and for from one and a half to two hours we gave them solid instruction in all branches of summer accident work.

The talks were along lines designed to lay a solid foundation for the prevention of and the proper handling of accidents. No attempt was made to make claim agents out of the men, nor was valuable time devoted to unusual and improbable accidents. We stuck to the middle of the road, and amply covered the usual run of summer accidents on our lines. Our instructions were hurled at the men in plain, strong and convincing language. In their own language so far as we were able.

The results of the first two years' work were more than gratifying; they were splendid. We were encouraged, and forthwith became enthusiasts in this branch of accident work. We discovered that when we had reached a point where we were preventing serious accidents through instruction and education, and when we had our men handling accidents properly, that it was far more satisfactory to us than it could have been in blaming the wretched results of our own shortcomings on to some employee.

The third year, this present spring, found us still pursuing the same course, with the exception that our talk this year was in printed form. As we had progressed in the work, we had found that it was not a question of leading the men into new and unknown fields of accident work each year, but rather a matter of covering the same general territory and of again bombarding them with practically the same general instructions, disguised under new headings, and consequently still interesting to them.

And so we put our talk this year into book form, giving the men copies of the book and allowing them to read along as we read, and explained each subject, or of listening to us without reference to the book. We found that fully 95 per cent of the men preferred to read as we read, laying the book aside while

we explained and enlarged upon the book topic. Numerous incidents were brought out in this way and served to hold their interest.

Right here I will say that the book was written in the plainest and most convincing language of which we were capable. The paragraphs were short, and the print of good size. The point of each subject which we were endeavoring to drive home stood by itself, expressed in a few words. We struck out straight from the shoulder, and handled each subject without gloves, frills or apologies. The men were interested; more so than they ever would have been had the subjects been handled in dry, official terms.

Our experience in this work has satisfied us that of the two, the verbal instructions are far preferable to the printed ones. Get out and talk to your men and impress them with one fact above everything else—that you are in dead earnest and that you mean business. You'll find them as hungry to get the information as you are to impart it. And their success is your success.

Then comes the matter of holding the ground that you have already gained. They'll skip backwards a whole lot faster than you can push them forward if you let up. It is a difficult matter for a busy claim agent to get around to all of the divisions of a big system more than once or twice a year. It means from two to four weeks each time, talking from early morning until after midnight. Furthermore, it is not necessary if you can devise a scheme for holding the ground that you have gained.

The summer season is, of course, the big end of the stick. Probably 65 per cent or more of your summer accident instruction applies equally to your winter accidents. Too frequent talks necessarily cover much of the same ground and will eventually act as a damper upon the interest of your hearers.

To hold our ground we devised this scheme. With us it has proven to be a splendid success. Regularly once each week we post an accident bulletin in every car house, office, and lobby where it will be brought conspicuously before the eyes of the men. The bulletin is governed by the season and the class and nature of accidents which we anticipate or with which we are struggling. The bulletins are printed upon heavy white paper, in good, readable type, with short paragraphs, plain language, and with wide margins, which set it off to good advantage.

We intend that the bulletins shall be dignified, though forceful and straight from the shoulder. We point out the mistakes of the other fellow, and we warn and caution the men to be careful to avoid certain classes of accidents. Above all else, we try to make them interesting to the men. We want them to read them because they are interested in them, and not because some rule forces them to do so, in which latter case they will get but little good out of them.

The bulletins are posted upon simple but attractive bulletin boards, which are kept fresh and clean and in good condition. No one stops to read a soiled sign, or anything posted upon a dirty bulletin board. Nothing whatever but these bulletins are allowed upon these boards.

Specimen bulletins accompany this article, as well as several copies of the accident instruction book used in this year's talks, and entitled "The Prevention of Accidents."

The claim agent who is doing little or nothing toward the work of educating and instructing his conductors, motormen and inspectors covering the prevention and the proper handling of accidents, is neglecting the most interesting as well as the most important branch of his portion of railroading. (27)

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### LINK TO BE BUILT TO CONNECT PEEKSKILL AND NEW YORK BY TROLLEY

The village authorities of Ossining, after the question had been before them for six months, granted a franchise, Oct. 31, to the Hudson River & Eastern Traction Company, of which F. A. Stratton is the president, to operate an electric street railway in the village. The new line will extend up the main street, and the company will use 1000 ft. of the tracks of the old railway, which is owned by the Westchester Traction Company. It is Mr. Stratton's intention to extend the line to Peekskill soon and connect both Peekskill and Ossining with White Plains by way of Sherman Park. The new company has a capital of \$2,000,000, and New York financiers are in it.



## LONDON LETTER

The London County Council has added another 7 or 8 miles to its extensive system by taking over the lines from Vauxhall to Norwood and Camberwell, previously worked by the London Southern Tramways Company, and the Council proposes to apply in the forthcoming Parliamentary session for statutory authority to electrify this new portion of the system. In connection with the Council's proposal to construct new electric tramways through parts of Holborn borough, namely, in the Russell Square district, it is finding considerable opposition from the law and parliamentary committee of the local Council, which considers it unnecessary to run tramways through this residential district. In a recent conference in Woolwich, a resolution was passed urging the London County Council to construct an extension of its system through Woolwich to Eltham and Abbey Wood, and assurances have been given that this service will be constructed just as soon as possible.

The work on the embankment tramways, pictured elsewhere in this number, is being pushed vigorously by Dick, Kerr & Company, and most of the difficulties in connection with this scheme have been overcome. The greatest of these, perhaps, was the unexpected discovery of the arches of the Underground Railway within 2 ft. or 3 ft. of the surface of the embankment underneath about 200 yds. of the route on the embankment where the tramways had to be put down. It is curious to note that no one knew that these arches were at this exact spot. Fortunately, however, they are not the real arches of the tunnel, but are strengthening or false arches above the real tunnel. Permission has now been granted to cut away such portions of the arches as are necessary for the insertion of the conduit, and this work is now nearly completed. A good deal of correspondence has been going on in the daily press regarding the necessary mutilation of the trees on the embankment, but Capt. Hemphill, who is the chairman of the highways committee, has given assurances that this will be done as carefully as possible and at the proper time of the year, so that the trees will not be permanently damaged, and that after all such clipping of the trees as is necessary will be comparatively slight. Mr. Fell, the chief officer of the London County Council Tramways, has also issued a statement regarding the service which will be conducted along the embankment and up the subway, some disappointment having been manifested by the evident statement that all tramway cars passing up the embankment could not possibly go through the Kingsway tunnel, as this tunnel is not large enough for double-deck cars. Mr. Fell has stated that a certain proportion of the cars coming from the south over Westminster Bridge and up the embankment will continue through the tunnel, but these will necessarily be single-deck cars. These particular cars will probably run from places like the "Plough" at Clapham in a four-minute service, and there will be a one-minute service along the embankment each way. The whole service has been carefully worked out and should prove quite satisfactory.

The report of the London County Council on the tramway working shows that the total receipts on the London County Council's southern tramway system for the year ended on March 31, were £782,000, £100,000 more than those of the previous twelve months, the profit on working being £220,454. The amount of outstanding debt is £2,777,337. The expenses for electric traction were £407,557, or 8.04d. per car-mile. Horse traction cost £154,168, or 10.83d. per car-mile. When the new generating station at Greenwich is used the working expenses for electric traction will be, it is stated, considerably reduced. During the year 183,500,000 passengers were carried, an increase on the previous year of 18,700,000. In view of the probability of the Westminster Bridge and Victoria Embankment tramways being ready for working earlier than was anticipated, and before the erection and equipment of the Holborn sub-station is completed, arrangements have been made with the Underground Electric Railways Company to afford a temporary supply of power at the rate of 1d. a unit for six months. The Council is to provide the necessary connecting cables and bear the expense of fixing them.

The University City of Oxford has at last come to a decision regarding its proposed tramway system, having decided to place a contract with the National Electric Construction Company, of London, to install the Dolter surface contact system. Two tenders had been considered by the Council, the one which has just been accepted, and the other by the Oxford Tramways Company, who offered conditionally a choice of three systems. It was found, however, that the Oxford Company's tender included

provision for overhead wires, which the Corporation distinctly excluded, that the bond offered for the fulfilment of the contract was financially unsatisfactory, and that the system offered by the National Company on the Dolter system was much more satisfactory. The offer which has been accepted is based upon the running of the present horse tramways until the electrification at £800 per annum, and after electrification at £1,100 per annum for the first three years, and £125, which is a quarter of the estimated receipts for advertising, this sum to be augmented after three years to an inclusive rate of about £1,425, and for the remainder of the period about £1,625, with a further rental of £50 per annum for every additional mile of route laid in the city. It will thus be seen that the National Electric Construction Company will become the lessee of the system, and the tender which has been accepted is based on its operating the road.

In this connection, it is interesting to note the amount of work which is at present being done by the Dolter Company, the Mexborough and Swinton tramways having been entirely constructed on this system. The service is now complete, and, when put into operation, it will actually give a tramway connection from Sheffield to a point within 5 miles of Doncaster. Trial runs have already been made with perfect success on this system, and before many weeks are over it will be in actual use. As is well known, the Dolter system is also being applied at Torquay and on the Front at Hastings. The Torquay system is also very nearly completed.

The Town Council of Folkestone is also much interested in tramway matters at present, and recently visited Sheffield for the purpose of going over the Mexborough and Swinton tramways. The deputation consisted of the Mayor of Folkestone and a number of Councillors and Aldermen, who all expressed themselves as highly pleased and satisfied with the working of the Dolter system, cars having been run over almost the entire line for their inspection with perfect success. It would appear, therefore, that the National Electric Construction Company has a very good prospect of also equipping this enterprising town by the sea with the Dolter system, which will place it far in the front of other systems so far as the amount of work done in tramway construction is concerned.

The deadlock between the London United Tramways Company and the Wimbledon Corporation has at last been ended, and the company has already commenced work for the completion of the route from Wimbledon to Tooting. The company completed its route from Kingston to Wimbledon some months ago, but was prevented from running the cars over this route by the Wimbledon Corporation, which maintained that the agreement prohibited the running of cars to Wimbledon until the extension to Tooting was completed. Thus the completed lines of this magnificent system have been idle practically for three months. The whole trouble has arisen out of the act of Parliament obtained in 1902, which states that no cars must be run on any system until the whole of the work has been completed, though in Sir Clifton Robinson's experience the Wimbledon Corporation is the first which has insisted upon the absolute letter of the law. The inhabitants of that section, therefore, have had to go without the benefits which would have accrued some time ago had the Wimbledon Corporation acted in a more generous fashion. However, an agreement has now been reached, and the work will be vigorously pushed.

It would appear from the first report of the Dundee & Broughty Ferry District Tramways Company that up to the present the result has been an unqualified success. There has been a large development in the district traversed by the tramways. It is an indisputable fact that the people of the district are largely following the tramway route, and that a large and well-populated district is arising all along the whole route. One of the curious results of this successful tramway enterprise is that the Dundee newspapers are urging the Lord Provost of Dundee to the possibility of annexing the town of Broughty Ferry, so as to make a greater Dundee. There is no better exemplification of the incalculable benefits to any district by the construction of a well designed and well operated system of tramways, and it should do much to destroy the stupid opposition which still exists in the minds of some obstructionists to the line of progress.

It was recently stated in this column that the Hastings Corporation had decided in favor of Sunday trams. The opposite decision on the part of the Bournemouth Corporation must now be recorded. Bournemouth has also been the center of much heated discussion as to whether the trams should run on Sunday or not, and, following the example of many other towns, the Mayor decided to have a poll for the purpose of deciding the matter. The figures as officially declared by the Mayor are as

follows: For electric tramways 2703, against 3606, leaving a majority of 903 against the working of Sunday tramways.

Managers of tramways, or their committees, appear not yet to have decided definitely as to the correct fare to be charged on tramways, as is evidenced by the number of corporations considering the question of halfpenny fares. In this connection it is interesting to note that the Darlington Town Council, having found that there is a loss on its tramway system, which has been operated for some time with halfpenny fares, has at last come to the conclusion that it is not a paying proposition, and has decided to make the penny fare the minimum. One local paper has been enterprising enough to get the opinion of some seventy-seven cities or boroughs operating tramways, and, needless to say, nearly all of them are totally averse to the halfpenny fare. Even though halfpenny fares are in vogue in Glasgow, John Young, the late general manager of that city, by an experiment found out that 83 per cent of the halfpenny fares were rich, well-to-do people, and that only 17 per cent were workmen, small shop keepers and people of humble means. There would appear to be no excuse whatever for comparatively small towns adopting halfpenny fares, and this seems to be the general impression. The Lowestoft Town Council has also been much exercised for some time back over the fares, there being a varying fare from different parts of the city. There was also a shortage in the receipts, and the Council tried to improve matters by increasing the fares, but found that this did not work, as the cars were boycotted. A return was made, therefore, to the original fares of a penny for half distance and twopence for the whole distance. During the last few weeks the fares actually were reduced to a penny for any distance. To the Council's great astonishment it now finds that this popular movement has resulted in a large financial increase, so that it would appear that one can err on the side of too dear fares in addition to too cheap fares. For moderate size towns, the universal penny fare seems to be a good idea, and it will, at least, result in the Lowestoft trams paying their way. The first week of the new fares resulted in an increase of over 14,000 passengers and about £45. Notwithstanding this, the Leyton Council, against a strong protest from the tramways manager, has decided to adopt halfpenny fares on its system.

The through service of trams between Wolverhampton and Dudley is now operative. The Wolverhampton tramways are equipped with the Lorain surface contact system, but Wolverhampton is surrounded on all sides by tramways operating on the ordinary overhead system. The lines have been ready for the through service for some time, but unavoidable delays have prevented their being placed in service. It is now possible, however, to see Dudley cars, which are primarily operated on the overhead system in Wolverhampton, having had skates attached to their under bodies for the purpose of working on the Lorain system, while Wolverhampton cars, primarily equipped with the Lorain skate, are to be seen on the Dudley system with overhead trolleys for operating on that system.

It was mentioned last month that the tramways committee of the Manchester Corporation had announced a loss between £5,000 and £6,000 on the past year's working on the parcels carrying business, and that the subject was receiving attention. The committee has now decided not to abandon this business entirely, but to remodel it, and it will hereafter confine the parcel carrying operations to the area of the tramways; that is to say, parcels will not be accepted for delivery outside of its own area, leaving that business to other carriers. It is quite evident, of course, that the corporation to undertake to deliver parcels to all parts of the country would have had to build large depots and involve a large amount of capital, besides undergoing the severe competition of the various general carriers, so that it is a wise decision to withdraw from that portion of the business.

There is a strong demand for further extensions of tramways in Manchester, and the committee has at last decided to extend the service from West Point, Upper Chorlton Road, to Chorltoncum-Hardy. The line, which will be a single one, will have loops at convenient places, so that when the necessary land is acquired the service can be completed as a double line of tramways. There is also an effort being made at present to get through trams from Manchester to Oldham, the Manchester committee being perfectly willing as well as the Oldham Town Council, the only difficulty being at present Failsworth, which is asking for certain extended facilities which are not easy to give. Another probable cause of the delay may also be that the Manchester cars would have to be equipped with more powerful brakes, to insure safety on the much steeper gradients in Oldham. Needless to say, however, these

difficulties will soon be overcome, and it is only a question of time before the service comes into operation.

Recently the West Bromwich Trades Council made representations to the Board of Trade, after a tramway fatality, that it should be made compulsory for all tramway cars to carry lifting jacks. A reply has just been received stating that the board, even though it might be able to make a regulation of this nature valid, doubts the wisdom of it, as it would be putting unduly burdensome regulations upon tramway concerns. The board had to consider what additional protection the carrying of such jacks would have to life and limb, and it appeared that there was not sufficient evidence to show that these would conduce to greater safety. On the other hand, jacks would tend to the greater facility of removing obstructions to traffic, but this was a matter for local licensing authorities rather than for the Board.

On the invitation of the tramways committee of the Huddersfield Corporation, a private conference of representatives of the Yorkshire Tramway Hangers' Association and of the committee was held at the Town Hall to discuss the important question of brakes. The Mayor of Huddersfield, who is also the temporary chairman of the tramways committee, presided, and in addition there were also present various town Councillors and managers and representatives of the following tramway authorities: Sheffield, Hull, Rotherham, Bradford, Keighley, Wakefield, Doncaster, Barnsley, Leeds, Birkenhead, Scarborough and the Yorkshire Heavy Woolen District.

With reference to the recent strike of the Halifax tramway men a notice has been placed in the office window at the Halifax tramway depot that no more men are wanted. This is due to the fact that the staff is now complete. Mr. F. Spencer, tramways manager, states that of the tramway men who struck work thirty-one drivers and fifteen conductors have been reinstated, and that the applications of seven drivers and eleven conductors were still under consideration. He also supplies the information that two-thirds of the men now engaged on the system are local men.

It is now possible to travel from Manchester to Liverpool by tramway cars, although the journey occupies about 5 hours, on the completed line of the Lancashire United Tramways Company. With the exception of a break of a few miles it is now possible also to travel from Liverpool to Leeds by tramway. The Lancashire United Company, by acquiring about 80 per cent of the shares of the St. Helens Company, now practically controls the whole of the tramway systems between Liverpool, Bolton, Wigan and Manchester. Now that the system is complete, the proposal as to the carriage of coal between the collieries and mills will be proceeded with, and in this respect the tramways will largely affect industrial enterprises within the districts concerned.

The electrification of the Hammersmith & Aldgate line has just been completed, and a trial trip was recently made by the Great Western Railway Company. The first electric car for public use will be run shortly, but probably not until the end of January will the complete new service be in operation. Then there will be a service of 5 minutes, instead of one of 10 minutes, as at present. The twenty-four steam-propelled carriages will be substituted by twenty electric cars, and the change will be made gradually.

The Lancashire & Yorkshire Railway Company has resolved to establish a motor-rail service between Preston and Hesketh Bank in November next, for the accommodation of the growing suburban traffic. It has also been practically decided to establish a similar service between Darwen and Accrington, passing through Blackburn, in order to compete with the electric tramways, which between Darwen and Blackburn alone have, it is stated, robbed the railway company of 8000 passengers per week. The possibility of catering for the great holiday traffic in the Ribbles Valley by running motor trains from Blackburn through Langho to Whalley is under consideration.

Recently there was a large and pleasant gathering of employees at the Chiswick headquarters of the London United Electric Tramways Company, to take part in the formal opening of a rifle range. The ceremony was performed by Sir Clifton Robinson, and Lady Robinson fired the first shot, successfully scoring a bull's eye.

At a recent meeting of the Sunderland County Borough Council, Mr. A. A. Day was formally appointed electrical engineer for the borough in succession to Mr. J. F. C. Snell, who has resigned. The commencing salary for the position is £800 a year, rising to £1,000. Mr. Day has, for the past six years, been electrical and tramway engineer to the Bolton Corporation, and prior to that he was on the Manchester Corporation Electricity Works staff, having been chief assistant engineer.



The city of Birmingham has been during the past month a center of interest, as it has just been able to open the new power house which is to supply the city not only with electric power and light, but also the increased demand for current made necessary by the electric tramway scheme being completed by the Corporation. The station ultimately will have a capacity of 26,500 kw, about half being direct-current plant and half alternating-current plant. At present there are about 7,000 kw of direct-current machinery and 4500 kw of alternating-current machinery installed. All of the engines have been supplied by Belliss & Morcom. Four of these are about 3000 hp, coupled direct to Dick, Kerr generators, two of the same size are coupled direct to alternating-current generators by the British Westinghouse Company, and three engines of 1000 hp are coupled direct to British Westinghouse alternators, while smaller engines are used for exciting and auxiliary work. There are also two Parsons direct-current turbines of 500 kw each, and the station is lighted by forty-two Cooper Hewitt mercury vapor lamps, each developing 1800 cp. In the meantime, the work of converting the tramway system and the new construction in connection with the whole of the electric tramway system is progressing very rapidly, and some of the routes will be opened immediately, and by Jan. 1 nearly the whole system will be operated by the Corporation. Most of the new cars are being supplied by Dick, Kerr & Company, mounted on Mountain & Gibson's radial axle four-wheeled trucks.

The report of the British Thomson-Houston Company, Ltd., for the year ended March 31, states that the company has acquired from the Allgemeine Electricitäts-Gesellschaft the British patents covering the Winter-Eichberg system for single-phase railway work, and with the consent of the company the Allgemeine Electricitäts-Gesellschaft has entered into a contract for single-phase equipments with the London, Brighton & South Coast Railway Company, which will be the first railway in Great Britain equipped with a single-phase plant. The company also owns for the United Kingdom the Latour patents and the patents covering the single-phase system developed by the General Electric Company, of New York. During the period under review the company has acquired from the General Electric Company, of New York, and the Compagnie Française pour l'Exploitation des Procédés Thomson-Houston all their British patents, and prior to March 3, 1906, it made a similar contract with the Allgemeine Electricitäts-Gesellschaft. The company has sold to date Curtis turbines having a total capacity of 32,000 kw. It was mentioned in last year's report that, after the closing of the books, March 31, 1905, the company had disposed of a large amount of securities and reduced proportionately its liabilities. The securities sold realized £372,631, and the entire proceeds were used to reduce to that extent the company's indebtedness. The trading profit for the year, after deducting general and technical expenses, discounts, debenture and other interest, amounts to £31,549. The amount brought forward from March 31, 1905, is £1,696, making a total available profit of £33,245. The whole of this profit (with the exception of £4,124 carried forward) has been applied to various depreciations, which the directors believe to be ample. As shown on the balance sheet last year, the balance of the excess cost of manufacturing, incident to the establishment of the manufacturing business of the company, amounted to £39,261 (£28,000 having been previously written off). The amount added during the year was £446, making a total in this account of £39,707. From this there is written off the further sum of £8,000, leaving a balance of £31,707, from which further amounts will be written off from time to time until finally disposed of. A. C. S.

**WESTINGHOUSE MANAGERS' MEETING**

The annual convention of the sales managers of the Westinghouse Electric & Manufacturing Company was held at the East Pittsburg works during the week ending Oct. 27. The meetings were conducted by E. M. Herr, first vice-president, and L. A. Osborne, second vice-president, assisted by C. S. Cook, manager of the railway and lighting department; S. L. Nicholson, manager of the industrial and power department; C. B. Humphrey, manager of the detail and supply department, and Walter Cary, general manager of the Sawyer-Man Electric Company. On Wednesday evening, Oct. 24, the officials of the company gave a banquet to the visiting managers at Hotel Schenley, at which there were present, in addition to the officials and managers of the Electric Company, prominent officials of associated interests, including Col. H. G. Prout, vice-president of the Union Switch & Signal Company; John F. Miller, fourth vice-president of the Westinghouse Air Brake Company, and E. H. Sniffin, third vice-president

of the Westinghouse Machine Company. These annual meetings of the Westinghouse Company were inaugurated a number of years ago, and give an opportunity for the mingling of ideas of the managers from all parts of the country, working under almost every known commercial condition. The convention closed on Saturday, when the managers returned to their respective territories.

**EARNINGS OF THE OAK PARK COMPANY FOR THE YEAR ENDED JUNE 30**

The Chicago & Oak Park Elevated Railroad Company, in its report for the twelve months ended June 30, 1906, submitted to the Illinois Railroad and Warehouse Commission, showed a deficit for the year of \$40,056. This was a decrease of \$18,069 compared with the deficit reported for the previous year. The total excess of outgo over income stood on June 30 at \$92,778. The increase in general expenses shown in the report was due to personal injuries and the increase in taxes due to a shortage of \$9,000 in the reserve for taxes in the preceding year.

The gross earnings for the year increased \$46,610, and the net profits increased \$20,933. This latter increase was absorbed by increased expenditures. The figures follow:

**FINANCIAL STATEMENT**

Earnings—	1906	1905
Passenger .....	\$863,637	\$821,195
Miscellaneous .....	26,917	21,748
Gross .....	\$890,554	\$842,944
Operating expenses—		
Maintenance of way and structure .....	19,498	24,624
Maintenance of equipment .....	45,657	41,658
Conducting transportation .....	391,643	396,518
General expenses .....	48,739	43,128
Total .....	\$505,538	\$505,929
Net earnings .....	385,016	337,014
Charges—		
Interest .....	284,740	278,719
Taxes .....	53,467	31,767
Rental .....	86,805	84,053
Total .....	\$425,072	\$395,139
Deficit .....	40,056	58,125
Add for interest on notes given to Chicago & Oak Park Elevated Railway Company on account of reorganization .....	52,722	52,722
Total deficit .....	\$92,778	\$110,847
Per cent operating to gross .....	56.77	60.02
<b>ASSETS</b>		
Cost of road and equipment .....	\$17,843,878	\$17,801,221
Stocks and bonds owned .....	437,753	438,253
Cash and accounts receivable .....	127,627	119,721
Material and supplies on hand .....	2,333	.....
Sundry .....	68,123	60,697
Profit and loss (deficit) .....	258,343	165,564
Total .....	\$18,738,060	\$18,585,456
<b>LIABILITIES</b>		
Capital stock .....	\$10,000,000	\$10,000,000
Funded debt .....	6,040,000	6,043,000
Debenture note .....	350,000	350,000
Real estate mortgages .....	5,238	8,363
Accounts payable .....	64,112	50,387
Interest on funded debt accrued, due July 1, 1906. ....	114,316	114,320
† Notes payable .....	2,044,500	1,954,150
Sundry .....	119,893	65,227
Total .....	\$18,738,060	\$18,585,456
First mortgage bonds .....	5,000,000	5,000,000
Income bonds .....	1,000,000	1,000,000
Car trust notes .....	40,000	43,000
Total .....	\$6,040,000	\$6,628,000

† Includes notes to Chicago and Oak Park Elevated Railway Company, amounting to \$1,040,000.

## HUDSON VALLEY LITIGATION ENDED

Litigation against the Delaware & Hudson Company by Chas. W. Morse and E. Clarence Jones, of New York City, as joint owners of about \$3,000,000 convertible bonds and stock of the Hudson Valley Railway Company, which, on the conversion of the bonds in 1908 would give them absolute control of the property, has been averted by the Delaware & Hudson Company's abandonment of the claim as to the non-convertibility of the bonds owned by Morse and Jones, and the purchase by Mr. Morse from Mr. Jones of his half interest in the securities. As sole owner of the control of the Hudson Valley Railway Company, Mr. Morse will now be enabled to make such arrangements with the Delaware & Hudson Railway Company as will be satisfactory to him, and tend to establish harmonious relations between his Hudson Navigation Company and the Delaware & Hudson Company.

## THE ATLANTA-MACON LINE

The executive officers of the Atlanta, Griffin & Macon Electric Railway Company have been transferred from Atlanta to Macon, and also for the Macon, Americus & Albany Electric Railway Company, the Macon & Albany Securities Company, the Interurban Construction Company, and the Electric Railways Express Company. For the Atlanta, Griffin & Macon Electric Railway two engineering corps have been in the field since July 15; one surveying from Macon northward and one from Atlanta southward. These two corps met at Griffin recently, with the result that the line will be by several miles the shortest between Macon and Atlanta. Cars will probably leave Macon for Atlanta and Atlanta for Macon every hour, with limited express cars at the more convenient hours. The running time for the through express cars will be 2 hours between Macon and Atlanta, while the time for the local service cars will be about 2 3/4 hours. W. J. Kincaid, the well-known capitalist and cotton mill man of Griffin, is the president of the Atlanta, Griffin & Macon Electric Railway Company; W. J. Masseur, of Macon, is vice-president; Col. Clifford L. Anderson, of Atlanta, is secretary; William A. Wimbish, of Atlanta, is treasurer, and Albert Bolyston, of Atlanta, is assistant secretary and treasurer. The offices of the secretary and treasurer are in the Prudential Building, Atlanta. Engineering corps will be placed in the field at an early date to survey the route between Macon and Albany. Joseph S. Davis, capitalist and banker of Albany, is president of the Macon, Americus & Albany Electric Railway Company. The Macon & Albany Securities Company is the company which is financing the preliminary work on the Macon & Albany line, and backed by Eastern capital, will complete the financing of the actual construction. This company is composed of representative business men and capitalists of Georgia. Nicholas J. Cruger, of Albany, is president. The Interurban Construction Company is a company formed for the purpose of carrying on the work of construction of the electric railways, the building of passenger and express cars, etc. W. J. Masseur, of Macon, is president.

## CANADIAN INTERESTS NEGOTIATING FOR LARGE LIGHTING AND STREET RAILWAY CONCERNS

The deal for the purchase of the extensive holdings of La Electra, S. A., and the company Industrial de Guadaluajara, in Guadaluajara, by the Mexican Light & Power Company, the Canadian concern which owns the big electric power transmission plant at Necaxa and the street railway systems of Mexico City and Puebla, has practically been completed, says the "Wall Street Journal." The consideration is said to be upwards of \$5,000,000. The property includes the electric lighting plants and street railway systems of the two companies.

## ARRANGING FOR THE TRIAL OF SAFETY DEVICES IN MASSACHUSETTS

The details of arrangements for the numerous tests of street car fenders now in progress under the auspices of the Massachusetts Railroad Commission, are being handled directly by Commissioner George W. Bishop, of Newtonville, to whom the preliminaries were delegated in his capacity of expert in railroad construction and appliances for the board, and he has found it a somewhat difficult matter to sift out from among a large number of inventions, existing only on paper or as models, those which are actually available for trial. He has been assisted in the matter by Inspector Lewellyn H. McLain, of Melrose.

## APPEAL TO U. S. SUPREME COURT IN CLEVELAND SITUATION

Attorney J. W. Warrington, representing the Cleveland Electric Railway Company, has asked the United States Supreme Court to grant an order restraining the city of Cleveland from tearing up the tracks of the company until the appeal now before the Supreme Court can be heard. The court took the matter under advisement, Chief Justice Fuller stating that the court would announce its decision as soon as possible.

## FINE ELECTRIC RAILWAY MAP

The Price Publishing Company, of Lima, Ohio, had on exhibition at the Columbus convention an excellent map of Ohio, Indiana and Michigan, showing the electric railways in heavy lines, thus giving them prominence over steam roads, which other maps do not. This map is on muslin-backed paper, 35 ins. x 38 ins., and is put up in two forms, folder with neat cover for pocket use and flat with stick for wall purpose.

## STOCKHOLDERS OF WORCESTER RAILWAYS & INVESTMENT COMPANY GIVEN PRIVILEGE TO EXCHANGE

Mackay & Company, in a circular to stockholders of Worcester Railways & Investment Company, say:

"We have purchased a majority interest in the shares which have been exchanged for the 4 per cent preferred shares of the New England Investment & Security Company, and we now offer shareholders privilege of exchanging their shares on the basis of twenty shares of Worcester Railways & Investment for twenty-one 4 per cent preferred shares of the New England Investment & Security Company, on and after Nov. 1, 1906, at Old Colony Trust Company, Boston.

"The New England Investment & Security Company is described in the accompanying letter from its president. Its preferred shares, \$10,000,000 in amount, are entitled to cumulative 4 per cent semi-annual dividends, these dividends and \$105 per share and accrued dividend in event of liquidation being guaranteed by endorsement by the Consolidated Railway Company, of Connecticut. The preferred shares are non-taxable in Massachusetts.

"This guarantee is further protected by a three-party agreement between the New England Investment & Security Company, the Consolidated Railway Company, of Connecticut, and the New York, New Haven & Hartford Railroad Company, in effect an obligation of the New York, New Haven & Hartford, and as such with priority over any dividends of that railroad."

C. S. Mellen, president of New Haven Railroad and also president of New England Investment & Security Company, gives first official information as to this company in a letter, saying:

"The company is a voluntary association formed June 25, 1906. The trustees are: Charles S. Mellen, Nathaniel Thayer, C. F. Brooker, William Skinner, Robert W. Taft, Edwin Milner and D. Newton Barney.

"It has outstanding \$10,000,000 4 per cent cumulative preferred and \$10,000,000 common shares.

"It owns in trust for the benefit of shareholders the following stocks and bonds:

"Worcester & Southbridge Street Railway Company, 7000 shares of stock (entire capital), 224,000 first mortgage 4 1/2 per cent bonds, \$146,369.33 of notes payable.

"Worcester & Blackstone Valley Street Railway Company, 2000 shares of stock (entire capital), \$257,076.67 of notes payable.

"Worcester Railways & Investment Company, 36,971 shares of stock.

"Springfield Railway Company 102 shares of stock; \$372,000 of notes payable.

"Springfield Railway Company, 50,000 shares of common stock.

"Berkshire Street Railway Company, 13,798 shares of stock; \$200,000 5 per cent bonds, \$366,886.70 of notes payable.

"Western Massachusetts Street Railway Company, 3000 shares of stock, \$137,500 of notes payable.

"Hartford & Worcester Street Railway Company, stock rights in 2,907 shares of stock.

"New York, New Haven & Hartford Railroad Company, 5000 shares of stock.

"Provision is made for acquisition of certain other securities."



## OPERATING RESULTS IN INDIANA

During the year ending June 30, 1906, 14,778,887 more passengers were carried on electric roads in Indiana than were carried in the preceding year. The statistics in all branches of the traffic show a marked increase in prosperity. The total number of passengers carried was 127,616,952. The last year also shows a gain in the number of miles of track operated by electric roads. In 1905 only 1,002.19 miles of track were operated, while in 1906 the number of miles operated was 1,286.73, or an increase of 284.54 miles.

Four thousand and ninety-five men were employed during the year 1906, and were paid wages aggregating \$2,524,475.08; 870 motormen and 830 conductors were employed, the motormen receiving \$555,907.68, an average daily earning of \$1.88, and the conductors being paid \$523,667.32, an average daily wage of \$1.89; 99 linemen and 291 mechanics were employed during the year, the linemen receiving \$56,833.11, daily earning of \$2.26, and the mechanics being paid \$207,737.21, an average of \$2.23 a day; 96 electricians received \$50,011.09, or about \$1.59 a day.

The roads during the year earned \$1,955,045.50 more than during the preceding year, the year's total earnings being \$8,712,775.72. The expenses were \$5,551,456.50. Taxes paid to the State were \$456,240.70. Maintenance of way and structures amounted to \$501,854.07, and keeping up the road equipment cost \$58,655.37. Conduction of transportation cost \$2,517,547.28, while the earnings coming from passenger traffic were \$7,411,092.36. The betterment of road conditions and the acquirement of new track cost \$702,886.02. The net income to the electric roads was \$3,161,319.22.

## ACCIDENT ON THE NEW ATLANTIC CITY-CAMDEN ELECTRIC LINE

A three-car train of the Pennsylvania Railroad Company's newly-equipped electric service from Camden to Atlantic City plunged into the water from a drawbridge at Thoroughfare, at 2:20 p. m., Sunday, Oct. 28. The train left Camden at 1 o'clock, and carried about 100 passengers; of this number fourteen left the train at Pleasantville. The motor car left the tracks, dragging the other two cars after it, and plunged over the side of the bridge into the water. It was quickly followed by the second coach. The third car, as it plunged over the side, fell part way into the water, the rear trucks catching on the bridge. It was from the third car that those few who escaped death were saved. Those in the first car were drowned in their seats. The work of rescue was begun at once, and by Monday afternoon fifty-three bodies had been taken from the water, all but one of which have been identified. Nine more persons are reported missing, however. The real cause of the accident cannot be ascertained until the cars and trucks are recovered from the water. The Pennsylvania Railroad on Sunday issued the following special statement regarding the accident:

"Electric train No. 1065, consisting of three coaches, which left Camden at 1:00 p. m., left Pleasantville on time, and running at about 20 m. p. h., left the rails at the west end of the drawbridge over the Thoroughfare, near Atlantic City, about 2:25 p. m., and plunged into the water. The first two cars were entirely submerged, and the third car partly submerged, with the rear end resting on the cribbing under the drawbridge.

"The drawbridge was found properly closed and locked, the signal showing a clear movement. The track was in good condition, and until the cars can be raised out of the water it is not possible to determine the cause of the accident. It was necessary to procure divers before the train could be raised, and these are now working on the wreck. Divers not being available in Atlantic City, they had to be procured from Camden and Philadelphia.

"General Manager Atterbury, with a force of assistants is on the ground, and every effort possible is being made to remove the cars from the water and recover the bodies. It is hoped, with the removal of the cars, that a critical examination of the equipment can be made, so that the cause of the accident may be determined. All possible effort is being made to learn the names of the passengers on the train. The bodies, when recovered, are being placed in charge of undertakers to await identification.

"The equipment of the train was entirely new, having been in service but a few weeks, and is believed to have been perfect in every particular. The train had, leaving Pleasantville, seventy-nine passengers, of whom twenty-three have been accounted for as being safe. It is believed that several more escaped.

"The motorman, Walter C. Scott, was drowned. The conduc-

tor, J. O. Curtis, and the brakeman, R. B. Wood, escaped. Eleven bodies have been recovered, only one of which, that of an employee, James Dempsey, foreman of car inspectors at Camden, has been identified."

## CHICAGO HOLDERS SEEK TO PREVENT PROPOSED SETTLEMENT WITH CITY

Cyrus H. McCormick and other holders of stock in the North Chicago City Railway Company and the Chicago West Division Railway Company, have filed motions in the United States Circuit Court for permission to intervene in the proposed settlement of the traction problems in Chicago. They represent the minority holders, the majority of the stock being owned in New York. The Chicago holders assert that the New York owners are trying to "freeze out" all of the Chicago interests. The two companies form the principal basis for the Chicago Union Traction Company. The agreement made in New York for the organization of a new company to negotiate with the city for a renewal of franchises, it is asserted, will leave the new concern in the position of being the only bidder for control of the street car companies, and the sale must be made at whatever price the company chooses to bid. The petition further states that the lessee and assignee of the leases have neglected their duty, and have allowed the lines of railway to deteriorate and have given the public bad service. The petitioners state their belief that there was, and is, a fund readily available for the payment of all debts of the Chicago Union Traction Company in the shape of a stockholders' liability amounting to \$20,000,000.

## PERSONAL MENTION

MR. FRANK D. NORVELL, who has been assistant general passenger and freight agent of the so-called merger traction lines in Indiana, has been appointed general passenger and freight agent of the lines, succeeding Mr. F. D. Wheeler, who has resigned.

MR. EDWARD S. DOUGLAS, clerk and treasurer of the Worcester & Holden Street Railway Company since its organization, has been relieved of the duties of general superintendent and made general manager. Mr. Albion B. Clapp is made general superintendent. Mr. W. E. Fairbanks continues as assistant superintendent.

MR. JOHN H. MERRILL has resigned as secretary of the Central Electric Railway Association to accept the position of manager of the Choctaw Electric Railway & Lighting Company, of McAlester, Okla. The office of secretary will be filled by Mr. W. F. Milholland, who is treasurer of the association, until the end of the year, at which time a permanent successor will be elected to Mr. Merrill.

MR. NATHAN S. ELDRIDGE, for five years connected with the Rutland Railway, Light & Power Company, of Rutland, Vt., has resigned his position as assistant superintendent, to take effect Nov. 1. Mr. Eldridge will enter the employ of the S. F. Bowser Company, of Fort Wayne, Ind. Mr. W. H. Horton, who has been connected with the engineering department of the railway company for some time, will succeed Mr. Eldridge.

MR. DANIEL M. WHEELER, of Worcester, and Mr. Lewellyn H. McLain, of Melrose, have been reappointed inspectors for another term of three years by the Massachusetts Railroad Commissioners. Their terms expired Oct. 1. The board has two other experts in this class of service, Mr. John Q. Hennigan, of East Milton, whose term expires Oct. 1, 1907, and Mr. Grafton Upton, of Everett, whose term expires Oct. 1, 1908.

MR. HENRY E. HUNTINGTON was the guest of honor at a banquet given recently at the Hotel Maryland, in Pasadena, Cal. Guests were present from all parts of Southern California, chiefly, however, from Los Angeles, Pasadena and Long Beach. An elaborate menu was provided, the menu cards being hand-painted and containing a recent photograph of Mr. Huntington, a biographical estimate of his life and work, the program of music and toasts, the menu and a colored map of the Huntington system of electric lines. A full sized railway spike, heavily nicked and suitably inscribed, lay beside each plate, and formed a novel souvenir of the occasion.

TABLE OF OPERATING STATISTICS

Notice.—These statistics will be carefully revised from month to month, upon information received from the companies direct, or from official reports to the ends of the various financial years. Similar statistics in regard to roads not reporting are solicited by the editors. \* Including taxes. † Deficit.

Table with columns for COMPANY, Period, Total Gross Earnings, Operating Expenses, Net Earnings, Deductions From Income, and Net Income Available for Dividends. The table lists various street railway companies such as AKRON, O., BINGHAMTON, N. Y., CHICAGO, ILL., and many others, with their respective financial data for different periods.