

Electric Railway Journal

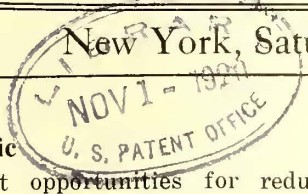
Consolidation of *Street Railway Journal* and *Electric Railway Review*

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Fitting Interurban Schedules to Traffic

ONE of the greatest opportunities for reducing operating expenses on city properties has been repeatedly found to be in a revision of schedules and re-routing to make the service conform to the traffic available. We wonder if this same trend of study might not well be applied to the interurban railways. In the early days the idea of running a car every hour—frequent service—was thought to be the characteristic of the electric line that formed the principal attraction for patronage. This tradition still prevails, and there is no doubt that it is a convenience to travelers well worth preserving provided there is enough traffic every hour to make the trip profitable. But the cost per car-hour is so high nowadays that it is more important than ever that the interurban manager should check up his schedules with a view to cutting any unprofitable car mileage. It is our observation that a good many unprofitable trips are being run on a good many interurban lines. We know of one case where a study of the service requirements and an adjustment of the schedule thereto resulted in increasing the revenue 20 cents a car-mile without any apparent loss of business. Another company has been gradually remolding its schedule to fit the traffic, with a favorable result on car earnings and no apparent loss of business. In other words, if the traffic available at a certain hour of the day is not enough to justify the expense of running that car it shall be taken off or the interval between cars spaced out until the patronage is adequate. The interurbans are well established now and we believe they can advantageously adhere to paying schedules even though it may mean paying less attention to the position of the hands of the clock in setting the leaving time.

"Trusteeship" and the Company Section

THE company sections of the American Electric Railway Association are organizations whose possibilities, it appears to many observers, have not been fully realized or at least have not been fully capitalized by those railways which are fortunate enough to have company sections on their properties. A company section provides the best possible medium for the circulation within the organization of information regarding the electric railway situation in general and of the local company in particular. It is also a most active force for the development of a sense of responsibility and obligation among the section members who are the rank and file of the industry today and the leaders of the industry of tomorrow.

In a recent address one of our leading public utility commissioners dwelt on the subject of "trusteeship," which, he said, rests upon every electric railway man today. He emphasized the absolute necessity of the electric railway to the community and at the same time referred to the inertia and lack of knowledge evidenced

by the public in trying to settle what is now recognized as the electric railway problem. He then said that meanwhile, until the American public has shown itself capable of finding the solution, the electric railway operating personnel are and must be the trustees for the public in keeping in operation these most necessary railways. That it is a trust of no mean magnitude is evident to all who are in a position to have all the facts, and the more closely one examines the situation the more evident this truth becomes. Some one must realize both the duty and the opportunity, and the electric railway men are the ones to do it.

How to get all railway men to sense this situation is not so easily answered, but the commissioner, seconded by others present, suggested that the company section, composed of men of all ranks on any given property, is the place to develop the idea. Is this an opportunity in company section work? It isn't something which can be treated as part of an evening's program, but it is a purpose which every company section can well strive to attain as part of its regular work.

The Best Way to Dispose of Claims Is Not to Have Them

DURING the last few years the proper function of medical science has come to include the prevention of disease as of even greater importance than its cure. The latter will still remain, of course, part of the duty of the physician, but if he can reduce the causes of particular kinds of illness a great step in advance in the welfare of mankind will be made.

Much the same situation exists in the claims departments of our various railways. A decade or so ago, for example, the annual conventions of the Claims Association were devoted largely to discussions of such topics as the best means of securing the names of witnesses of accidents, the approved methods of preparing cases for trial, the practical value of expert medical testimony, whether medical examinations should be obtained in all accident cases, whether the best method of settling claims is by cash or check, what statistics of accidents should be kept, and whether so-called permanently injured persons should be kept under observation after their claims have been paid.

Problems of this kind remain, of course, to engage the attention of the claims department because accidents still occur, in spite of all that can be done, just as physicians will still have to study how to cure patients of disease. But the great part of the work of the claims department in the modern railway is now the prevention of accidents, and of the four technical sessions at the 1920 convention three were devoted entirely to this side of the work. It is obvious that this is a most desirable plan, from both a humanitarian and a financial point of view. It is logical also that the claims department should be the one to lead in this work, because it is the one which comes closest to the unfortunate results of accidents.

The Automobile Hazard and How It May Be Abated

THE widespread use of the automobile has involved many problems of an economic and social relation to the business world as well as to the electric railway, but none perhaps is more serious than that of the personal hazard to which the heedless operation of automobiles subjects every other user of the streets. Formerly, when the electric car was the most rapidly moving vehicle on the highway, though running on a fixed track and at a maximum speed of perhaps half of that of the average automobile of today, this speed was carefully regulated by the authorities in the interests of safety. Now, many of these restrictions remain, although the electric car in many cases is practically the slowest moving vehicle on the street. At the same time, powerful gasoline locomotives, for that is practically what they are, not bound by any track and in charge of inexperienced drivers, are allowed to run amuck.

The Claims Association did well to give up a day to the discussion of this subject and means by which this danger can be abated. In the papers presented at that session some very striking statements were made, including the one that automobiles are now causing half as many deaths in this country as industrial accidents and more than railroads and mines combined. The automobile evil is one also which is not confined to any one section of the country, but seems to be equally felt in all. It does not, of course, concern electric railway companies only. It affects all citizens alike, and it came up for discussion at the electric railway convention only because electric railway men have expert knowledge of transportation conditions and are trained to the use of traffic statistics and thus have probably a quicker perception of a situation of this kind than the ordinary citizen.

Various suggestions were made in the Claims meeting in regard to remedial measures. Where there is an evil there is usually a remedy, and the situation in regard to automobile hazards was not regarded by the claim agents as entirely hopeless. Means by which the highway can be made more safe were clearly pointed out at the meetings—nothing very radical, only the application of common sense to an admittedly serious situation. Now that the electric railway men have shown the way the reforms should be made effectual by the general body politic.

Motion Pictures at the Convention

DELEGATES to the Engineering and Transportation & Traffic association meetings at Atlantic City had an opportunity to see motion pictures turned to the use of the electric railways. The engineers, in a space of thirty minutes, saw practically the full process of track construction in Cleveland, something they could not see completely otherwise without spending perhaps several weeks in Cleveland at a particular time when track construction was under way. The Cleveland Railway has had so many inquiries about its advanced methods of building new track and tearing up old that it was decided to have this picture taken in order to be able more intelligently to tell other maintenance engineers about these methods. The film is thus a contribution to the advancement of the art, for, seeing it, other engineers will gain new ideas out of which may

come not only the use of more modern methods on their own properties but perhaps an improvement on C. H. Clark's Cleveland ideas and machines.

So much for this film designed to educate those within the industry. The other film shown in the T. & T. Association meeting was prepared by the Kansas City Railways and designed to educate those without the industry. This film, as presented at Atlantic City, was not in its finished form. It had been very hurriedly put together to enable its showing at the convention and, as exhibited there, was subject to the obvious criticism of being too long and at points uninteresting to laymen. These things will of course be corrected before the film is shown locally. It was developed for the purpose of giving Kansas Citians a better understanding of the tremendous plant involved in giving street car service with which the public has no contact and little knowledge. Having some idea of this plant, such as power house, shops, etc., it was thought that patrons of the company would be better able to comprehend the items of expense which add up to make necessary the present high rates of fare and would have a more sympathetic appreciation of the intricacy of the transportation system.

In this film the convention delegates saw a concrete example of one phase of how the motion picture can be used to foster the public relations of the electric railway, a subject treated at some length in an editorial suggestion on the use of motion pictures, published in the *ELECTRIC RAILWAY JOURNAL* for Sept. 25, 1920, on page 604. The Kansas City Railways has pioneered in this undertaking and while the film may bear some of the inevitable evidences of an initial attempt, it points the way to what may be done. In last week's issue and again in the issue of this week views of different executives on the general plan are published. We solicit other contributions on this topic as the suggestion is evidently meeting with much interest.

Facts, Figures and Opinions Regarding Railroad Electrification

THE immense audience which gathered in the auditorium of the United Engineering Society's building in New York City on Oct. 22 demonstrated a compelling interest in heavy electric traction, the topic which brought mechanical and electrical engineers together on this occasion. Under the general direction of E. B. Katté, New York Central Railroad, with the co-operation of representatives of the A. S. M. E. and the A. I. E. E., a program of papers was presented, containing information of the kind needed to permit a correct estimate to be made of the present status of the subject. The material was set forth in carefully prepared papers, presenting alternately the respective merits of steam and electric locomotives, one might almost say in debate form. This fact must be kept in mind in reading the abstracts of the principal addresses given in last week's issue of this paper and those of the contributors to the discussion which is printed this week.

The proceedings differed from an "orthodox" debate in that the papers were all prepared in advance, there was no decision rendered on the merits of the presentation and of the question itself by a board of judges, and each side, more or less, admitted the other to have some ground to stand upon. As the discussion proceeded, the need for a co-operative effort to determine

the conditions under which electrification is desirable became increasingly evident.

While there will always be differences of engineering and economic opinion regarding the wisdom and practicability of electrifying a given section of track, there ought to be no difference in the aspects of the facts involved. In other words, a fact ought to look the same to an electrical or a mechanical engineer whether he is connected with the operating or the manufacturing side of railroading. The engineer of either type is apt to be prejudiced in favor of the apparatus which he most admires and most fully understands. Again, the manufacturer has something to sell, whereas the operator has much capital tied up in existing equipment and in the development of present practices, which he does not wish to disturb. Each needs general information to offset his own bias. The most helpful function which a meeting like that held in New York can perform is, then, what might be termed the "mitigation of prejudice," or, maybe better, the "stimulation of tolerance." It is to be hoped that some such result will follow and that it will take tangible form.

In getting together the first step is to agree upon a few salient principles or facts. There are some sections of some railroads that obviously are not suitable for electrification, while others ought to be electrified at once, even in the present state of the money market. The reasons in both extreme cases are easy to find. Between these extremes are zones of less definiteness gradually approaching a region of doubt. There are, in each case, certain controlling factors, or "peremptory" factors as they were termed by C. O. Mailloux in an address delivered at the International Electrical Congress at Turin as far back as 1911. Why could not these factors be listed for present and prospective electrifications by a group of competent engineers, say by a composite committee made up of appointees of the railroad and engineering societies? This would not be a formidable task and the result would constitute a piece of really constructive work.

Engineers Seem to Be Getting Together

ONE of the hopeful signs in the transportation and general engineering fields is the way in which engineers are coming to confer more and more upon their common problems. This is illustrated by the numerous joint technical committees which are engaged upon various pieces of constructive work. The New York meeting discussed above shows what can be done by concerted effort. In spite of the fact that the meeting did not settle anything very definite regarding the future of electric motive power, it was well worth while. In our opinion, it was the most successful attempt so far made to get at the facts regarding heavy electric traction experience and comparable steam locomotive operating information. While, as we have already said, the meeting was in a sense more the presentation of arguments than an attempt of each speaker to give a judicial opinion on the issues involved, in this case pleading was entirely in order; in fact, it was expected. The point is that through coming together to hear the subject of heavy electric traction capably presented 1,500 or more interested engineers became better acquainted and they will pull together the better because they did so.

This meeting was the first of a series of joint meet-

ings of the local sections of the two great engineering societies which are to be held this winter. This first one, "staged" by the A. S. M. E. railroad section, set a smart pace for those which are to follow.

A New Chapter in Labor Relations

IT IS seldom indeed that a large employer of labor is paid the compliment and shown the loyalty and support that came to Col. P. J. Kealy upon the occasion of the Oct. 21 court hearing looking to the appointment of a permanent receiver for the Kansas City Railways. This was reviewed briefly on page 893 of our Oct. 23 issue, and another chapter is added in this issue, covering the hearing of Oct. 26. The expression of sentiment referred to came in the form of a petition signed by 3,300 employees who had initiated the petition and financed the engagement of competent counsel, unknown to President Kealy, in order to present their interests to the court. After promising the court, the receivers and the people of Kansas City to "work wholeheartedly and together for the good of the company and the service of the public," and that "under no circumstances will we permit any interruption of this service," the employees petitioned as follows:

First—That no outside labor interests nor those not in the company's employ be given any part in the present proceedings.

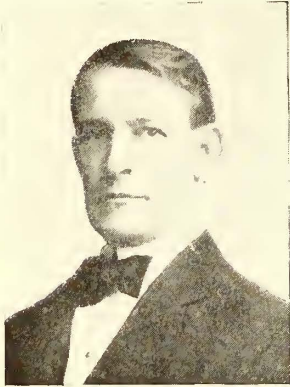
Second—That nothing be done to disturb the present pleasant relations existing between the employees and their officials.

Third—That Col. P. J. Kealy, under whose leadership this organization has been built up, be retained either as a receiver or as the operating head of this company. We have confidence in his ability and we know that the spirit of co-operation he has made possible will result, if possible, in better operation than at present . . .

The reasons cited to substantiate these requests upon the court are significant. The first was supported by the statement that it had been freely reported that those who left the employ of the company during the strike in December, 1918, would attempt either openly or otherwise again to interfere in the operation of the property upon the control passing to new management. The employees went on to point out that the feeling now prevailing among "the employees themselves and the relation between them and the company officials are those of co-operation, mutual help and square dealing," that collective bargaining has been provided for and grievances immediately adjusted, these conditions forming a situation which the employees are very much loath to have disturbed. In support of the second request, and speaking generally as to the man who shall have charge of the property in the future, they voiced the sentiment through their attorney that, with present conditions in mind, the future control of the company should be in the hands of a man to whom they can go, easy to approach and whose duties are not so numerous but that he can give personal attention to the men.

Whatever the outcome of the future in working out the Kansas City Railways' financial situation, it is apparent that the present labor situation, following as it does in the wake of a very costly strike, has very important significance for other companies. Whoever may assume control of the Kansas City property under the court will have the good fortune of being able to start out with a labor situation unusually favorable, for which he may thank the present management.

Accident Prevention Chief Topic Discussed by the Claims Association



S. B. HARE
Retiring President

The Papers and Discussions at the Meeting of the American Electric Railway Claims Association at Atlantic City on Oct. 11-14 Centered About the Subjects of Accident Prevention and Automobile Hazards—Technical and Office Matters Were Also Considered in One Session



J. J. REYNOLDS
President-Elect

THE meetings of the American Electric Railway Claims Association at Atlantic City on Oct. 11-14 were devoted almost entirely to discussions of means for preventing accidents, especially accidents with automobiles, which have grown to constitute such a large proportion of the accidents on electric railways.

The meetings, which were held in Claims Hall on the pier, were well attended and an active interest was displayed by the delegates in the subjects considered.

Monday's Session

A novel feature of the opening session of the association on Monday afternoon was the action of President S. B. Hare in calling upon members to rise in turn, and to state name, company and city. This done he read his address, which appears in abstract below.

ADDRESS OF PRESIDENT HARE

"With the extraordinary growth of transit facilities throughout the country, the increasing business demands for speed and the universal devotion to the 'god of hurry' the most important problem with which the public utilities have to deal is the prevention of accidents. The reduction of the number of accidents among employees and the public is prompted not only by humanitarian motives but by consideration of business expediency and financial profit. It does not make for efficient operation when valued employees are continually being killed or injured and when their places must be taken by less experienced men. A company is maintaining the integrity of its working organization when it safeguards by every means in its power the health and welfare of its employees. Every employee should be made to think and act safely. This applies to every member of the organization from the general manager to the humblest workman. The general manager, the superintendents of departments, the man in authority in any corporation who does not take an active interest in safety and welfare work is a dangerous man. Their greatest business should be to conserve life, limb and property of the employees and the public, thereby conserving the finances of their company.

"The appalling proportions to which accidents have

reached in the State of Pennsylvania are enough to make one shudder. During the year 1919 the total number of accidents reported to the Department of Labor and Industry was 152,544; of this number 2,569 were fatal accidents, 38,942 were serious accidents and 111,033 were minor accidents. Children under the age of 16 years to the number of 768 were injured. The dependents of those injured totaled 125,380.

"Government experts have asserted that no less than 98 per cent of all personal accidents are preventable and but 2 per cent are due to defects in machinery and acts of God. Of this 98 per cent 70 per cent are due to thoughtlessness, 15 per cent to bad habits, 10 per cent to recklessness and 5 per cent to ignorance.

"Experience has taught that no marked or lasting results are obtainable unless an educational movement is made general, embracing the various plans that have proved practical. The elimination of thoughtlessness, carelessness, bad habits and ignorance can only be accomplished by education and instruction.

"Local safety drives have proved successful. Their benefit may not be apparent, but comparative figures have shown marked decrease in accidents after such drives.

"In St. Louis, Cleveland and Rochester marked reductions in accidents have followed intensive campaigns. In these cities thorough instruction in safety has been given in the schools. The influence of this instruction on the children, and through the children on the homes, has had much to do with the splendid record made in these three cities.

"A canvass of the automobile situation in the United States at the close of 1919 and a study of the relation between the numbers of automobile accidents and of motor vehicles in use show that the automobile, as much because of the carelessness of pedestrians as of drivers, is now the deadliest machine in America. It is estimated that there are now 7,600,000 automobiles and motor trucks in the United States, an automobile or truck to every third family; one to every fourteen persons, and the manufacturers predict that 2,000,000 automobiles and trucks will have been pro-

duced and sold during 1920. During recent years automobile accidents have resulted in approximately one-half the deaths caused by industrial accidents of all sorts.

"During the year 1919, 10,000 persons were killed in automobile accidents. What will be the harvest for the year 1920, when the total will reach more than 9,000,000? It remains for men in our position to offer some positive and lasting solution to this problem.

"Accident prevention should be considered from the financial side also. During 1919, 2,053,277 days were lost through accidents, and the wages lost totaled \$8,755,697. Of the 152,544 accidents reported, 57,105 involved compensation to a total of \$10,982,836. In public service industries alone compensation was awarded and paid in 3,905 cases, of which 316 were fatal, and the compensation paid amounted to \$881,433. In the United States the sum expended by public utilities each year for accidents amounts to more than \$300,000,000. Electric railways pay from 2

National Safety Council. H. D. Briggs, for the committee on claims statistics, presented elaborate data compiled by the committee from a questionnaire sent to companies having gross receipts of \$1,000,000 or over, covering numbers of accidents, settlements, lawsuits, etc. Finally J. J. Reynolds outlined some changes in the constitution and by-laws which were taken up later, and the meeting adjourned to the joint session with the T. & T. Association. A report of this joint session was published in the issue of this paper for Oct. 16 in the proceedings of the Transportation & Traffic Association.

Tuesday's Session

The session of the Claims Association on Tuesday afternoon was devoted to a discussion on automobile hazards. The main paper on this topic was presented by Ralph Stickle, assistant superintendent accident department Cleveland Railway. There were also written discussions by L. H. Roche, general inspector Associated Bureaus, Pittsburgh Railways; W. G. Fitzpatrick, gen-



L. H. ROCHE
Pittsburgh Railways



F. E. SHUMATE
Georgia Railway & Power Company



J. H. HANDLON
United Railroads of San Francisco

THREE OF THOSE WHO CONTRIBUTED PAPERS AT THE CLAIMS CONVENTION

per cent to 12 per cent of gross income for damage suits and accident settlements.

"Statisticians say that 14,000,000 persons will be injured in accidents in the United States within a year and that 100,000 persons will be killed. If accident prevention does not appeal from a humanitarian standpoint, then it can be reasoned out from a financial side with a view of the proposition as one involving a great public trust.

"Accident prevention should be the aim of all. Safety first and safety always should be the watchword of all. 'I am my brother's keeper' should be the universal acknowledgment."

At the conclusion of the president's address Secretary J. S. Kubu then read the executive committee report covering the minutes of a meeting held in Cleveland in January. He also read his report as secretary-treasurer showing how the instructions of the executive committee had been followed during the year. Mr. Hare then appointed as a nominating committee R. E. McDougall, W. F. Weh and William Tichenor.

Next, reports were received from several committees as follows: Mr. Kubu reported for the subjects committee, giving the program outlined at the Cleveland meeting. Mr. McDougall, for the safety committee, recommended active participation in the work of the

eral claims attorney Detroit United Railway, and J. H. Handlon, claim agent United Railroads of San Francisco. This program was followed except that owing to a delay in its receipt, the paper by Mr. Handlon was not presented until a later session. Abstracts of these four papers appear on another page in this issue.

The discussion which followed their presentation related principally to the laws of the different states in regard to the issuance of licenses for drivers of automobiles and the laws governing automobile operation. Generally, it was found that the casual driver of automobiles was the one most liable to accidents. It developed also that in some states examinations of drivers were not required before a person was permitted to operate an automobile. Failure of the authorities to enforce automobile laws was also held to account for many of the accidents.

Wednesday's Session

The program on Wednesday afternoon covered three papers. The first was entitled "Accidents—Cause and Prevention" by F. E. Shumate, general attorney Georgia Railway & Power Company, Atlanta, Ga. This paper was followed by two discussions of the same subject. The first of these was on "Causes and Prevention of Accidents" by R. N. Hemming, superintendent of transpor-

tation Indiana Service Corporation, Fort Wayne, Ind. The second was on "Co-operation of Trainmen" by J. E. Duffy, general superintendent New York State Railways, Syracuse and Utica lines. Mr. Shumate's paper was read by L. F. Wynne, Atlanta; Mr. Hemming's by H. O. Allison, Pittsburgh, and Mr. Duffy's paper was presented by the author. Abstracts of these papers follow:

PAPER BY MR. SHUMATE

After explaining that his company classified accidents under twenty-eight heads Mr. Shumate said that collisions with motor vehicles constituted the largest accident item in Atlanta, after which came collisions between cars, followed closely by boarding and alighting or step accidents.

The streets in Atlanta are narrow and the large amount of riding requires frequent cars. Practically all of the downtown streets are occupied by double tracks, leaving the space between the tracks and the curbs very narrow, with scarcely room for an automobile to pass between the curb and the car. Where parking is permitted in this area, traffic can move only upon the part of the street upon which the tracks are. This makes the transportation situation bad all over the city, with traffic congestion in the downtown districts and reckless running by automobiles in the less congested areas. In the speaker's opinion if the city would pass ordinances to clear the streets of parked vehicles and would institute strict control of traffic there would be a material reduction in automobile accidents. Such an anti-parking ordinance has recently been put in operation in Atlanta applying to all streets in the center of the city between 7 a.m. and 7 p.m., and it has cleared up traffic to an almost unbelievable extent, and while it is impossible yet to determine definitely the effect on auto accidents, the speaker believed that they certainly will be reduced to a considerable extent.

As regards collisions between cars, the speaker believed that carelessness was at the bottom of nine-tenths of these accidents, excuses to the contrary notwithstanding. "Slick track" and "bad brakes" are the excuses advanced most frequently, but the motorman and conductor, before they start out, should know when these conditions are present. It is helpful also for the company to have emergency automobiles equipped with sand bins and sanding apparatus, making the sanding of tracks on short notice possible.

Up to within recently very few cars in Atlanta have had inclosed platforms. Fifteen cars of this type were put in service in January, 1920, and not one step accident of any consequence has been reported in connection with them. The paper urged those who did not have inclosed cars to install doors.

Mr. Shumate's paper also spoke of claims made by persons in, approaching and after leaving cars, caused by defective pavements and conditions incident to paving and repairing streets. Crews should be taught to look out for and avoid stopping their cars at places which do not afford a safe alighting place. If such a condition exists they should be instructed to stop their cars short of the regular stopping place or move beyond it. It has been his experience that the co-operation of crews in this respect is easily secured.

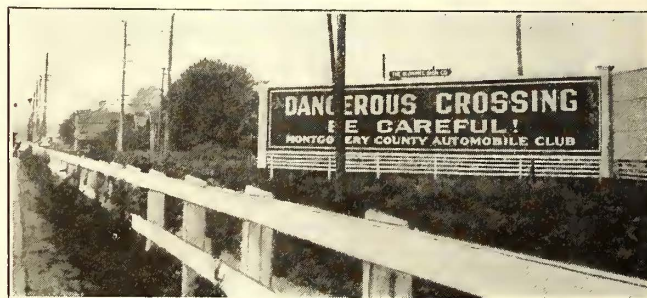
DISCUSSION BY MR. HEMMING

In his paper Mr. Hemming first pointed out some striking facts, as that only 7 per cent of economic human life is covered by insurance, whereas 82 per

cent of the combustible property in the country is covered by insurance, and that out of 942 electric railways in this country only 120 belong to the National Safety Council. He believes that all companies should join the council and that each city should have its local safety council.

Continuing, the paper declared that carelessness will thrive so long as it has food to feed on, and that the ever-increasing vehicular traffic constitutes an increasing source of danger. Inexperienced youthful drivers are to be found among the habitual accident breeders, but recklessness is also found in every community among the leading citizens, who assume that their social or political standing will release them from any fine or imprisonment.

Railway companies should burn the story of the need for carefulness into the hearts of the people in their respective communities. Safety must eventually become



ROAD SIGNS PRAISED BY MR. HEMMING

a part of the daily curriculum of the schools, and the railway companies should come forward in greater numbers in co-operating with the National Safety Council. Every electric railway sets up a yearly fund of at least 3 per cent of its gross receipts for accident claims, but how much is set up for accident prevention? Mr. Hemming asked.

The same arguments for safety are not effective with all people. Some have to be pushed, others pulled; some have to be thrashed into obedience and others appealed to.

Much can be done at railroad crossings, and the accompanying illustrations show commendable work done by the Montgomery County Automobile Club in Ohio. The signs placed at railroad stations are down low and within vision of the driver and within range of his headlights. There are also massive billboards reading "Dangerous Crossing, Be Careful." Electric railways should act jointly with steam railways in conspicuous billboard displays on the subject of safety. The bridges and viaducts where railroads pass over city streets or country roads afford good places where timely suggestions in life-sized objects, characteristic of location can

be shown. In this manner and in many others striking visualizations can be made.

DISCUSSION BY MR. DUFFY

The first way for co-operation pointed out by the speaker was an exchange of information between the superintendent of transportation and the claim department in regard to the details of an accident. Often damages are minimized by crews in making out their reports to the transportation department, and the superintendents are without knowledge as to the facts unless they are fully informed by the claim department as to the results of investigation. The transportation department, therefore, should see that all the necessary information is furnished on the report made by the trainmen, and the claim department after a careful investigation should furnish the transportation department with a statement where witnesses differ from the statements furnished by the trainmen. If there is a difference in facts the matter can be taken up with the trainmen, and this should accomplish good results.

On many properties the constant changing of employees during the war period had a marked effect on the number of accidents, and the larger number of accidents are usually caused by new men. After new employees have been placed on the extra list, they should be carefully watched by the instructor and other officials of the transportation department to see that they fully understand their duties and are careful in their handling of car and passengers. Instructions should never cease, and the necessity for care in the prevention of accidents should be brought to their attention as often as possible. This may be done by talking with the men or by printed bulletins.

Trainmen can best co-operate by freedom from accidents and, if one occurs, by supplying the fullest information as to how it happened and securing the names of the largest number of witnesses. The advent of heavy automobile traffic should only make the motorman more alert in operation of his car and take no chances.

Before these papers were discussed G. B. Muldam of the Underwriters Laboratory, Chicago and New York, explained the service of that organization, which was originally founded by the National Board of Fire Underwriters and is maintained by that board in connection now with the casualty insurance companies. The laboratories pass on the safety qualities of devices submitted to them, whether relating to fire protection or prevention of accidents. Information on these points is available to those interested.

A. H. Ford, formerly manager Cumberland County Power & Light Company, Portland, Maine, and now of the Ford Insurance Company, New York, then addressed the association, mentioning among other things that through an arrangement which he had made with the Underwriters it is now possible for a railway company to secure a policy which will protect it in case of accident where the damage to any one accident is in excess of \$25,000, exclusive of the damages to the company's own property or employees; in other words, insurance against catastrophe.

ACCIDENT BOARD AND HONOR LIST

The paper "Accident Board and Honor List" by Alves Dixon, superintendent El Paso Electric Railway, was then read in the absence of the author by R. E. McDougall. An abstract follows:

In this paper Mr. Dixon described a plan by which

the company each month posted the names of all trainmen who had no accident for which they were responsible during the previous month and also those who had had such an accident. The posting is done on a bulletin board about 14 ft. wide, 5 ft. high and 6 in. deep, inclosed by sliding glass doors. Each trainman has a separate record card 3 in. x 5 in. and this is hung on a card on one side of the board or the other, depending upon his accident record during the previous month. The card also carries a notation relating to the accident. The question of responsibility is determined at a joint daily meeting of the superintendent, superintendent of transportation, chief inspector and claim agent, but any request for reconsideration of their decision by the man affected is always granted.

Beginning last January, those trainmen whose names appeared for three successive months on the "No Accident" side of the bulletin board received one day off on full pay. This plan has since been followed each month. In addition every man on this honor roll can take a day off for each following month during which no accident is charged against him, but if he has an accident he must again work three months before getting a day off. Eleven months' experience with the plan indicated to the speaker that it was a desirable one.

In the discussion which followed one delegate suggested that the practice of posting the name of the employee responsible for an accident would furnish a good lead for the ambulance chaser, who might in this way get earlier information in regard to an accident than even the claim agent of the property himself.

After discussion, the association then passed a resolution recommending that the American Electric Railway Association become a member of the National Safety Council and that the Claims Association should appoint a committee to work in conjunction with a similar committee from the Transportation & Traffic Association in outlining the work to be done by the two associations in the National Safety Council.

Thursday's Session

The session on Thursday was devoted to a free-for-all discussion on a number of topics of interest to the claims department. The first topic considered was in regard to the increased cost of claims and some of the reasons contributing thereto. The evidence seemed to be that there has been an increase in the amount of settlements. The next question was on the prosecution of claims for damages to company property. The practice in this matter was found to vary, but in general the evidence was that, especially in the smaller cities, smaller claims were not prosecuted, but where the claim, as one representative expressed it, amounted to \$50 or \$75 or perhaps \$200 or \$300, the claim was prosecuted.

The next topic was how best to safeguard releases from attack. It developed that some companies took releases under seal, while others did not consider that necessary if the claimant thoroughly understood that the payment was for settlement in full and was satisfied and this fact could be proved in court, and the payment was considered legally "sufficient." There was some discussion also as to the relative advantage of payment by check and by cash. It developed that small sums were often paid in cash, but larger sums usually by check. The next subject was "the best method of keeping in touch with witnesses." One practice described was to procure the name of the nearest relative

as well as the occupation of the witness and by whom employed, then when the case is set for trial to get in touch with the witnesses by telephone or personally, notifying them that the case is likely to come up within the next two or three weeks.

The next topic considered was the value of secret service, and one delegate cited a case where a secret service operator had greatly assisted in securing the names of witnesses of an accident. The final subject was the handling of blind and fraudulent cases. In this connection one case was cited where a malingerer who asserted that he had been crippled from an accident was photographed by the company with a moving picture machine in the act of moving heavy potted plants. Later the pictures were shown in court. After several trials the original verdict was greatly reduced.

After a further discussion of the hazards introduced by inexperienced drivers of automobiles, the suggestion was made that at further meetings the association go on record as approving or disapproving the suggestions or policies under discussion, so that the members would know the general consensus of opinion reached by the delegates at the sessions.

OFFICERS FOR ENSUING YEAR

The nominating committee then presented the following nominations:

For president, John J. Reynolds, claim attorney Boston Elevated Railway.

First vice-president, C. G. Rice, manager Associated Bureaus, Pittsburgh Railways.

Second vice-president, Wallace Muir, claim agent Kentucky Traction & Terminal Company, Lexington, Ky.

Third vice-president, W. H. Hyland, claim agent Fonda, Johnstown & Gloversville Railway, Gloversville, N. Y.

Secretary and treasurer, J. S. Kubu, claim agent New York State Railways, Utica.

Executive committee, H. D. Briggs, assistant claim agent Public Service Railway, Newark, N. J.; E. L. Lindemuth, claim agent Wilkes-Barre Railway; C. B. Proctor, claim agent Memphis Street Railway; W. G. Fitzpatrick, general claim attorney Detroit United Railway.

On motion, Mr. Tichenor cast the ballot of the association for these officers.

After a vote of thanks to the president and other retiring officers, taken while the chair was occupied by Mr. Hyland, the association adjourned.

Grand Rapids Safeties Doing Well

More Frequent Service and a Seven-Cent Fare Are Expected to Improve the Financial Showing of Railway

BY OBSERVER

NINETEEN safety cars have been installed on two lines of the Grand Rapids (Mich.) Railway and had been in operation a little more than a month at the time of this writing. The first cars were placed in operation on June 1 and the entire number had been received and put in use by June 24.

The more important line on which the one-man cars were given their initial trial in Grand Rapids was the Cherry Street line. Coincident with the change in equipment a rerouting of lines was placed in effect, so that a definite comparison of the results obtained

is impossible. In general, however, it may be said that the Cherry Street line now has a six-minute service to replace the ten-minute headway with the old double-truck cars and in rush hours a five-minute service instead of eight-minute. The same schedule speed has been retained.

The Cherry line was selected for the first safety car installation because it serves a residential section, without any industrial plants or railroad crossings, and has the characteristic that there are few stops at which there are both boarding and alighting passengers in large numbers. The experience in Grand Rapids is that the waiting time at stops is a little excessive if both leaving and boarding passengers must be handled in any number at one stop, and this is the one thing about which the public has made unfavorable comment. The delay which comes from overcrowding is avoided by the use of "car full" signs. As soon as a car coming through Monroe Avenue, the main business thoroughfare, is well loaded, which means about fifty passengers, so that the movement of passengers in the car becomes slow, the operator displays his car-full sign and proceeds without stopping. This not only enables the safety cars to give good regular service but prevents delaying the cars of other lines, practically all of which operate over Monroe Avenue.

When the cars were first installed they were slow on account of the inexperience of the operators in their numerous duties, but after the first few days this sluggish operation had been pretty well overcome. This is the usual experience. The number of collisions with other vehicles also showed a noticeable increase at first, but this is improving as the men become more familiar with the speed and braking action of the light cars.

The most definite example of what the safety cars have done in Grand Rapids in the way of increased earnings and decreased expenses was afforded in the temporary installation on Butterworth Avenue before this line was through-routed with Shawmut. Here three safety cars displaced two double-truck cars and produced an increase in earnings of 14 per cent with a decrease in platform expense of 12 per cent, or a differential of over 20 per cent in favor of the one-man cars, omitting consideration of savings in power and maintenance.

HOW FARE INCREASE WAS HANDLED

The rate of fare was made 7 cents cash, with sixteen metal tickets for \$1, by action of the city commission on June 24. This, together with the increased riding due to improved service, is expected to overcome the deficit which prevailed under the 6-cent fare, with nineteen tickets for \$1, unless it becomes necessary to increase the payroll substantially at the expiration of the present contract with the trainmen. The present wage scale calls for a maximum of 51 cents an hour, with 9 cents additional for safety car operators.

When the rate of fare was changed the use of metal tokens was discontinued temporarily and paper tickets were used for the new ticket rate. After about a month, when practically all of the metal tokens were in, the paper tickets were discontinued and the same metal tokens again placed in circulation. By this means it was not necessary to junk the old tokens and substitute new metal tickets of different design. Of course, the paper tickets used in the interim could not be deposited in the registering fare boxes with which a large number of the old cars and all the safety cars are equipped.

Symposium on Automobile Hazards*

THE SUBJECT of automobile hazards to electric railway companies was introduced at the session of the Claim Agents on Oct. 12 by the paper presented by Mr. Stickle. In this paper the author presents figures of the extent of the injuries from this cause which, he says, should alarm even the most complacent management and care-free public. Much, however, can be done to reduce accidents from this cause and the remedies suggested are listed in his article.

The tremendous increase in automobiles and the recklessness of chauffeurs have created a serious menace to the safety of all other users of the streets. One whole session of the claim agents at Atlantic City was devoted to a consideration of ways by which accidents from this cause can be reduced

AT THE MEETING on Oct. 12 Mr. Stickle's paper on automobile hazards was followed by written discussions from L. H. Roche, general inspector Associated Bureaus, Pittsburgh Railways; W. G. Fitzpatrick, general claims attorney Detroit United Railway, and J. H. Handlon, claim agent United Railroads of San Francisco. Each of these authors gives his views on ways in which claim agents can help in this matter. Abstracts of these discussions are published.

The Automobile Hazard

By RALPH STICKLE

Assistant Superintendent Accident Department, Cleveland Railway

THE "automobile hazard" is today the greatest risk of the electric railway claim man, one of the most difficult problems of the transportation official, and the public's deadliest traffic menace. It affects not merely company schedules and treasury but the general public welfare.

Just what is the automobile hazard, and how may it be lessened by railway companies, autoists and public?

The auto is the most numerous, as well as the swiftest and most dangerous, vehicle on our highways. Commercially, born with the century, it has increased, with rabbit-like prolificness, from 3,700 in the United States in 1900 (Encyclopedia Americana) to 7,558,848 in 1919 (National Automobile Chamber of Commerce). The world total is 8,837,000. And the number is still increasing. If the entire country were as well supplied per capita as Iowa is, there would be twice as many in the United States as there are. Two million autos are building this year. The manufacturers say there will be one

During these eight years the percentage of auto accidents to the total number of accidents increased from 6.1 to 33.6; the percentage of cost to the total accident expenditure from 3.9 to 16.1 per cent. The increase in number of accidents in the 1911-1919 period was 600 per cent; the increase in cost 1,720 per cent.

This is all urban territory, but suburban and inter-urban districts show about the same condition. In one country division of the Public Service Railway of New Jersey the number of auto accidents increased 345 per cent between 1914 and 1919, and the cost increased 1,445 per cent. In another country division the number increased 452 per cent and the cost 741 per cent. Figures from various parts of the country will show a similar trend. They ought to alarm even the most complacent management and the most care-free public. For these growing accident lists are accompanied by growing death lists.

Here are a few more figures from our Cleveland experience. The company in 1919 had 6,972 passenger accidents while carrying 402,808,820 passengers. In the same period the 80,000 autos of Cleveland had 8,078 accidents with Cleveland street cars. There was one passenger accident for 57,760 passengers, one auto accident for ten autos. Or, to put it another way, 10 per cent of the autos had accidents with street cars. Or again, we had more than a thousand more accidents with autos in the year than we had with 400,000,000 passengers.

TABLE SHOWING TOTAL ACCIDENTS AND THOSE CAUSED BY AUTOMOBILES, CLEVELAND RAILWAY

Year	Total Accidents	Auto Accidents	Total Claims Paid	Auto Claims Paid
1911	18,948	1,150	\$224,694	\$8,846
1912	17,953	1,803	232,873	10,687
1913	19,596	2,258	308,634	26,133
1914	21,549	3,270	408,863	31,851
1915	20,018	3,987	361,422	35,195
1916	23,136	5,666	570,829	46,286
1917	26,607	8,242	739,815	*95,144
1918	22,884	7,085	791,072	110,611
1919	24,045	8,078	1,001,846	161,062

* Largest item in classification.

to every family in the country in five years. Admittedly, the auto is a problem in more ways than one. The street railway industry has also expanded—at least physically. In twenty years trackage has increased from 22,589 miles with 61,404 cars (Census Office, 1902) to 48,484 miles with 83,015 cars (World Almanac, 1920). Consequently, with the steady increase in the railway business, and the marvelous development of the automobile industry, the traffic problem between auto and trolley has become serious and yearly becomes more serious.

Some figures of the Cleveland Railway since 1911, when a separate classification for auto accidents was first made, may serve to illustrate the growing seriousness of this hazard. The data are tabulated above.

Such facts might be multiplied to show the increasing hazard of the auto. Its deadly work, aside from its trolley accidents, might be noted. For instance, the United States Census Bureau lists 6,021 deaths by auto in 1917 in twenty-seven states that kept records of auto casualties. The National Safety Council places the number in the country in 1919 at 11,000 and avers that autos are now causing half as many deaths as industrial accidents, and more than railroads and mines combined. It points out that deaths by auto are increasing in proportion as autos increase.

Claim men are familiar with these facts. They know what the automobile hazard is. What they want to know is what can be done about it?

Frankly, as claim agents they can do little; as publicists much; as advisers, in co-operation with safety men and transportation officials, much more.

Claim men realize the seriousness of the situation as

* Abstracts of papers presented at the annual convention of the American Electric Railway Claims Association, Atlantic City, N. J., Oct. 11-14, 1920.

no other class does, for they deal at first hand with the results of the evil. Transportation men know about it, but it isn't their biggest task. The public has been told about it but does not understand its magnitude.

It should be the business of claim men to try to make transportation men, autoists and the public realize—visualize—see the importance of this problem and solve it. It should be their business, either as safety men or in co-operation with safety men, to lead in solving it.

Little can be done to relieve the claim department in handling auto accidents except to prevent the accidents. The courts might change their attitude on some points, without discriminating in favor of "the rich corporation"—for example, on the doctrine of imputed negligence, or the lack of it. As the law is now interpreted in most of the states a passenger in an auto is responsible for nothing except the prosecution of his claim after he gets hurt. He should assume, or be legally held, to a little more responsibility. But such relief is unlikely soon to come.

There is one thing however, that might be done. The electric railways still are laboring under the incubus of a mass of laws, mostly city ordinances, passed in the last century, when trolleys were the swiftest and most dangerous vehicles on streets and roads. Today they are not the most numerous nor the most deadly users of the streets. That distinction belongs to the auto. These archaic laws, useful simply to furnish grounds on which to maintain damage actions, should be repealed, and laws should be enacted which recognize the auto as the greatest vehicular menace.

Cleveland was freed from eight or ten such antiquated ordinances last summer, thanks to the good sense of the City Council, acting under the advice of its street railway commissioner, Judge Fielder Sanders. One of the repealed ordinances required the motorman to ring his gong at least 100 ft. before reaching each street intersection, and to continue to ring it until he passed the intersection! But it was, and still is, perfectly legal for a pauper epileptic who has just broken out of an asylum and who never before held a steering wheel to take an eight-cylinder car through the densest traffic.

But the real solution is to prevent the accidents. And as reforms, like charity, should begin at home, we should work first on the problem of what may be done by the companies to decrease the number of auto accidents.

HOW THE EMPLOYEES AND AUTO DRIVERS MAY HELP

Employees never will get, or soon will lose, interest in any accident-prevention movement if the management is indifferent. The company which permits dangerous equipment to be used, or neglects to eliminate all possible hazards, will not get its employees to co-operate in safety work. Nor will the public believe in its sincerity.

What motorman will be influenced by a plea for more careful car operation when he knows the management will not help him by so much as removing a bush or trimming a tree that may obstruct his view at a grade crossing?

The Bureau of Safety of the Midwest Utilities Company recognizes this idea. Its first move in organizing for safety work is to attempt to put equipment, car shops, depots, substations and grade crossings in the safest possible condition. For instance, the bureau will take a stretch of track, chart each grade crossing, give figures showing the number and expense of accidents that have occurred there, state the reasons why it is dangerous, attach photographs to prove it dangerous,

make a recommendation as to changes, and offer an estimate of the cost. And the recommendations are usually followed.

In this connection there are many improvements, so called, on which operating and safety men do not agree—the near-side stop, warning signals at crossings, etc. But with a "dead man's crossing" in every community through which rails pass, there must be plenty of room for work of this kind on which we all can agree.

When the management has shown its sincerity, then is the time to begin on the employees. Inaugurate a systematic, continuous campaign among the platform men to get them in the right spirit, to make them realize that their personal good as well as the general good will be promoted by avoiding accidents. Point out to them the suffering that carelessness causes. Show them the material loss, and the fact that if they avoid this waste they will profit personally.

Also, operate on the public. Reports show that in large cities a considerable percentage of the auto accidents are with the autos of big employers—taxi, ice, milk and transfer companies, department stores, etc. Why not get in closer touch with such organizations? If a railway company were prepared to send a well-equipped speaker to address gatherings of taxi drivers and delivery men on the question of auto accidents, how to prevent them and what to do if they happen, the drivers' employers would be glad to furnish the audiences. And it would be constructive prevention work; it would help to prevent accidents and to prevent lawsuits if accidents happened.

CHANGES POSSIBLE IN THE LAWS

We should take more interest in the prosecution of persons who violate safety ordinances and laws. Laws are of little consequence unless enforced, and when the violation of a safety law is clear and the proof certain, we should get back of the prosecution.

But when it comes to reforms, it is human nature to think that most of the reforming should be done by the other fellow. We are not exceptions. We feel ourselves more sinned against than sinning. Every claim man believes, and every operating man is certain, that the vast majority of auto-trolley collisions is the fault of the autoist. Investigation by the National Safety Council of 18,000 such collisions places the blame wholly on the driver in 64.2 per cent of the cases, and wholly on the motorman in only 8.1 per cent of the cases. Even semi-hostile authorities agree with us. Of sixteen auto club secretaries, fourteen thought autoists more careless than motormen. Two thought the fault was fifty-fifty.

Without exception, auto clubs, civic bodies and traffic officials are convinced there should be decided changes in auto and traffic laws, and more stringent enforcement of the laws.

Traffic laws in state and nation should be uniform. The obligations and rights of the driver and the pedestrian should be defined clearly, and should be general in application. As it is, a city's regulations frequently are different from those in its suburbs, and a traffic virtue in one county may be a misdemeanor in the next. Who can tell whether it is permissible in the next town to pass a street car on the left side, turn in the middle of the block, or run by a standing trolley?

The electric railway section of the National Safety Council, recognizing the safety feature of uniform traffic laws, is working with auto clubs and police departments on this, and something may be accomplished.

Two years ago our Transportation & Traffic Association named a committee to work on this subject, and a model traffic ordinance has been drafted. One feature of this model ordinance that would be particularly helpful in preventing auto-trolley mishaps and in protecting the companies from unjust claims is the creation of "main thoroughfares." In many of our cities ordinances give traffic in certain streets the right of way. But these ordinances generally mean little or nothing, being neither enforced as traffic regulations nor of benefit as a defence in damage actions. The practical effect of the establishment of "main thoroughfares," which, of course, would include street car streets, would be to compel the drivers of autos or other vehicles crossing or entering these favored streets to "stop, look and listen."

It is surprising but true that few cities have done anything to limit the weight, size or width of trucks. Yet in addition to destroying pavements and roadbeds and congesting traffic, cumbersome, over-wide trucks are responsible for many accidents. No one questions the wisdom of curbing the truck builders, but how little has been done to curb them.

A model traffic ordinance necessarily includes parking regulations, the lack of which is a fruitful source of auto-trolley accidents, and a great slower of schedules. It affects the general public more adversely than it does the railway company, yet little has been done, except possibly in New York City, to correct the evil. There is popular sentiment in the larger cities in favor of more stringent parking regulations, including a no-parking rule on "main thoroughfares." Of course the companies should do what they can to get back of such sentiment.

It is axiomatic that autos and street cars cannot collide if they do not meet. They could be kept out of each other's society to a considerable extent by a separation of traffic. Why do we not boost the idea of "street car streets" and "auto boulevards?" It is coming. And it will lessen materially the automobile hazard in urban territory. The auto clubs favor it, and it will be an accomplished fact as soon as the public is shown that the expense will be small compared with the benefits from fewer accidents and improved traffic conditions.

Will you permit another reference to Cleveland to illustrate? A double-deck bridge across the Cuyahoga River and connecting with an auto boulevard was opened about Jan. 1, 1918, relieving auto traffic on parts of five "street car streets." In the railway division which includes these five streets our auto accidents decreased from 3,903 in 1917 to 2,710 in 1918 and 2,704 in 1919. On every other division there was an increase.

The public demands that motormen be trained to avoid accidents. There is another class that should be trained similarly--the traffic police. Only trained officers are permitted to search pawnshops for stolen goods, but it still seems to be *au fait* for police with no training to take a turn handling traffic—at least, in some cities. We have not fully awakened to the necessity for larger and better-trained traffic forces.

State and county could help to avoid accidents at grade crossings by placing warning signs at a fixed distance from crossings. These should be distinctive and uniform, and their usefulness should not be impaired by permitting advertising "warnings" in the vicinity. This brings us to the most important and radical reform of all, a real driver's licensing law. Small wonder Europe knows us as "careless America" when we show an absolute disregard for and indifference to the very

essentials of safety. To permit any one who wishes to do so to drive an auto is such disregard. Except in a few states, any one may drive, or attempt to drive, an auto who can get the auto. True, in some states he must have attained a certain age and be sober, to a degree, but physical or mental fitness and knowledge of driving are of no consequence.

Licensing laws have been enacted in New Jersey, Massachusetts, Connecticut, New Hampshire, Maryland, Pennsylvania, Rhode Island and possibly one or two other states. Reports from safety officials in these states indicate that the effect has been good, although there is a feeling that the revocation and suspension features of the acts have not been invoked sufficiently. But this is a detail depending for its enforcement upon public opinion. It should be reasonably easy to get a driver's license in the first instance, and reasonably difficult to keep it. Probably every man in this room knows drivers he is convinced are unfit to drive. Every one cannot be a driver, any more than every one can be a Napoleon or a Babe Ruth.

Immature, intoxicated, feeble and mentally deficient persons should not drive, not to mention those who do not know how to drive. Where they have received licenses, prompt suspension or revocation should follow when their failing has been demonstrated. Police, insurance and railway company records in every city will show certain drivers who have had repeated accidents. Usually this is not chance. It is evidence of unfitness to drive.

Restrictions should be particularly severe on professional drivers, chauffeurs and truck drivers, who too often are temperamentally unfit and financially irresponsible.

CONCLUSIONS STATED

To recapitulate: The following ideas would tend to lessen the automobile hazard:

1. Repeal of antiquated anti-trolley legislation.
2. Improvement of the physical property.
3. Systematic continuous safety work among employees.
4. Propaganda directed toward the education of the public.
5. Uniform traffic laws in state and nation for:
 - (a) Creation of main thoroughfares.
 - (b) Proper parking regulations.
 - (c) Separation of traffic by creating or establishing "street car streets" and "auto boulevards."
 - (d) Uniform warning signals at grade crossings.
 - (e) More and better trained traffic police.
 - (f) Limitation of size and width of trucks.
6. Prosecution of safety law violators.

Individually and as an organization we should be working on these problems. As an organization we should try to arrive at some united understanding of what is wrong, and what we want, and then as a unit strive for it. It is not a subject in which we alone are interested. Every thinking person and every wide-awake public or semi-public body is seeking information on this subject and making suggestions. We should be alert to the opportunity to make our influence felt, to get what we want and need. There is scant sympathy for the man or organization that takes no interest in the discussion of proposed legislation and then objects to it when enacted.

But, after all, laws enacted or repealed, and traffic rules changed or perfected, will not eliminate the auto hazard. Accidents do not happen; they are caused. The

careless person will continue to have them; the careful person will avoid them, laws or no laws.

The personal element is the vital factor. Most accidents are the result of human failing, not of mechanical defects. The auto or the street car itself rarely causes the trouble. The motorman says, "The brakes would not work." The difficulty was he did not work the brakes. Carelessness or ignorance, and who can say where is the line of demarcation between the two, is the predominant cause of accident. Great progress has been made in the war against accidents, but much remains to be done.

Let us do more than work for the enactment or repeal of laws or the correction of mechanical defects. Let us support and promote intelligent, continuous effort to make America careful. The task will be accomplished when once the public awakens to a realization of the suffering and waste that come from carelessness.

Discussion on the Automobile Hazard

BY JAMES L. ROCHE

Chief of Inspection Bureau, Associated Bureaus
Pittsburgh Railways

Education of Motormen and Chauffeurs Will Help, but Stricter Laws Are Also Necessary—The Pennsylvania Law on Responsibility of Passengers in Automobiles for Their Own Safety Is Cited

THIS paper is presented on the presumption that we are agreed that the motor vehicle hazard is our greatest one and that we are all doing our utmost to prevent this particular kind of accident as far as the education of our own men is concerned. If that be true, then the burden is entirely upon the motor vehicle driver and owner and the discussion is continued with that viewpoint. Regardless of the careless acts of the motor vehicle driver—in fact, because of them—we must redouble our efforts with our own men. Everything possible for their safety education should be done, making clear to all men—especially the new men—the great danger of automobile accidents. A safety organization is almost indispensable to the present-day traction company.

There are today approximately 7,500,000 motor vehicles in the United States and if the calculations of the motor manufacturers are correct there will be 12,000,000 motor vehicles in this country in 1923. The amount of capital invested in the automobile industry has been estimated at \$1,297,000,000, and the industry has become the third greatest in the country. Along with the phenomenal growth, new and heavier types of machines were introduced until they rival the locomotive in speed, and with the continued increase in the number of machines and the improvements in speed and endurance, together with the increased size, came the greater number of accidents. These have increased to such an extent that the automobile hazard has become our greatest one and it is well that we take serious consideration of the situation and endeavor to do our share to cut down the number of these motor vehicle accidents. The motor vehicle has continued to expand beyond all human expectation. Self-starting devices and other improvements have made it possible for any one to operate it over the age of fifteen. But the sense of obligation to exercise a degree of care commensurate with the increased risk has not developed, and we have reached the stage where rights and privileges have run wild, with nothing much more to curb them than the individual's sense of responsibility.

Owners and employers are beginning to recognize the folly of placing a poorly trained or incompetent man in charge of the commercial vehicle. In the larger cities of the country successful schools have been held for the education of chauffeurs. These schools have been conducted in Pittsburgh, St. Louis, Detroit, Rochester, Milwaukee, etc. They have been attended by from 200 to 800 drivers and a regular course of lectures has been delivered. Bonuses have been given by employers to drivers who attended the entire course and no doubt great good has been accomplished by the National Safety Council, which conducted these schools. In Minneapolis, within the past two months, a successful school graduated sixty drivers. At all of the meetings there were in attendance from 200 to 300. It is suggested that in the territories not covered by the National Safety Council the local claim departments conduct such schools. Full information as to the proper manner and the subjects covered can be readily secured from the headquarters of the National Safety Council at Chicago.

Education will play an important part in the prevention of accidents arising out of the use of motor vehicles. A proper understanding of the hazards of the road, of the rules and regulations for the government of the machine and a decent regard for the rights and safety of fellow travelers will prevent accidents. It would seem as though the automobile manufacturer and the sales agency should take an active interest in this particular matter of education. The time is fast coming when the manufacturers will be caught up with their orders, and they will be forcing the sale of their machines. Why not sell the safety idea with the machine and spend some time with the new owner, teaching him the laws and rules of the road, and above all, impressing upon him the way accidents happen and how to prevent them.

For the habitually careless we must depend upon the laws that are made to control him. The ones with which I am familiar are either not severe enough or are not enforced as they should be, in my opinion. A locomotive engineer must spend years of apprenticeship and pass strict examinations before he assumes command of his engine; a motorman is taught the mechanism of his car and spends a considerable time with an instructor before he is permitted to operate his street car; even the man in charge of a stationary engine or boiler is subject to governmental supervision, yet any one not badly crippled, who has the money, can purchase an automobile and with the least amount of instruction take his place with thousands of others on our streets and roads and attempt to operate this dangerous vehicle. I believe that strict laws must be enacted to govern those who may be permitted to drive a motor vehicle and that they must be enforced by conscientious safety officials.

The automobile hazard has become so great that the courts are beginning to recognize it, as is indicated in the following summary of the legal standing of the motor vehicle by Mr. Chief Justice Cullen of the Supreme Court of New York State:

That the motor vehicle on account of its size and weight, of its great power and of the great speed which it is capable of attaining, creates, unless managed by careful and competent operators, a most serious danger to other travelers on the highways and to occupants of the vehicles themselves, is too clearly a matter of common knowledge to justify discussion. The fatalities caused by them are so numerous as to permit the Legislature, if it deemed wise, wholly to forbid their use.

We find in our territory that owners are either ignorant of the law governing licenses or care not

whether they violate it. Licenses are issued, of course, for one particular machine and no other. Exchanges of license plates from one machine to another are not infrequent. A man may buy a second hand machine and retain the plates of the former owner; dealers sometimes allow a machine under their dealers' license to be used for hacking or other purposes and a man may purchase a new machine and use thereon his old license plates. We subscribe to the published lists of motor vehicle owners, which gives the license number, name of the owner, name and description of the machine and manufacturer's number and in all of our accident cases compare the license number and manufacturer's number with the official list. In case the machine is being operated under a wrong license number under our law it is a trespasser upon the highway and the legal right of the owner to recover damages is at least under question. We are furnished also with a list of drivers and their license numbers as issued and are prepared to check their number or to learn whether they have a license to drive a motor vehicle.

The Public Safety Section of the National Safety Council is making a special study of the automobile hazard. I believe that it needs our help and that we need its and that some effort should be made to cooperate with it. It is definitely committed to the solution of the problem and is now beginning a thorough-going campaign of education through organized community effort, publicity, chauffeurs' schools, public schools and special bulletins. The seriousness of the problem is revealed in the following four striking facts:

1. There were approximately one-half as many people killed by automobiles in 1919 as in all the industries, mines and railroads in the United States.

2. Deaths from automobiles are increasing each month with the increase of the number of automobiles.

3. While in the United States not more than one-fourth of the people are exposed to industrial hazards, practically every person, the moment he leaves his doorstep, is exposed to the automobile hazard on the streets.

4. While in the industries, through organized safety, the hazards are coming under control and accidental deaths are being reduced, the fatalities from automobile accidents are mounting by leaps and bounds and we have barely made a start toward the solution of this new problem.

Recently in the city of Washington, D. C., the Public Safety Department made motion pictures of the proper ways to turn at street intersections, showing them at the different motion picture theaters; the city of St. Louis sent a representative to visit the other large cities of the country to study traffic problems and conditions and their solution, in an effort to cut down the accidents on their streets; the city of Pittsburgh is about to organize a traffic court to handle traffic violators only; at the recent first meeting of the national committee on highways and highway transportation plans for a nationwide publicity campaign through the newspapers and motion picture theaters were considered to teach traffic regulations and the dangers of the streets, and a committee was organized by P. P. Claxton, United States Commissioner of Education, on the advice of President Wilson for investigating the advisability of teaching traffic regulations in the public schools. Efforts of a similar character are being made throughout the country, all tending to the education of the public, that the number of street accidents might be reduced. The State

of Pennsylvania has already established by law the study of safety first methods in the public schools.

Surely we are all agreed that no person should be permitted to operate a motor vehicle without a license and that he should be required to pass a strict examination as to his fitness not only mentally and physically to handle a motor vehicle, but also as to his knowledge of the mechanism of his machine.

In suburban territory where the highway crosses our interurban tracks it should be a requirement that the driver of a motor vehicle stop, look and listen in the same way that some states require the driver to act when approaching railroad tracks. On our city streets it should be a misdemeanor for a motor vehicle to pass a street car on the left on double track streets.

The law should clearly state that where there is a good roadway beside the street car tracks no motor vehicle should occupy the tracks, and make it a misdemeanor for a driver to pull across the tracks directly ahead of the street car. A speed limit of 15 m.p.h. or less should be maintained within the limits of every city and village in the country. These provisions in addition to the present automobile laws will not be made unless we lend our influence toward this end.

I believe that the association could well appoint a committee for the purpose of making a canvass of all the traction companies in the country to learn the increase in automobile accidents and just what is being done in each locality to prevent such accidents, so that we may get ideas from all over the United States and to secure copies of the automobile laws from each state and make up a model automobile law. This latter would be for the purpose of co-operating with the National Safety Council in securing the passage of such a law in as many states as possible.

One particular menace that we have to contend with in the streets of our territory is the savage mail truck. It has become so notorious in the way of running into street cars and running down men, women and children that the newspapers have taken a decided stand in their editorial columns toward abating the nuisance, and the Public Safety Department gave official warning to the Post Office Department within the last month that it would from then on wage a vigorous warfare against its careless drivers. Young and inexperienced drivers seem to be the cause apparent from the outside and it may be that they have careless supervision, and there is no way of collecting a cent for the damage they do. If this evil is as great in other localities, the association may deem it proper to officially call it to the attention of the Government authorities.

Mr. Stickle mentions the matter of the doctrine of imputed negligence and regrets the fact that in Ohio the passenger of the motor vehicle is responsible for nothing except the prosecution of his claim after he gets hurt. I am glad to report that in Pennsylvania we have a decision of the Supreme Court of the State in *Dunlap vs. Philadelphia Rapid Transit Company* at No. 4,762, Dec. Term, 1912, Common Pleas Court of Phila. County, filed June 5, 1914, in which plaintiff was a passenger in the automobile which was in collision with a street car. It was held that the driver was guilty of contributory negligence, but the same was not imputed to the passenger, yet the passenger was also guilty of negligence in saying or doing nothing when the operator of the automobile approached the crossing without proper precautions. A verdict for plaintiff was reversed and entered for the defendant.

We have done in Pennsylvania just what Mr. Stickle suggests in the doing away with the antiquated city and village ordinances. The Pennsylvania automobile law supersedes and repeals all city and borough ordinances pertaining to the motor vehicle and is the only law governing them inside and out of the city and borough limits.

Before the birth of the chauffeurs' school we had in Pittsburgh attempted something of the kind. The experience may be worth relating to member companies where chauffeurs' schools cannot be regularly conducted. We arranged meetings with the chauffeurs of the different department stores, ice companies, taxicab companies, reduction company, milk companies, etc., and gave them safety talks. I happened to be the one chosen for the work and it lasted all of one season. I spoke before from 40 to 300 chauffeurs and drivers at each meeting and felt from the beginning that some good was being accomplished. The employer we found, in every instance, only too willing to co-operate.

To summarize, I believe that we have the following methods to help combat this growing hazard of the motor vehicle:

1. Maintain persistent and consistent safety efforts with our own men.

2. Encourage and assist in the formation of chauffeurs' schools or conduct lectures among chauffeurs and drivers whenever and wherever they can be drawn together.

3. Watch the enactment of state laws and through state organizations or individual companies assert ourselves with a view of getting into the laws favorable articles, particularly:

(a) Stricter provisions as to granting licenses to drivers.

(b) Lowering the speed limit in cities and villages.

(c) Providing for drivers to stop, look and listen at suburban crossings.

(d) Providing that drivers in city streets cannot turn against the current of traffic in two-way streets.

(e) Providing that motor vehicles cannot occupy the street car tracks, and making it a misdemeanor to cross directly ahead of a street car.

4. Co-operate with the National Safety Council in efforts to reduce motor vehicle accidents.

5. Appoint a committee to make a survey as suggested above.

Discussion on the Automobile Hazard

BY JOSEPH H. HANDLON

Claim Agent United Railroads of San Francisco

Forty-seven per Cent of All Accidents Involving the Cars of the Author's Company Were in 1919 Automobile Accidents—An Outline of What Can Be Done

AT A RECENT safety-first gathering, the principal speaker, a man of national reputation in accident prevention work, made these remarks:

The automobile is the most deadly weapon known to mankind. I think it can be safely stated that automobile fatalities are now happening at the rate of 15,000 a year—forty-one every twenty-four hours—an average of one every thirty-five minutes.

The economic loss to a community caused by automobile fatalities is well illustrated by the careful estimate that the earning capacity of the 599 persons killed by automobiles in the city of St. Louis alone in the last thirteen years would have been more than \$12,000,000.

It is to be noted that no reference was made to the thousands of persons who are injured by automobile

accidents yearly, and what that means to a community, or the millions of dollars' worth of property destroyed annually in such accidents due to somebody's carelessness.

Recently I wrote to the coroners of twenty principal cities of the United States seeking information as to the number of persons killed directly or indirectly from automobile accidents each year during the past five years in their respective cities. Seven of these coroners have so far not replied, but in the remaining thirteen cities there was a total increase in automobile fatalities during the year 1916 as compared with the year 1915 of 23 per cent; an increase in 1917 over the preceding year of 84 per cent; in the year 1918 of 21 per cent; and in the year 1919 of 24 per cent; showing a steady growth in the number of such accidents. The year 1919 compared with the year 1915 reveals about 200 per cent more fatalities from automobile accidents.

To what extent are the electric railway companies suffering from these appalling conditions?

In 1910 but 6 per cent of all accidents involving the cars of the United Railroads of San Francisco were automobile accidents, in the year 1911 but 9 per cent, in 1912 but 12 per cent; in 1913 the percentage had increased to 15, in 1914 it was 17, in 1915 it was 32 (due mainly to the advent of the jitney), in 1916 it was 34 per cent, in 1917 it was 32 per cent (when jitneys commenced to diminish in number), in 1918 it rose to 43 per cent, and in 1919 to 47 per cent; so that today approximately one-half of the total accidents in which the above company is concerned are automobile accidents.

It may be asserted that there was a corresponding decrease in horse-drawn vehicle accidents. Such is not the case. During the year 1910 only 27 per cent of all accidents were horse-drawn vehicle accidents and in 1919 the company's records show all such accidents were 5 per cent of its total number, making a decrease of but 22 per cent.

Statistics just received from seventeen street railway companies operating in large cities disclose some impressive figures. During the years 1915 to 1919 inclusive the total number of automobile accidents in which these companies were concerned was as follows:

Year	Number of Automobile Accidents	Increase Over Preceding Year	Percentage of Increase Over Preceding Year
1915	32,912		
1916	46,109	13,197	40
1917	61,017	14,908	32
1918	64,771	3,754	6
1919	76,420	11,649	18

The increase in the number of automobile accidents involving the above companies for the year 1919 as compared with the year 1915 was 132 per cent.

WHAT DOES THE FUTURE OFFER?

What does the future offer in the matter of eliminating this alarming condition of affairs?

In a recent magazine article a well-known writer on economics who is qualified to make an intelligent survey of the automobile industry stated that it is easily the third industry of the day, ranking next to steel and cotton, and perhaps, by the census of 1920, over-reaching both of these. It is conservatively estimated that this nation could buy and continuously operate 12,000,000 automobiles without reaching what might be called the point of saturation.

With an automobile to every six persons in the state of Iowa and the young men of today placing their sav-

ings of \$500 as first payment on an auto instead of in a home or a farm, some impression is obtained of the conditions with which the companies will have to battle in the future.

CAUSES OF ACCIDENTS

What are the causes of automobile accidents that directly concern the drivers of automobiles?

Here are some of them: Reckless driving; speeding; violation of traffic rules due to ignorance, a careless disregard of the law or a craving for excitement; inexperience; incompetence of chauffeurs arising from deformed or amputated limbs or defective eyesight, hearing, epilepsy or heart trouble or due to the fact that they have not reached years of discretion, or possibly they are in their dotage, or again they may be mentally inactive or ill balanced; irresponsibility, since some of them do not have a proper regard of their obligations to their fellow traveler, whether he be a driver or a pedestrian, or in their anxiety to "beat the other fellow" they will take an unnecessary risk, and again there are others who are irresponsible because they assume a carefree attitude arising from the fact that they carry liability insurance.

So far as the automobile itself is concerned we find that many accidents are due to faulty construction or defective brakes, lack of the use of mirrors or satisfactory headlights or tail-lights at night and absence of non-skid equipment in wet weather.

Again, automobile accidents arise from the lack of uniform traffic rules governing the operation of automobiles in all states of the Union; also there is no uniform method of placing warning signs at danger points or grade crossings; no standard type of warning signs; no specific signaling device at crowded street intersections; no uniform method of signaling by one driver of a vehicle to another; no standard rules requiring automobiles to surrender the right-of-way to vehicles operated on rails or automobiles proceeding toward the same intersecting point, and the additional fact that our streets were never designed to meet the congested traffic conditions the automobile has created.

WHAT CAN BE DONE?

What can we street railway claim agents do toward eliminating automobile accidents, especially where our individual companies are concerned?

I would suggest that by means of lectures or personal instruction all trainmen be shown numerous types of automobile accidents and taught how to avoid them. Sketches, lantern slides or motion pictures can be well utilized for that purpose. A map can be maintained at each carhouse upon which there could be placed colored pins indicating the location of automobile accidents as well as other accidents that occur from time to time, so that trainmen could familiarize themselves with the danger points on the routes over which they operate their cars. The co-operation of trainmen should also be sought in having them report all traffic violations so that the police can be notified.

Efforts could be made to prevail upon the local authorities to compel all drivers of vehicles to pass a physical examination; to place age limits between which ages a person must be, else he will not be allowed to operate an automobile; to require applicants for chauffeurs' licenses to furnish satisfactory proof of their ability to operate an automobile before being given a license; to compel each chauffeur to carry a card with his photograph attached showing that he has

passed a satisfactory examination before being allowed to drive a machine, on the reverse side of which should be recorded all arrests for traffic violations; to have the traffic officers maintain a card index system of traffic offenders so that the police magistrate will have a record of any violation of a local traffic law previously committed by an offender; to induce police judges not to fine the continual offender, but either to commit him to jail or to impound the vehicle so that neither he nor his family can use the machine for a specified period, all storage charges meanwhile to be paid by the convicted person; to enlist the co-operation of the local automobile association in eradicating from their ranks the traffic-law breaker; and to impress upon taxicab companies, motor drayage and delivery companies and other large users of motor vehicles the company's desire to enlist their aid in the work of accident prevention. Warning signs can be placed to advantage in garages, especially those illustrating different types of accidents and their causes.

MODEL TRAFFIC ORDINANCE

In the matter of state laws governing motor vehicle traffic, the officials of the International Traffic Officers' Association which recently convened in San Francisco had hoped to formulate a universal traffic law which would apply throughout the United States and Canada, but the limited time at their disposal prevented them from accomplishing all they desired. The subject was referred to a committee, which will meet during the winter in Cleveland, Ohio. The chairman of the committee, W. H. Maltbie of the United Railways & Electric Company of Baltimore, who is a member of a committee appointed for a similar purpose by the American Electric Railway Association, submitted a proposed model traffic ordinance which is being used as a basis for drafting an ordinance that will have the approval of the International Traffic Officers' Association.

It was very evident to a person attending the convention that further co-operation will have to be sought from such organizations as the American Bar Association, the National Safety Council, the American Automobile Association, the Automobile Manufacturers' Association and similar bodies before a code of traffic laws that will apply everywhere so as to meet with universal approval will be adopted by all of the state legislatures.

For the present it may be possible to secure the passage of a statute that will compel owners of automobiles to file with each secretary of state or with the State Motor Vehicle Department duplicate insurance policies which will indemnify each occupant of the automobile up to \$5,000, in event of accident, or require automobile owners to file a bond or establish proof that they are financially responsible; further requirements should be the filing of an additional insurance policy or bond for \$5,000 to indemnify a person injured who was not a passenger of the automobile.

In advocating such a measure let me suggest that claim agents realize perhaps more than any other class that very often the bread-winner of the family is injured, perhaps permanently and sometimes fatally, and the burden of supporting his dependents usually falls upon the community when the person found responsible for the injury is financially unable to meet the judgment imposed upon him.

Responsible liability insurance companies, under those circumstances, as an economic necessity, would refuse insurance to those known to be careless, reckless or in-

competent, and the companies that assumed such a risk would charge so high a premium that careless or negligent automobile owners, in their efforts to qualify in the "preferred risk" class, would drive more prudently.

Another proposed statute deserving of much consideration would be one imputing the negligence of the driver to the occupants of the automobile so as to eliminate the common occurrence where the passengers in the automobile recover for an injury solely due to the driver's negligence.

The problem of accident prevention so far as automobiles are concerned is now becoming more and more important in the public eye and we as accident specialists should deem it our duty to take an active part in this work of further educating the public to the seriousness of the problem now so acute. Further, we should endeavor in every way to devise and urge the adoption of various methods of minimizing this evil which is of such recent origin and yet so dangerous to the body politic.

Discussion on the Automobile Hazard

BY WILLIAM G. FITZPATRICK

General Claim Attorney Detroit United Railway

Among the Topics Considered by the Author Are Accident Maps, Recent Court Rulings and Settlements With Insurance Companies

AN ANALYSIS of the reports of the various cities of the country discloses a tremendous increase in vehicular accidents as the growth of the automobile industry has increased by leaps and bounds. This condition has been found in the city of Detroit. For the year 1919 the number of reported automobile accident cases on the city lines was 11,564, which shows a large increase over the previous years, and for the first six months of 1920 the total number of reported cases in the city was 7,764, which would be at the rate of more than 15,000 a year.

In some respects the situation in Detroit in regard to the motor hazard is peculiar. Detroit is the center of the industry, and the increase of automobile ownership in the last few years has been very great. There have been but few additions to the railway permitted by the city authorities, and the rapidly increasing population of the city must be accommodated on practically the same lines as have existed for a number of years. A great many automobile factories being located in Detroit, a very large number of testers and demonstrators help to swell the automobile traffic. The street railway lines of the city all converge in the center of the business district. Many of the lines are constructed upon very narrow streets, which of course increases the hazard. Before the company was permitted to reroute one of its lines which crossed Woodward Avenue, so as to avoid this crossing, the corner of Michigan and Woodward Avenues in the city of Detroit was the most congested corner for traffic in the world.

I heartily agree with the suggestions for lessening this hazard outlined in Mr. Stickle's paper. The suggestion as to improvement of physical property, of course, is very much to be desired and is perfectly feasible for each company. Suggestion No. 3 as to "systematic continuous safety work among employees" is extremely important and I had assumed it was being carried out by most of the larger companies.

Suggestion No. 4, recommending propaganda work, is being carried out in Detroit, and the company has devoted weeks to this purpose. About a year ago I had prepared a blue-print map, about 5 ft. x 7 ft., of the lines of the urban system, showing all intersecting streets and congested areas. On this map were put red-top pins, indicating the locality of every motor vehicle accident as shown by the crews' reports from day to day for a full month. At the end of the month, two additional maps were "pinned up." One went to the general manager's office, another to the general superintendent's office for use in the crew instruction section, and the other found a place either in the lobby of one of the larger automobile clubs or in the traffic squad room of the police department. The maps were also exhibited in the windows of the interurban station. The maps were repeated about every third month. I am told by our operating department that effective use was made of these maps with the crews, especially the new men who were breaking in, and the data indicated were used with good results by the police department in its "safety first" and "safe driving" campaigns. As a graphic chart of conditions, the red pins on the blue and white background makes more than a passing impression.

RIGHT OF WAY AT RIGHT-ANGLE CROSSINGS

Subdivision 5 for uniform traffic laws in state and nation is of course "a consummation devoutly to be wished," but experience in other lines teaches that this is a slow and uncertain process.

It does seem to me, however, that we can adopt a policy with reference to automobile accidents which will eventually greatly reduce the hazard and more thoroughly educate the drivers of automobiles in a practical way than any theoretical instructions. This is in regard to right-angle crossings where a large proportion of automobile accidents occur. Some jurisdictions have recognized the justice of giving the street cars right of way on all street car streets. An ordinance of New Orleans gives the right of way "along such tracks," and the traffic laws of New Jersey provide that "street cars shall have the right of way between . . . cross streets over all other vehicles." The Detroit United Railway has adopted as a policy on its lines absolutely to refuse to settle claims growing out of right-angle crossing accidents unless the facts are overwhelmingly against the company. In refusing to consider appeals for compromise in these right-angle cases, the company has the backing of a recent decision of the Michigan Supreme Court on the subject (*Colborne vs. Railway*, 177 Mich., 139), where the court lays it down as the duty of the automobile driver "before passing into the line of danger from his place of safety where he had ample opportunity to observe without obstruction . . . to assure and reassure himself that there is not a car directly upon him, of which situation the fact that he is struck is conclusive proof. . . . He should have made sure of the safety of proceeding by looking just before entering upon the track and at such a point that he could stop his machine if necessary in order to avoid a collision."

The court in this case, recognizing the "automobile hazard," insists that the rule of conduct with respect to crossings by pedestrians should be as strictly applied to automobiles, and that the reasons for such application are more impelling, as the careless pedestrian as a rule perils only his own safety. Continuing, the opinion

says: "In the light of common knowledge courts can well take judicial notice of the automobile not only as a most useful and pleasing means of swiftly transporting persons and property for pleasure or business when properly controlled and cautiously driven, but as a vehicle in its possibilities so destructive when in the hands of careless and reckless drivers as to spread over the land the maimed and dead until it has belittled the cruelties of the car of the Juggernaut."

When drivers of automobiles become convinced that they cannot carelessly and recklessly cross street car tracks and expect in case of an accident to secure a speedy settlement, they will learn to exercise that degree of care which will avoid the great majority of collisions. There is in my opinion absolutely no excuse for a collision between street cars and automobiles at right-angle crossings. It is not like two automobiles meeting at an intersection where one might not reasonably expect the other. In case of street cars, the tracks are there, and known to be there, and a street car may be expected coming in either direction at any moment, and it should be the duty of the casual vehicle approaching those tracks to take every precaution for safety. I find from my experience in this regard that while the number of accidents may not have been decreased, the number of claims in such cases has.

Another suggestion which I desire to impress upon this body is that more care should be taken in the settlement of cases with insurance companies. Many insurance companies have a policy of making a liberal settlement with claimants, then go to the railway companies hoping to get all, or as large a proportion as possible, from them of the money expended by them. I have therefore adopted the policy of inquiring first whether a claim has been adjusted by the insurance companies before application is made for the payment of the claim by my company, and I am in every way discouraging settlements in these cases. If the insurance companies are put to the trouble of fighting these claims through their assignments, they will be much more careful in their adjustments. While I realize the wisdom of quick settlement of claims where there is a chance of liability, yet I am strongly of the opinion that a united policy of resisting these extravagant claims, which have already been paid by insurance companies, will result in good in the long run.

In regard to one suggestion made by Mr. Stickle, namely, the effort to get the courts to be more liberal in their interpretation of the law as to imputed negligence, I am thankful to say that the Supreme Court of the State of Michigan has so far held to the doctrine that the negligence of the driver is imputable to any volunteer passenger over the age of twenty-one, and quite recently the court has intimated that the negligence of the driver might be imputed to his volunteer passenger, a married woman under the age of twenty-one (vide *Granger vs. Farrant*, 179 Mich., 19, 20, 34).

Equipment Records on the Erie

IN AN ACCOUNT of the electrification of the thirty-seven-mile branch of the Erie Railroad, in the Genesee Valley, south of Rochester, N. Y., published in the Oct. 9 issue of *Railway Review*, Q. W. Hershey gives some figures for the records of this equipment which are of interest.

Inspection of motor equipment is made every 800 miles, as cars normally come to the inspection house.

The cars are operated in regular rotation to obtain a car about every three days. Repairs are ordinarily occasioned on account of burnouts from lightning or overloading, but are very infrequent. The commutators are averaging about 75,000 to 90,000 miles between turnings; gears around 300,000 miles; pinions around 150,000 miles; brushes around 10,000 miles; pantagraph shoes make about 10,000 miles between changes. The change required consists of replacing a plain $\frac{1}{2}$ -in. galvanized steel shoe without wearing strips. These have a cost at present of about \$2.50 each. The pantagraphs are lubricated with "used" gear grease about every 800 miles when the cars come into the inspection shed. The total cost of power and maintenance of equipment, including the maintenance of overhead trolley and structures, averages about 10.4 cents per car-mile.

Providence Section of A. I. E. E. Discusses Automatic Substations

ADDRESSES by G. H. Roosevelt of the Railway and Traction Engineering Department, General Electric Company, and R. J. Wensley of the Switchboard Engineering Division, Westinghouse Electric & Manufacturing Company, were the chief features at a meeting of the Providence (R. I.) section of the American Institute of Electrical Engineers which was held in that city on Oct. 8. Mr. Roosevelt discussed with C. M. Gilt, lighting engineering superintendent General Electric Company, as joint author, "Automatic Systems for Lighting and Railway Service," and Mr. Wensley outlined recent progress in "Industrial Automatic Substations."

E. W. Allen, Chicago office General Electric Company, briefly outlined the history of automatic substation development, paying a tribute to the faith of early purchasers of this class of apparatus. Voltage regulation, the speaker said, is the best measure of excellence of any distributing system. The large amount of feeder capacity required with hand operation is an obstacle to the best distribution service in many cases. In future railroad electrification automatic substations will have to be considered, as they offer some advantages over both the 3,000-volt direct-current and the alternating-current system of operation.

Mr. Wensley stated that his company has recently quoted a central station on an automatically operated high-pressure steam plant with thermostatic control.

A. V. Thompson, San Francisco office General Electric Company, said that the load-limiting feature of the automatic substation is advantageous to traction companies purchasing energy under contracts in which demand is penalized. Motormen find it of little use to attempt to draw power beyond the limit set by good practice as a result of this equipment. Mr. Allen stated that, at a substation of the automatic type near Camp Dodge, trainloads of troops and army supplies were handled by a 300-kw. rotary-converter installation with automatic control, whereas if hand-operated substation equipment had been in service the breakers would have had to be set for 1,000 kw.

A feature of the meeting was a visit to the Rhode Island Company's Oakland substation.* W. C. Slade, superintendent of power Rhode Island Company, Providence, was elected chairman of the section for the coming year.

*Described in *ELECTRIC RAILWAY JOURNAL*, Dec. 14, 1918 (page 1033).

Ninth Annual Safety Congress

Electric Railway and Public Utility Sections of the National Safety Council Discuss Enforcement of Safety Measures and Other Topics

THE Ninth Annual Safety Congress of the National Safety Council was held in Milwaukee, Wis., Sept. 27 to Oct. 1. Abstracts of several of the papers have appeared in earlier issues of the ELECTRIC RAILWAY JOURNAL during October. On account of space limitations it has been impracticable to abstract heretofore all of the papers of interest to electric railway men. In the following paragraphs some notes regarding the congress are given, together with abstracts of the remaining papers selected from the large number presented, as of particular timeliness and appropriateness:

R. C. Richards, retiring president, in his opening address, reviewed the progress of the safety movement during the past year and outlined the work for the new year. He said that there are today thirty-seven cities in which local safety councils have been organized to promote the cause of both public and industrial safety in all parts of the country. Sixteen of these local councils in the larger cities have reached the point of activity where they require paid officers who devote their whole time to the work. In his prospectus of the work which lies before the Safety Council, Mr. Richards laid particular stress upon the necessity of combating and mitigating the automobile menace and the importance of educating school children in safety.

In the absence of R. M. Hemming, superintendent of transportation Indiana Service Corporation, Fort Wayne, Ind., chairman of the electric railway section of the council, the two meetings of this section were presided over by John H. Mallon, vice-chairman. Mr. Mallon is assistant general superintendent Chicago Elevated Railways and he was elected chairman of the section for the ensuing year.

More than 3,100 persons were registered at the congress, in addition to 1,400 boys from the Milwaukee schools who attended a special meeting and 1,200 school principals and teachers from Milwaukee who attended another special meeting. There was a gathering of 1,500 Boy Scouts who participated in the demonstration in the arena of the Auditorium.

The result of the election of officers for the coming year was as follows: President, Charles P. Tolman, chief engineer National Lead Company; vice-presidents, W. H. Cameron, L. A. DeBlois, W. E. Worth, John A. Oartel. The following staff officers, with national headquarters at Chicago, were re-elected: C. W. Price, general manager; Sidney J. Williams, secretary; W. H. Frater, treasurer; R. T. Solensten, assistant secretary.

NECESSITY FOR OBSERVING OPERATING RULES

At the electric railway session of the congress on Oct. 1, Hugh Wilson, safety department Northern Ohio Traction & Light Company, Akron, Ohio, impressed on those in attendance the importance of drilling new men on the safety aspect of operating rules. He said that 98 per cent of all accidents are caused by disobedience of rules, or man failure. The operating rules are violated mostly by new men, the disobedience sometimes being caused by ignorance and sometimes by willful negligence. Two remedies for this evil are (1) caution in hiring men and (2) review of the rule book

with new men before they are permitted to begin their work on the cars.

Mr. Wilson said that before a man is hired to operate a street car an investigation should be made relative to his home life, his general habits and his former place of work. If he comes from a home where carelessness is a characteristic he will probably be a careless operator. If he is careless in regard to his own affairs he will not be likely to observe rules and work efficiently for some one else. As to his former working place, if his employer there could not depend upon him, he has no place in the electric railway business. The time and money cost involved in such investigation is small compared with that of its lack.

As to going over the rule book, Mr. Wilson said that this brings up the need for a good instructor, a man who has had years of road experience and who is able to impress a new man with the importance of strict observance of rules. Further, the superintendent should take an interest in the new man, to impress upon him the fact that he has been accepted as an important part of the railway family. As an instructor for a year past, Mr. Wilson had been impressed by the fact that it is possible to apply practically the principles which he outlined.

ADVERTISING TO REDUCE ACCIDENTS

In a paper read on Sept. 30 before the electric railway section, Charles B. Hardin, general claim agent United Railways of St. Louis, St. Louis, Mo., took up some of the points which he thought should be considered in planning safety advertising campaigns. After determining the amount of money to be spent, the next thing, he said, is to observe the principle of applying intensive efforts.

Mr. Hardin took up the several ways in which advertising can be done; for example, by the use of paid-for space in newspapers, editorial articles printed on account of the news value of the safety effort and posters and signs carried on cars, mounted on trolley poles, etc., as well as general publicity obtained through clubs, city departments and other organizations. Among other things he said: "The very fact that we are contemplating an advertising campaign should impress the newspapers and other publications favorably. It should show them that we realize the great importance of doing everything possible to reduce the trolley car accidents. While newspapers are somewhat sensitive to 'box office returns'; while they like and probably need the money, they are not moved entirely by mercenary motives. To the average city editor the very fact that the traction company proposes to spend money on a safety campaign is 'news' and will be so treated."

EXHIBIT AS HERETOFORE A GREAT ATTRACTION

As has become the custom in connection with the Safety Congresses, an exhibit of modern safety appliances and practices was held in connection with the Milwaukee congress, this time in the Milwaukee Auditorium. Mr. Price estimates that at least 10,000 persons visited the Auditorium while the congress was in session and that from 5,000 to 6,000 were in the building each day of the week.

An Argentine reader of the ELECTRIC RAILWAY JOURNAL calls attention to a typographical error on page 276 of the issue for Aug. 7. The price paid for energy by the Anglo-Argentine Tramways in 1918 was \$0.0783, gold, per kilowatt-hour instead of \$0.0183 as printed.

The Electric Locomotive, Pro and Con

At Sectional Meeting of A. S. M. E. and A. I. E. E. Held in New York City on Oct. 22 Experts Discussed the Respective Merits of the Two Types of Motive Power Available for Heavy Traction

AGATHERING which overtaxed the large capacity of the auditorium of the United Engineering Society's Building in New York City was held on Oct. 22 to discuss the respective characteristics of the steam and the electric locomotive with respect to modern transportation conditions. The meeting was the first to be held under the joint auspices of the railroad section of the American Society of Mechanical Engineers, the metropolitan section of the same organization and the New York section of the American Institute of Electrical Engineers. The meeting was well advertised and the enormous attendance indicates the lively interest which is taken by engineers in the subject of heavy electric traction.

The principal papers read were abstracted in the issue of the *ELECTRIC RAILWAY JOURNAL* for Oct. 23. One of the advantages of the steam locomotive was presented by John E. Muhlfield, Railway & Industrial Engineers, Inc., while the cause of the electric locomotive was championed by F. H. Shepard and A. H. Armstrong, respectively connected with the Westinghouse Electric & Manufacturing Company and the General Electric Company. The program was presented under the direction of E. B. Katté, chairman of the railroad section of the A. S. M. E.; H. W. Buck, chairman of the New York section of the A. I. E. E., and W. S. Finlay, Jr., chairman of the metropolitan section of the A. S. M. E.

In opening the meeting Mr. Katté said that not only was it the first to be held under the auspices already mentioned, but the occasion was the first on which mechanical and electrical engineers had come together for the discussion of the electrification of steam railroads. It was fitting, he said, that at this meeting attention should be directed to the electric locomotive. He then introduced first Mr. Buck and later Mr. Finlay, who spoke briefly of the importance of the subject and the interest of their respective organizations in it. Next Frank J. Sprague was called upon for introductory remarks, and he responded for the "purpose of 'dressing the window,'" as he expressed it. The chairman referred to him as the "father of electric traction."

Demand for Increased Track Capacity Will Bring Electrification

At the outset Mr. Sprague said that he would not attempt a history of the development of the electric railway, but would refer briefly to some facts incident to his own association with it. He quoted from the *Sun* of a certain day in August, 1887, as follows: "They tried an electric car on Fourth Avenue yesterday. It created an amount of surprise and consternation from Thirty-second to 117th Street that was something like that caused by the first steamboat on the Hudson. Small boys yelled 'dynamite' and 'rats,' and made similarly appropriate remarks until they were hoarse. Newly appointed policemen debated arresting it, but went no further. The car horses which were met on the other track

kicked without exception, as was natural, over an invention which threatens to relegate them to a sausage factory." Soon afterward the famous Richmond road, which is fairly called the forerunner of the modern trolley, was equipped, and in three years there were in operation or under construction, here and abroad, something like 350 electric trolley roads, and a quarter of the street tramway mileage of the United States had already been converted to the new power. The reason for this astounding growth was simply that the electric car could do what was impossible to its predecessor.

A result of this success was that wild prophecies were made by imaginative enthusiasts of the coming debacle of the steam railway, so that Mr. Sprague found it necessary, as the incoming president of the A. I. E. E., in June, 1892, to sound a warning in his inaugural address, cautioning against undue optimism.

MULTIPLE-UNIT IDEA WAS FUNDAMENTAL

Mr. Sprague said further that the solution of the trunk line transportation problem had to be preceded by another and more pressing development which signaled the growth of a new idea, one essential to urban rapid transit, namely, the multiple-unit system. This, now the fundamental of electric rapid transit the world over, for a long time met only with contemptuous regard, despite an existing willingness to put it to a conclusive test on the elevated railroads at his personal risk. Then came the larger developments in the broad field of trunk-line operation for which it has supplied a vital essential.

Looking ahead Mr. Sprague said that he wished again to record his unchanging belief in the coming supremacy of electric power for transportation. This faith was based, not upon a vast disparity between the best which can be built in a steam or electric locomotive, nor upon any overwhelming claims of superior fuel economy when both are dependent upon coal supply, nor upon any material saving in operating expense sufficient to pay the charges incident to the increased capital cost when considered on existing traffic density and methods of operation, but rather upon the broad ground of the overwhelmingly vital demand for increased capacity, a demand which ultimately can be met only by the electric system, because of characteristics individual to it.

He admitted that there are inherent differences between the steam locomotive and its rival. The former is a moving power plant, limited both as to its maximum and its continuous rate of power development by the capacity of its boiler and portable fuel supply. It has, it may be granted, a certain apparent advantage because of its independent entity, but that very independence limits its capacity, not materially in maximum tractive effort, for any locomotive can slip its wheels, but in the amount of energy, that is, the product of speed and drawbar pull, which is possible. The electric locomotive, on the other hand, is but the user and transformer of electric energy created at distant power stations and transmitted to it by stationary conductors, and, thanks to the multiple-unit system, any desired con-

centration or distribution of power units, under a common control, can be had, and any number of power plants, taking their energy from the centuries-old and diminishing supplies, or the annually renewed frozen white coal of the mountains, may be joined together in common supply.

Mr. Sprague attributed the need for the great concentration of power to the insistent demand for increased capacity. There will come a time when duplication of tracks and increases in bridges, tunnels and terminals and the power of individual units will reach practical limits, when physical facts will rebel against engineering dictum or operative demands, and then the way, and the only way, to meet the demand for increased capacity is by increase of speed, which can only be obtained when unlimited power is at the command of the operator.

Already, said he, the electrification of railway terminals is an essential, suburban service has long been in operation, and through-operation of freight and passenger trains on mountain and other main-line roads satisfactorily negotiated. The same kind of service which characterizes suburban operation can be as readily applied to the longer local runs, such as those between New York and Philadelphia, and one's watch will be the time-table. Where, then, is the limit of the use of electricity? Mr. Sprague fails to see any. All the while the demand for a someday maximum of capacity will persist, as well as the present-day demand for vastly increased expedition in freight movement.

As these demands increase it will become more and more necessary to eliminate as far as possible non-essential rail transportation, and among such will be that coal which can be better burned at or near its source of supply and have its energy transmitted by wire. Unless those responsible for and in control of the country's transportation are sufficiently broad and far seeing to visualize the country's future requirements, and to realize how the welfare of every man, woman and child is bound up in the question of transportation, we shall have a hardening of the arteries and fatal blood clots in the circular system of transportation which will tend toward apoplexy.

In conclusion, Mr. Sprague said that the general electrification of trunk-line railroads is not a matter of immediate possibility of accomplishment. It will only come, as it is coming, progressively and with the accelerating power of example. It will be governed very largely by financial conditions, however justified under a sufficiently enlightened public policy railroads might be, if given sufficient encouragement, to assume the large added burdens incident to electrification. But the test of wisdom of railway officials, financiers and national and state governments is the ability to anticipate and plan against the inevitable before the slowing down and paralysis of traffic, such, for example, as is illustrated by the rapid transit situation in New York City, where congestion affects the daily life and well-being of the whole community.

Mr. Sprague referred to a recent article by President Underwood of the Erie Railroad in which the statement is made that the motive power of a railroad represent but 8 per cent of the capital invested, and that the remaining 92 per cent is wholly dependent upon its earning capacity. Considering the business as a manufacturing proposition only, the making and selling of transportation, Mr. Sprague asked, what would be the verdict with regard to any other manufacturing prop-

erty in which the tool equipment represented but a twelfth of the invested capital. One would naturally suggest an increase of the investment in tools, and so it should be with transportation. There will come the time when the great increase of capacity available because of the use of electricity, plus the fact of its already successful use in many portions of the railway field, will compel the enormous increase in motive power investment inseparable from the adoption of electricity, large as it may prove, a fact which will be justified by the need existing and the results obtainable.

After the reading of the papers by the authors the chairman called in succession upon a number of speakers, each of whom spoke particularly with reference to one or the other type of motive power. In the following report the contributions are grouped, the speakers for the steam locomotive being listed first.

Advantages of the Steam Locomotive

The first advocate of the steam locomotive was F. J. Cole, chief consulting engineer Locomotive Superheater Company, his paper being read by H. B. Oatley, chief engineer of the same company. Mr. Cole said in part: In the twenty-seven years which have elapsed since the first electric locomotive was built for the operation of the tunnel into Baltimore slow progress has been made in this country toward superseding the steam locomotive. In all the papers and reports of the electrical installations we find much about their advantages and much of what has been accomplished, but we search in vain for a complete financial statement showing at what cost in dollars and cents all this is accomplished. Many electrical installations are necessary for special needs such as are mentioned elsewhere in this paper, but it has yet to be proved that there is any great demand for the wholesale electrification of railroads in this country. In the motor trucks and automobiles on the highway, carrying much of the passenger and freight business, we can appreciate something of the value of self-contained, independent power units, which have extreme flexibility and lend themselves readily to some of the transportation needs of this country. While a steam locomotive is limited in its movements to the track on which it runs, yet because it is a self-contained unit it serves well and economically many of our transportation requirements.

In the case of electricity, the entire cost of changing over from steam operation must be taken into account. For electrification it is customary to supply power station capacity in boilers, engines, turbines and generating apparatus largely in excess of the normal demand, located in more than one station so that there may be no interruption in the supply of current. Presumably railroads are now in possession of the necessary appliances for steam operation, and electrification means that much of such equipment must be diverted into other channels or discarded.

The electrification of terminals, tunnels and certain mountain divisions where water power is available is now recognized as desirable installation. Some of this is absolutely necessary, regardless of cost. There may also be a few zones in this country which by reason of density of traffic and co-ordination with the electrified terminals could be changed from steam to electric power with profit and the quicker despatch of business. It is a question, however, whether the best interests of electrical development are served by sweeping generalities

and propaganda which has the object of relegating the steam locomotives to the scrap heap, and instilling into the mind of the public how unprofitable, how wasteful and how unsatisfactory is the transportation business when operated by steam locomotives, and recommending as a remedy for some of the ills from which we have been suffering in transportation matters the electrification of the principal roads in this country.

Admittedly, there should be a considerable decrease in fuel consumption for electric operation, but it is doubtful whether it will save anything like the enormous amount which we have recently been told could be saved if all the railroads in this country were electrified. And I think consideration of all the factors entering into the cost of both methods of transportation will show that one is very much exploited at the expense of the other.

In the paper read by A. H. Armstrong* in Schenectady, Feb. 20, 1920, it is claimed that 122,500,000 tons of coal can be saved by electrification of railroads. These figures are based on tests which assume that locomotives used 7.86 lb. coal per horsepower-hour, or 10.23 lb. per kilowatt-hour at the driver rims. In regard to two points raised in this paper: (a) Not all of the coal consumed by railroads is used by locomotives. Shops, power stations, passenger and freight depots, offices and sometimes floating equipment have to be supplied; therefore, deduction must be made from the total amount charged to railroad use. Actual figures from one large railroad show that when winter and summer months are considered, 88.6 per cent of the coal consumed is used by locomotives and 11.4 per cent for other purposes. (b) The amount of coal per horsepower-hour of the steam locomotive given in the paper is entirely too high.

Much of the argument is dependent upon the high assumed rate of coal consumption, 7.86 lb. coal per horsepower-hour. For electric locomotives the estimated input required is 40 watt-hours per ton-mile. For coal the estimated amount is 2½ lb. per kilowatt-hour. Now the grand total for all regions (229,057 miles) reported in 1918 for steam locomotives is 190.7 lb. coal, hence the following values per 1,000 gross ton-miles: Electric locomotives 100 lb., steam locomotives 190.7 lb. If all of the engines were new and of modern design, a much better showing could be made. In 1918 the average cost of coal used by locomotives was \$3.49 per ton. At 190.7 lb. per 1,000 gross ton-miles the cost of fuel was 33.4 cents per 1,000 gross ton-miles for steam locomotives over the entire United States. On the Virginian Railroad, where the power is comparatively modern, 163.3 lb. coal in 1917 and 160.6 in 1918 was used in steam locomotives per 1,000 gross ton-miles. The cost of fuel for the same railroad in 1917, 1918 and part of 1919 was from 18.7 cents to 25.9 cents per 1,000 gross ton-miles with coal at \$2.38 to \$2.74 per ton. On the Norfolk & Western for 1918 (five months) and the second quarter of 1919 the cost of fuel was 23.3 cents

and 26.6 cents per 1,000 gross ton-miles with coal at \$2.51 and \$2.65 per ton.

These figures compare very favorably with 28.8 cents for water power given on page 730 of the *General Electric Review*, September, 1920. The cost of electric power for the Baltimore tunnel, 1910 to 1914, was from \$1.049 to \$1.435, average \$1.199 per 1,000 gross ton-miles.

The increasing cost of coal permits the economical use of many fuel-saving devices on locomotives. A few years ago there was not much interest shown in such appliances; therefore, many locomotives are now run-

ning which are not so economical as modern engines. A Mallet compound locomotive, if in good condition and using superheated steam, in road tests will average 3.14 lb. dry coal per developed horsepower-hour at moderate speeds mostly on ascending grade. At an average of 3.10 lb. coal per horsepower-hour useful work can be done for 39.5 per cent of the figure given by Mr. Armstrong. Adding standby losses, taken at 17.5 per cent, the consumption is 3.75 lb. coal per developed horsepower-hour. In electrical units this is 5.05 lb. of coal per kilowatt-hour. If a kilowatt-hour can be produced at driver rims for 2½ lb. by electrification and by steam locomotives for 5.05 lb., the total amount of coal required by the

roads of the United States if all were electrified will not show the great saving claimed.

The relative merits of steam versus electric locomotives are largely matters of cost. If a correct estimate of energy required to replace a steam engine is taken, in the first instance, it is possible then to estimate with some degree of accuracy the cost of electrification. Then the number of electric locomotives required, the number of power stations, the overhead construction, or third rail, changes in signaling system, shops and appliances to take care of the electric locomotives and power stations and the hundred and one items which go to make up a complete transformation from steam to electrification must be considered. A balance can be struck between the present cost of steam (which is known with a great deal of accuracy) and the computed cost of operation electrically with interest on capital expenditures at the present high rates. After this is done the operating costs can be correctly determined.

There are, admittedly, many attractive characteristics of electric power, but when it comes to a wholesale replacement of steam locomotives, especially on roads not peculiarly adapted to electrification, those responsible for the financial returns to the owners and to the public may well hesitate and ask to be shown the cost, not only of the installation under consideration, but of those now in operation, and the probable return on the investment for the large expenditure they are asked to approve.

After the presentation of the above paper by Mr. Cole the steam railroad standpoint was further explained by A. W. Gibbs, chief mechanical engineer Pennsylvania System. His paper will be abstracted in a later issue of the *ELECTRIC RAILWAY JOURNAL*.

THE gist of the presentation of the steam locomotive side of the electrification question seems to be this: Electrical engineers have been somewhat over-optimistic in their expectation of early replacement of steam by electric locomotives. The latter have been greatly improved of late and they have certain inherent virtues which are highly regarded by operators. Moreover, where is the money for electrification to come from, anyway?

*See issue of this paper for Feb. 21, 1920, page 878.

Remarks of Chief of M. P., New York Central

A paper written by F. H. Hardin, chief engineer of motive power and rolling stock New York Central Railroad, was read by R. M. Brown, engineer of motive power of the same road. Mr. Hardin wrote in part:

In comparing the cost of maintenance or operation of electric and steam locomotives it must be remembered that in the steam locomotive a complete power plant must be maintained and operated, whereas in the electric locomotive there is merely the tractor. However, in computing comparative costs, from either the maintenance or the operating standpoint, it seems absolutely necessary to consider the proper proportion of the cost of operating the central power plant in electric service and also the cost of power. One phase of the question is whether the matter of cost is to be based upon existing conditions or the situation fifteen or twenty years hence. The railroad today must pay 7 per cent interest on money, and capital expenditure involved in the construction of power plants, substations and electric transmission lines would be enormous.

Referring to Mr. Armstrong's suggestions as to certain things which the train dispatcher might be able to accomplish with electric locomotives, Mr. Hardin said that if the present steam locomotives could be removed from the rails and replaced with electric locomotives of equal capacity, the question would be how often the electric locomotive could "deliver the goods" at the other end of the line without delay or failure as compared with what the steam locomotive now does. If the electric locomotive can be made to run 1,000 miles without change and without breakdown or diminished power the dispatcher might accomplish a great deal even with present cars, track facilities, etc., but there is more involved than merely replacing a Mikado or Mallet locomotive with an electric locomotive of equal capacity.

MAINTENANCE COSTS NOT UNREASONABLE

As to the statement that there is no need of the back shop for electric locomotives unless turning tires or painting may be considered heavy repairs, Mr. Hardin said that shops will be required, as electric locomotives must be heavy, so that drop pits, cranes and other shop facilities will be needed even for running repairs. Ability quickly to substitute repair parts would be an advantage, but no one can tell how many kinds of parts would be required for the different kinds and types of electric locomotives which would exist after fifteen or twenty years of electric operation. Furthermore, the spare parts or repairs would have to be made in shops maintained either by the railroad or outside concerns. As to the quoted maintenance cost of 60 cents per mile for a steam Mallet as compared with 14.65 cents for the St. Paul electric, costs on a New York Central division which used Mallets for most of its heavy freight trains in 1918 and 1919 amounted to from 21 cents to 25 cents per mile. These figures included some simple locomotives in operation on the same division. Some further figures covering back shop repairs of Mallet locomotives on two different divisions for the year 1919 showed averages from 12 to 19 cents per mile. Engine house maintenance cost is not readily obtainable, but may be assumed at not more than the shop cost per mile. Therefore, the total cost for the Mallet locomotive, including shop and engine house repairs, would be from 24 cents to 37 cents per mile.

Referring to costs, Mr. Hardin said that electric locomotives had been stated to cost possibly 50 per cent more than steam for equal driver weight, etc. In 1917 five modern 4-8-2-type freight locomotives cost about \$205,000, about the same as one St. Paul electric locomotive. The five steam locomotives had total maximum tractive effort of about 250,000 lb., whereas the one electric had only 115,000 lb.

Taking up some points in Mr. Shepard's paper he said that the solution of the railroad problem lies in obtaining the money to build, more than electrification or any other factor. As to present standards of train make-up, classification and terminal handling, as to which Mr. Shepard thought that electrification would double the capacity of any railroad and, as methods are improved, double it again, he felt that electrification is only one factor in the solution of the problem and perhaps not the greatest one involved in accomplishing what Mr. Shepard sees in the future. As to the practicability of greatly increasing the speed of freight trains almost to that of superior trains, this undoubtedly means that improvements in freight car design must be made.

Mr. Hardin concluded by reference to Mr. Armstrong's statement that the Mikado locomotive burns 158 lb. of coal per 1,000 ton-miles. Some recent figures on one of the New York Central principal main-line divisions show a fuel consumption varying from 125 to 130 lb. per 1,000 gross ton-miles in freight service. In passenger service the consumption is from 12 to 17 lb. per passenger car-mile.

Coal Consumption on Steam Locomotives

In the absence of W. F. Kiesel, Jr., mechanical engineer Pennsylvania Railroad, some comment which he had prepared was read by title. His contribution in abstract follows:

Mr. Shepard expresses his belief that electrification is bound to be the most potent factor in the relief of the transportation problem. For electric locomotives he claims greater power, speed, flexibility and mobility; intimates that under electric operation divisions can be made much longer, and electric locomotives can be built to take any train which will hold together over any profile, at any desired speed, limited only by condition of track and car equipment. The same claim can truthfully be made for the steam locomotive.

For either kind of operation the length of divisions and location of terminals are governed by other than locomotive limitations, or, at least, there is no valid reason why any features of either electric or steam locomotives should affect the location of, or distance between, terminals.

In power, speed, flexibility and mobility either type can furnish all that track and car equipment will permit. To illustrate this, attention is directed to three recent locomotives: One was built by the General Electric Company, for the Chicago, Milwaukee & St. Paul Railway. According to a General Electric Bulletin* it has a starting drawbar pull of 115,000 lb., and a drawbar pull of 56,500 lb. at 25 m.p.h. on a 2 per cent grade. The two others were built by the Pennsylvania System. One is an electric locomotive having two synchronous speeds (10 and 20 m.p.h.), and the other a steam locomotive with four simple cylinders.

Both Pennsylvania locomotives have a drawbar pull, in starting on level tangent, of 135,000 lb. On grade

*No. 44,102.

the effect of truck and tender weight of the steam locomotive shows its influence, and the net drawbar pull, at 20 m.p.h. at rear drawbar (calculated) of these locomotives is as follows:

	Electric	Steam
On level, lb.	81,000	83,375
$\frac{3}{4}$ per cent grade, lb.	78,000	80,250
1 per cent grade, lb.	76,000	77,125
$1\frac{1}{2}$ per cent grade, lb.	73,500	74,000
2 per cent grade, lb.	71,000	70,875

Furthermore, the steam locomotive can deliver more net drawbar pull than the Milwaukee electric locomotive at any speed up to 50 m.p.h., and on any grade that it would have to encounter.

The strongest coupler in use today (American Railroad Association Type "D") has an elastic limit of about 200,000 lb. On present equipment there are several million couplers of a strength inferior to this. Therefore, it would scarcely be advisable to build locomotives of greater pulling capacity than two-thirds of the elastic limit of the strongest coupler, or 135,000 lb.

Mr. Shepard mentions retirement of weaker car equipments, which no doubt is advisable but will require time. His sentence, "Every other industry that has been electrified has experienced a revolution in methods and service, due to electrification," invites the most careful thought of those contemplating a change in operation.

Will electric service produce greater returns? Can the revolution in methods and service be accomplished without serious handicap during the transition period?

The capital investment for electric service will be more than five times as much as for steam service. The cost of an electric locomotive is about twice as much as that of a steam locomotive of the same power. The electric locomotives have shown some saving in repairs over steam locomotives, but after ten or twelve years' service they require rebuilding, especially in the electrical equipment, which runs the total cost of repairs beyond that of the steam locomotives. Possibly this can be improved.

From the report of the commission which investigated the advisability of substituting electricity for steam, in Chicago, it appears that the maintenance cost for wages and material would be 30 per cent more for electric operation than for steam. This is offset, at least partially, by electric traction advantages of regeneration, no reforking of ballast to remove smokestack cinders, less wheel and brakeshoe wear, etc.

With the exception of three factors, capital investment, coal per drawbar-horsepower and standby losses, there is too little difference between the two, for operation in open country, for further consideration.

Mr. Shepard speaks of one locomotive as a generator of power, and the other as a transformer of power coming from central stations with many refinements and high thermal efficiency. He credits the best steam locomotive with an average coal consumption of twice that of electric operation, for the same work performed.

FINE COAL CONSUMPTION RECORD ON PENNSYLVANIA

The Pennsylvania System steam locomotive referred to has the same steam distribution system as that of a 2-10-0 locomotive, which has been fully tested on the locomotive test plant* and will burn no more coal per drawbar-horsepower. The average coal consumption

per drawbar-horsepower of the locomotive tested on the plant was 2.7 lb. for all firing rates up to 100 lb. per square foot of grate per hour and 3.27 lb. for all firing rates from 100 lb. to 160 lb. per square foot of grate per hour. Locomotives seldom have to burn more than 100 lb. per square foot of grate per hour. These steam locomotives had no feed-water heaters, the use of which, as proved by other tests, would reduce the amount of coal per drawbar-horsepower appreciably.

Inquiries were sent to various electrified roads, not including those with only short transmission terminal operation, requesting the average cost in coal per kilowatt-hour at the power plant, the average efficiency of the transmission line from power plant to the locomotive and the average efficiency of the locomotive.

One road, which has been electrically operated a number of years, and records each month's operation, has a power-plant "cost" of coal per kilowatt-hour of 2½ lb. as the minimum when the plant output is maximum. Taking this as 100 per cent load factor, the cost is per kilowatt-hour 3.2 lb. of coal for a load factor of 50 per cent, and 3.53 lb. for a load factor of 40 per cent. Most of the monthly record figures lie between 35 and 50 per cent load factors, and the average of coal per kilowatt-hour is above 3¼ lb. These figures necessarily reflect both the daily and monthly variations in load factor, and are, therefore, high.

Another road reports 40,000 to 44,000 B.t.u. per kilowatt-hour at switchboard for coal varying between 13,000 and 14,200 B.t.u. per pound.

MR. BEEUWKES QUOTED

The coal used in the test of the 2-10-0 steam locomotive given above averaged 13,429 B.t.u. per pound.

Replies as to the line efficiency appeared inconsistent, therefore the data given by Reinier Beeuwkes in his paper before the Pacific Coast section, A. I. E. E.,* are cited. These show an average ratio of net input at locomotive to actual system input for locomotive of 66.3 per cent for the Missouri division, and of 68.3 per cent for the Rocky Mountain division. Replies as to locomotive efficiency indicate that this is less than 75 per cent in all cases.

Apparently the fluctuations in load factor present a greater menace to coal economy than steam locomotive standby losses. The average load factor may be taken at 50 per cent. Neither line efficiency nor locomotive efficiency is likely to average as high as 75 per cent.

Existing installations may be taken as approaching, but not yet reaching, 3 lb. of 13,500-B.t.u. coal per kilowatt-hour at the power plant, a line efficiency of 75 per cent and a locomotive efficiency of 75 per cent, resulting in a consumption of 4 lb. of coal per drawbar-horsepower-hour. Therefore, the standby and other losses of the steam locomotive can be 32.5 per cent to equal the probable best average performance of present-day electric traction in coal consumption, and that much loss would be a sorry reflection on operating methods.

Possibly improvements may change this situation, but until the electric locomotive is ready to do the work as cheaply as the steam locomotive it is illogical to tear up the old operation by the roots and substitute a much more costly plant whose habits are not so well known.

Mr. Armstrong also dwells on greater power, speed, flexibility and efficiency, and speaks of running a thou-

*See Pennsylvania System Test Bulletin 31.

*See ELECTRIC RAILWAY JOURNAL, July 31, 1920, p. 237.

sand miles with no attention, except by crews. He describes ideal characteristics of a locomotive, none of which apply to the electric locomotive in any greater measure than to the steam locomotive. The "precedent and prejudice" to which he refers seem to be imaginary. As he uncovers step after step of his flights of imagination a gradually increasing desire for "facts" is felt.

In view of existing locomotives described in the foregoing, the table of comparisons between two steam locomotives, a Mikado at 14 m.p.h. and a Mallet at 9 m.p.h. (evidently not good specimens) and an imaginary electric locomotive at 16 m.p.h., is, to say the least, inconsistent, and the claim that a mountain division will have an increase of 50 per cent in daily tonnage over possible steam engine performance is not so "modest" as claimed.

In this statement the claim that "electric locomotives can be maintained for 20 to 25 per cent of the upkeep cost of steam locomotives" should be included.

Two statements in the fuel comparison deserve some analysis. The standby losses for steam locomotive are given as 9,042 lb. of coal. The regenerative braking on the electric locomotive is credited with a saving of 1,430 lb. of coal. About half, or 4,595 lb. of coal, of the standby losses are for making fire and drifting, which is high. The coal used for making fire is not all loss.

As to regeneration returning 18 per cent of current used back into the line, that appears high, and leads to the suspicion that Mr. Armstrong uses a comparison between a very bad steam operating condition and a very good electric operating condition, which is not representative of averages.

At present steam locomotive standby losses are high, but when railroads get back to normal these losses will be materially reduced, and the average will no doubt be less than 15 per cent of the coal used. Regeneration may be a slight factor, but it will be nearly negligible in averages.

ELECTRIFICATION SOMETIMES HAS PRIORITY RIGHTS

For certain local conditions electric traction should be given priority rights, even if the cost is greater. They are: (1) In tunnel operation; (2) in large cities and their suburbs; (3) where sufficient water power is available; (4) where super-power plants can be built in juxtaposition to an adequate supply of culm, or other low-grade combustible not easily marketable.

In the open country, where smoke and gases from the stack are not seriously objectionable, existing installations do not yet indicate that electric traction can be carried on with as little coal consumption as modernized steam traction. Where steam locomotives are too small and inefficient, larger and more economical steam locomotive units to meet any power and speed requirements within the limitation of track and equipment can be substituted without in any way interfering with the continuity of traffic or educating the personnel to handle the new power. As tersely stated by Mr. Shepard, the substitution of electric traction will require a revolution in methods and service.

The answer to the problem is governed by whether there is a saving in coal with electric traction over that with steam traction, including standby losses, and whether this saving is sufficient to pay interest, depreciation, taxes, insurance, etc., on more than 400 per cent greater capital investment, and for the interruption of traffic and the revolutionizing of the organization during the transition period.

Maintenance of Electric Locomotives Affected by Overload

The fifth speaker for the steam locomotive was W. L. Bean, assistant general mechanical superintendent New Haven Railroad. Mr. Bean declared that while, broadly speaking, electrical operation requires less coal per unit of traffic handled than steam operation and the mileage per unit of electric equipment is ordinarily greater per unit of time, yet on one road the first cost of the electric engines per unit of capacity was 84 per cent greater than in the case of steam. Referring to the comparative flexibility of the two types he said that a certain modern passenger electric locomotive will handle a heavy train of Pullmans at high speed on a through run with few stops such as would require a modern Pacific type steam engine of about 43,000 lb. tractive effort, but because of heating caused by frequent starting in heavy local service, the maximum train which could be handled by the same electric locomotive is one which could be hauled by a steam engine of about 30,000 lb. tractive effort. There is also not much elaboration of the fact that an inconsiderate or overambitious yardmaster may overload the electric engine, and that machine, possibly in sympathetic endeavor to live up to the expectations of its sponsors, goes after its job like a spirited horse. A steam locomotive, on the other hand, being what might be termed more phlegmatic, will do about so much and no more, and either stalls or loaf over the road without injury to itself. The electric engine may not be subject to "creeping paralysis," but since it leads a strenuous life, it acquires a sort of hardening of the arteries in the way of accumulative depreciation of insulation which leads the way to heavy repairs.

Again, it is difficult to understand how railroads are to maintain electric locomotives without back shops, unless they job the work out to manufacturers of electrical equipment. Bearings wear, springs fail, axles and frames break on electrics as much as they do on steam engines. Switch groups, transformers, motors, both main and auxiliary, air compressors, blowers, control and collector apparatus, all require overhauling periodically. Officers in charge of maintenance of electrical equipment on one Eastern road are at present insisting that \$350,000 be expended soon for an addition to the present back shop.

While the design of a steam locomotive is said to be utterly circumscribed by the necessity for tying it up to a steam boiler, the statement can also be made that some modern high-powered electric locomotives are so compact with apparatus, both inside the cabs and beneath, as well as on top, that additions to, or enlargements of details, even of a minor nature, are well-nigh impossible. When one comes to the problem of heating passenger trains, electrically drawn, the difficulty of finding room for the boiler, water and fuel oil storage, auxiliaries, etc., and keep within weight limitations, lead one to the conclusion that on electric passenger locomotives the boiler is circumscribed by electrical apparatus. Electrical engineers on one road have even advocated the construction of a tender for carrying the boiler, water tanks, etc. Imagine an electric locomotive requiring a tender!

The steam locomotive, except in a moderate way as to clearance and weight limits, has a wide range of application. Railroads loan steam power back and forth with advantage usually to both parties, but no case

comes to mind where electrical equipment for heavy traction can be interchanged. It is to be hoped that the lines of development of electrical facilities will tend to converge along lines of common usage rather than diverge too widely. Some reasons for such desirability are: (a) Railroad managements will not be so fearful of becoming tied up with a heavy and inflexible type of investment, which may quickly become obsolete through not lending itself reasonably well to extension of modernization, and (b) the need for a broader field of design and manufacture of equipment and the furnishing of repair parts for the same.

Dependence largely on one manufacturing concern which must unload heavy overhead charges at surcharge rates, unheard of in the case of steam locomotives, is highly undesirable and is restrictive to the extension of electrification.

Virtues of the Electric Locomotive Extolled

The first speaker to reinforce the arguments of Messrs. Shepard and Armstrong in favor of the electric locomotive was C. H. Quinn, chief electrical engineer Norfolk & Western Railway. He said that if we are to maintain our standing in the commercial world our railroad facilities must go forward. Obviously the movement of freight traffic takes precedence over other transportation problems, hence interest and study should be concentrated on the freight locomotive. The following extracts indicate Mr. Quinn's line of thought:

If our knowledge of the development of freight car equipment is indicative of what our freight transportation motive power needs may be in the future, we should begin to look into the possibility of the steam locomotive being able to keep up with development of other transportation facilities. Freight cars for carrying coal within the past ten years have been increased in capacity from 50 to 100 tons per car for 100 per cent. Apparently the steam locomotive may be called upon indefinitely to meet the ever-growing demand for heavier trains which must be operated at higher speed and with minimum delay between terminals. During this same period the largest type of steam locomotive has added generally about 13 per cent to its weight and number of driving wheels. In 1909 the Mallet engine had up to a total weight of 700,000 lb., with 412,000 lb. on driving wheels (Santa Fé 2-8-8-2). In 1919 the engine of the same type had a total weight of 731,000 lb., with 478,000 lb. on driving axles. With the exception of a special design only permissible in restricted track districts these are characteristic figures for the representative steam locomotive development during this period. With vertical and side clearance limited to fixed values the engine can only be enlarged by adding to its length. Again the rigid wheelbase stops the expansion along the track.

Reference has been made to similarity in capacity of the 2-10-10-2 Mallet locomotive on the Virginian Railway and the electric freight locomotive on the Milwaukee. However, it was only by reason of the extremely wide side clearance existing on this one road that such an engine could be used. Furthermore, the engine could not be handled by its own power over any railroad but had to move over a special route from factory to point of delivery. If we are to provide for the use of these larger steam engines on all railroads the cost of bridge and tunnel work and possibly the rearrangement of clearances on some double-track railroads

must be given consideration and the cost charged against the future increase in capacity of the steam locomotive.

Again, in the improvement in fuel economy in the steam locomotive for the past ten years we find that relatively little has been done to keep pace with the ever-increasing demand for fuel conservation.

The American Locomotive Company in 1911 issued a bulletin giving in detail the results of six dynamometer-car tests, made behind a 0-8-8-0 Mallet engine. This locomotive had a total weight of 523,500 lb., with 376,800 lb. on drivers. It operated on saturated steam and was hand-fired.

This particular engine, under special supervision of the testing crew, as an average of six tests delivered a drawbar-horsepower hour on 5.15 lb. of coal fired. In 1918 under similar operating conditions a practically new 2-8-8-2 Mallet engine, weighing 695,000 lb., with 472,000 lb. on the driving wheels, and equipped with superheaters, brick arch and stokers, as an average of six tests gave a drawbar-horsepower-hour on 4.33 lb. of coal.

30 PER CENT OF COAL SAVED ON N. & W.

The above figure of 4.33 lb. of coal may be compared with the performance of the electric locomotive on the Norfolk & Western, the operating conditions being very similar. Converted into electrical terms this is 5.77 lb. per kilowatt-hour at the drawbar. Adding to this 23 per cent, a nominal amount for standby losses, we have a total of 7.12 lb. During 1919 our Bluestone plant generated for traction purposes about 67,395,000 kw.-hr. and burned 103,034 tons of coal, which is equivalent to about 3 lb. of coal per kilowatt-hour at the switchboard. As a total loss between busbar and drawbar of 40 per cent is an average for electric locomotives of the size and weight of those on the Norfolk & Western the coal consumption is 5 lb. per drawbar kilowatt-hour, a saving of 2.12 lb., or 29.3 per cent in favor of the electric locomotive. During this twelve-month period we handled 4,714 eastbound trains and burned 103,034 tons of coal, or slightly under 22 tons per train. An average of three tests with hand-fired Mallet engines in the same service and using a sacked coal showed a total consumption per train of 35 tons, or an excess for the steam engine of 13 tons per train over the electric locomotive.

The suggestion has been made here this evening that we consider from twenty-five to fifty years as the useful life of a steam locomotive and that the steam locomotive designer and builder become active in the direction of superheating and compounding of steam locomotives for the purpose of increasing their capacity. Might we ask what has become of the four-cylinder and cross-compound engines of thirty years ago and likewise of the experience gained with compound engines during this period? If the benefits derived from compounding are not thoroughly understood after thirty years of experience how can we expect the next twenty-five years to develop such data as will materially improve the situation. It required fifty years to settle upon 4 ft. 8½ in. as the standard track gage. It is inconsistent to attack the electric locomotive because after a limited trial of fifteen years we still have two systems of power distribution in use.

Reference is made to the handling of heavy tonnage trains as reflecting in peak loads on power plants and the transmission system. On the Norfolk & Western

we handle our entire electric operation without any instructions from train dispatchers and without any system of arbitrary train spacing. Our power plant and transmission system are fully able to take care of 100 per cent more tonnage in a given time than had ever been handled by steam power. The prospective user of the electric locomotive need not fear any failure or limitation from this source if the installation is laid out with the present degree of latitude in providing general facilities over the right of way and at terminals for steam power.

The electric locomotive is charged with imposing definite spread of traffic over a division, the inference being that this is necessary for economical and successful operation. In this connection I may say that the automatic block signals on the Norfolk & Western are the only devices used to guarantee a spread traffic in our electric zone, and so far they have been very successful.

Further reference is made to some uncertainty in the functioning of the regenerative control of the electric locomotive. Like all other systems of braking, the regenerative system is susceptible to man failure. On the Norfolk & Western we are moving in one direction an average of 4,000 trains per year. We have had the electric locomotives in service about five years and in that time have handled more than 20,000 trains, using only the regenerative apparatus to brake a 3,250-ton train down a 2.3 per cent grade.

So far we have not had a man failure and the regeneration still has 100 per cent operation to its credit.

If our freight-car carrying capacity can be increased 100 per cent in ten years are we to be satisfied in considering the freight locomotive as having reached its maximum development? Is the railroad operating world as a whole going to be satisfied with the freight revenue obtained by using 100 per cent larger cars and be forced to reduce the number of cars per train by the limitation of the steam locomotive? Do we expect our operating officials to be satisfied with the continued payment of premium overtime for freight train crews brought about by the slow movement of trains and the eight-hour day? The average engine and train crew is held 25 per cent of its time at terminals. If we are to eliminate the ever-growing labor expense of premium overtime and reduce the standby losses of our locomotives running time per 100 miles must be reduced to five hours instead of eight, now about the best we can expect from the steam locomotive.

If we are to approach this problem with the purpose of providing such motive power at the head end of our freight trains as will develop not only the drawbar pull up to the maximum capacity of the heaviest gear now in use but such an engine as will sustain this pull at a speed that will permit train operation over a 100-mile division of varying profile within the time limit of the eight-hour day we fail to find a steam locomotive record that will answer this specification.

Following Mr. Quinn, the case for the electric locomotive was carried further by A. L. Ralston, mechanical superintendent New Haven Railroad. His paper will be abstracted in a later issue.

Mr. Beeuwkes Sends a Contribution

The Milwaukee Railway was represented in the discussion through a communication sent by Reinier Beeuwkes, electrical engineer of that road. Mr.

Beeuwkes' paper, which was read by title, is abstracted below:

Mr. Beeuwkes said that as frequent references were made in the papers to the Chicago, Milwaukee & St. Paul electrification, he wished to correct mistaken impressions which might be derived from such references in Mr. Muhlfeld's paper. He quoted Mr. Muhlfeld's statement to the effect that "few if any existing steam roads can justify or stand the additional capital expenditure per mile of road for electrification, etc." The statement, he said, is supported by neither facts nor figures. It is not borne out in the case of the St. Paul electrification, and there are many roads with like conditions which might expect results similar to those which the St. Paul has obtained. The electrical operating experience of this road enables accurate determination to be made of what the results of electrification will be in any similar case, and there are few cases which will not profitably warrant at least consideration of electrification. In any event actual available operating data will permit of settling the matter one way or the other in the individual case. That Mr. Muhlfeld's opinion does not represent the foregone conclusion of steam men in general is evidenced by the serious attention they have more and more been giving the matter of electrification.

Mr. Beeuwkes also referred to the comparison made between a St. Paul electric articulated and a Virginian steam articulated locomotive. In this the assumption seems to be that the electric locomotive had been designed to secure the maximum capacity possible, and the purpose of the comparison seems to be to show that the steam locomotive can be built with still greater capacity. The St. Paul locomotive, he said, was actually designed for capacity sufficient to handle a 2,500-ton trailing load over any portion of the profile without helper on grades of 1 per cent or less, at a speed of approximately 16 m.p.h. It was designed for no greater capacity, because that specified was deemed by the railway to be sufficient. The tractive effort of this locomotive at 15 m.p.h. is about 88,000 lb. instead of 71,000 lb. as given in the tabulation. The figure of 71,000 lb. represents approximately the continuous tractive capacity, and the speed corresponding would be approximately 16 m.p.h.

The item of train speeds is important to consider in connection with the many cases in which the question of terminal capacity does not enter, but rather that of increasing existing track capacity or, in lieu thereof, providing additional tracks. While it might be practicable to secure any desired speed at any tractive effort in an electric locomotive, provided the necessary resistance were supplied, actual practice has demonstrated that ample flexibility is secured by providing two or three running speeds for any particular tractive effort. There was no particular difficulty involved, however, in securing as many as nine running speeds in the case of one of the new types of St. Paul passenger locomotives.

In connection with the comparison between a Pacific steam locomotive and the St. Paul passenger locomotive, Mr. Beeuwkes stated the facts to be: That the electric locomotive is designed to handle, and tests have shown it capable of handling, a trailing load of not less than 960 tons over the profile, including the 2.2 per cent grade at the Columbia River. This is equivalent on the average to a train made up of thirteen of the St. Paul steel cars, or of fourteen cars of the average weight of the cars in the train mentioned by Mr. Muhlfeld.

Referring to Mr. Muhlfeld's comments on fuel consumption, Mr. Beeuwkes said that fuel economy does not constitute the principal claim for electrification. This depends, in the individual case, upon the relative cost of delivering coal or electricity to the locomotive after all fixed and operating charges are considered. It may for such individual case develop that the savings from electrification will be those due to decreased cost of engine repairs, engine house expense, train and enginemen's wages, increased ton-mile capacity of locomotives, etc. In the case of the St. Paul the power contracts apply for 100-year terms, and a fixed price for energy is thus assured. The figure of 40 kw.-hr. per 1,000 ton-miles used by Mr. Armstrong represents an average for the whole year for trains of varying ton-nages and under all weather and other affecting conditions. A corresponding figure based on special test runs as derived by Mr. Muhlfeld would obviously not be comparable. The comparable fuel figure for all trains and for the whole year for the district to which Mr. Muhlfeld refers could hardly be expected to run very high, as the average grade between the points mentioned is only about 0.06 per cent and the ruling grade only 0.8 per cent, as compared with the mountain grade conditions on the St. Paul. Mr. Beeuwkes also took up the reference made to the steam equipment which was replaced by the electric locomotives. This was stated to be antiquated or obsolete. The line of the St. Paul west of Mobridge has only been in operation since 1908 and most of the locomotives for it were purchased new. While most of the new locomotives were not of the most improved present-day type, they are probably representative of what is in general use by other roads.

The list in Table I shows the types in operation on the Rocky Mountain Division in December, 1915 (excluding locomotives in shop), just before electrification. The coal per 1,000 ton-miles for October, November and December, 1915, averaged for freight service 276 lb. as against 39.4 kw.-hr. per 1,000 ton-miles for October, November and December, 1916, under electrical operation.*

TABLE I—C., M. & ST. P. STEAM LOCOMOTIVES IN FREIGHT SERVICE, ROCKY MOUNTAIN DIVISION

Number	Class	Weight on	Rated Tractive	Remarks
		Drivers, Pounds	Power, Pounds	
Road Engines				
7	Prairie	152,000	33,300	Simple
3	Mikado	216,500	50,600	Simple, superheater
12	Mikado	201,000	46,630	Simple
7	Mallet	327,500	76,200	Comp., superheater
5	Mallet	323,500	76,200	Compound
Helper Engines				
1	Mikado	213,500	50,000	Simple, superheater
2	Mikado	205,000	46,630	Simple
2	Mallet	323,500	76,200	Compound

Taking up the item of efficiency of locomotive operation, Mr. Beeuwkes said that allowance for transmission losses between power plant and railroad electric system

depends on the conditions of the particular case, provided that the station coal consumption, in this case 2.5 lb. per kilowatt-hour, is not already sufficient to cover the transmission loss. If the power plant is located on the railroad adjacent to the railway transmission system, no additional loss allowance is necessary. If the plant is not so located a maximum allowance of 10 per cent of the power delivered would cover the transmission loss, even for a considerable distance, without expensive transmission construction. He also said that comment is superfluous regarding such indefinite remarks as: "When, on account of transportation

conditions, a motor is required to carry an overload for periods of five or six hours it either breaks down due to heating, etc." An electric motor can exert abnormal tractive effort for considerable periods without injury, whereas the steam locomotive has a well-defined maximum tractive capacity, depending upon the steam pressure at which it is supplied.

By way of summary of Mr. Beeuwkes' comment on several other points in Mr. Muhlfeld's paper, the following points are of interest: (1) One of the marked economies effected by electrification is the reduction of train and enginemen's expense, on account of the increased ton-miles per train-mile and per engine-mile, and the reduction of equipment

repair and roundhouse expense. (2) The spacing of trains to hold down the power demand on the St. Paul electrification has in combination with the action of the power-indicating and limiting system worked out very well. When the load factor was running 60 per cent or higher the automatic slowing up of trains involved an increased expenditure for freight train and enginemen's time of about 10 per cent. With a load factor of from 50 to 55 per cent, however, the limiting action takes place through only a small part of the day, and while there is a considerable reduction in the maximum demand there is little effect on the operation. (3) As to ease of starting trains, this feature of electrical operation is noticeable, conducting to increased comfort of passengers, an electrical operation asset whose value is not always recognized. As to starting each car successively, this does not apply in the case of a train on a mountain grade. (4) The performance, described by Mr. Muhlfeld, of a heavy steam freight train going down a 17-mile grade averaging 2.2 per cent, without stop to cool brakes, is unusual. His information as to the accident on the St. Paul is incorrect. There is nothing in the regeneration system which prevents the application of the air brake at any time, and if they are applied soon enough and properly, and are in good condition, the train will stop. At an investigation of the accident, testimony was introduced by some of the crews to indicate that the brakes were not in proper condition, but it was admitted that the brakes were tested before the train was started down the grade and the brake-inspection crew testified that the number of good brakes per car was above the requirement. The speed-recorder tape was not operating, so direct knowledge of the speed at which regeneration was attempted was not available. In any event the

THE proponents of the electric locomotive contended that fuel economy does result from its use. But the greatest boon conferred by electrification is increase in track capacity. This results from the possibility of obtaining higher speed and greater tonnage per train. Regenerative braking also is a unique contribution to the art of railroading. Railroads which have electrified sections appear to be enthusiastic as to the future of electrification.

*See issue of this paper for March 24, 1917, page 541.

overload relay or overvoltage relay on the locomotive operated and disconnected the motors from the line, and the engineer, whatever the reason, failed to bring the train to a stop by means of his air brake. The engineers, trainmen and others connected with the electrical operation were unanimous in declaring that the accident was in no way an electrical failure. The electric locomotive in this case attained a maximum speed of about 50 m.p.h. and at this speed passed round a sharp curve at the foot of the grade without leaving the track or damaging it in any way. (6) Frequent references are made in the paper to improvements which are being or can be made in steam locomotives and steam operation which will make the average steam locomotive compare favorably in its performance with the electric locomotive. Steam locomotives have been used for a great many years and the electric locomotive is comparatively new. It is not too much to expect that the electric locomotive and electrical operation will also be progressing while the steam locomotive and steam operation are trying to catch up.

Mr. Katte Sums Up the Case for the Electric Locomotive

The chairman had prepared some comment for the close of the discussion, but owing to the lateness of the hour he omitted the reading of his notes. These were of a conservative tenor. The conservative engineer, he wrote, on considering the papers prepared for the meeting, would be apt to conclude that too much has been claimed for the steam locomotive as well as for the locomotive operated by electricity. Without doubt there are advantages peculiar to each, but it will always rest with the railroad engineer to determine and decide which type of locomotive will be best suited to the peculiar conditions surrounding the railroad which he serves.

Because of the different operating characteristics of steam and electric service it may be misleading to compare the time the locomotives are in use. For example, the electric locomotives of the New York Central Railroad operate only in a terminal zone, which makes the comparison with locomotives on steam-operated divisions hardly a direct one. However, the following comparison of per cent of "time ready for service," compiled from actual records for the first eight months of this year, will be of interest:

READINESS OF LOCOMOTIVES FOR SERVICE		
Condition of Locomotive	Electric Locomotive	Steam Locomotive
Ready for service, waiting, per cent.	56.2	24.3
In service, per cent.	31.3	47.8
At terminals, per cent.	4.0	4.6
At engine house, per cent.	8.5	23.3
	100	100

The fact that the electric locomotives stood waiting for service 56 per cent of the time and were actually in use only 31 per cent of the time is due to the train schedule and the grouping of a large number of trains night and morning with comparative inactivity between these hours. This clearly illustrates the necessity of carefully studying local conditions before coming to the conclusion that electric operation will prove more economical than steam operation for a given railroad proposition.

Unfortunately, a direct comparison, applicable for all railroads, between the coal burned on the steam

locomotive and the fuel consumed in the power house for supplying energy to the electric locomotive cannot be made with the same accuracy as, say, between a reciprocating engine and a steam turbine. This is because there are not a representative steam division and an electric division operated under anything like the same conditions. The following comparison of fuel consumption has been computed from the reasonably accurate records of three railroads operating both steam and electric locomotives under widely different conditions both as to equipment and service:

COMPARATIVE FUEL CONSUMPTION—STEAM AND ELECTRIC.

Items	C. M. & St. P. R. R.	N. & W. R. R.	N. Y. C. R. R.
Kilowatt-hours per train-mile measured at alternating-current side of substation.	29.1	361.	34.5
Pounds of coal burned on steam locomotive per train-mile.	188	1400.	112
Pounds of coal on steam locomotive equivalent to 1 kilowatt-hour measured at alternating current side of substation.	6.46	3.88	3.25
Computed pounds coal at power station per kilowatt-hour referred to alternating current side of substation.	2.44	2.44	2.44
Saving of coal in favor of the electric locomotive, per cent.	62	37	25

This wide range of results and the apparent discrepancy in the relative fuel consumption are due to widely different conditions. Even a wider difference in power consumption will be found on trains in different service on the same division, as, for instance, on the New York Central Railroad, a multiple-unit train making stops every mile or so will consume 150 watt-hours per ton-mile, whereas the through trains making no intermediate stops in thirty miles or more will consume but twenty-six watt-hours per ton-mile.

Finally, too much reliance should not be placed on results obtained from test runs, even if they fairly well simulate actual conditions. To be of comparative value, service records should extend over several years, and the data should be carefully collected, correlated and averaged to give results that may be expected in everyday operation.

CLOSING REMARKS BY GEORGE GIBBS

The discussion of the evening was closed by George Gibbs, chief engineer electric traction Long Island Railroad. Mr. Gibbs spoke as a railroad man. He said that in discussing this subject it is presumably permissible to view it from the standpoint of either design or performance. It concerns the relative advantages of two kinds of power plants for conducting railway transportation. An abstract of Mr. Gibbs' remarks will appear in a later issue.

Electrolysis Committee Active

THE research sub-committee of the American Committee on Electrolysis is making an important series of investigations in Cleveland, with the financial support of the Cleveland Railway and the Cleveland Electric Illuminating Company. L. P. Crecelius, superintendent of power of the railway and American Electric Railway Association representative on the research sub-committee of the A. C. E., has been active in this work. Pipe drainage as a means for electrolysis prevention is being particularly studied, and the first work includes new installation. Problems of interchange of current between conductors, of joint electrolysis, etc., are being considered in connection with gas and water piping and power and railway cables.

PUBLICITY

HOW

WHEN

WHY

Further Suggestions as to Movies

SOME suggestions regarding the use of movies were printed in last week's issue of this paper, and the following additional communications are given to indicate the continued interest in this subject as a practical means of railway publicity.

Motion Pictures Can Be Used if Film Is Prepared by Experts

TOLEDO RAILWAYS & LIGHT COMPANY
TOLEDO, OHIO, Sept. 30, 1920.

To the Editors:

I have read with much interest the articles in the Sept. 25 issue of *ELECTRIC RAILWAY JOURNAL* on publicity and the use of motion pictures in telling the story of the railways.

We have used motion pictures in our safety campaign in the schools, in clubs and in every place where we could secure an audience. In the coming campaign when Toledo votes on municipal ownership and the service-at-cost plan the committee of citizens is planning to use the moving picture houses with a real campaign.

In considering motion picture advertising the advertiser must remember that only a few motion picture houses will run advertising pictures or advertising slides and they are generally neighborhood picture houses and often on the outskirts of the city. People go to the motion picture theater to be entertained and resent it if their time is taken up by a lot of advertising slides. Advertising to do much good must catch the people when in a receptive mood and if they have paid their money to see pictures and have to look at slides or at a motion picture that is clearly advertising propoganda they are not likely to let the message get far into their cranium.

There is a way, however, to get advertising into a picture when experts take hold of it and get a real cast and tell a real story so that there is a punch to it. I believe that the national association is in a position to secure and circulate such a film or films through the co-operation of the various companies. It is very expensive, however, and should not be attempted without plenty of capital.

E. B. KELSEY.

Need for Educational Film Is Now

VIRGINIA RAILWAY & POWER COMPANY
RICHMOND, VA., Oct. 4, 1920.

To the Editors:

I have read the editorial entitled "Proper Publicity, Its Need and How Shall We Get It" and the editorial suggestion headed "The Next Step in Publicity Work," appearing in the Sept. 25 issue of the *ELECTRIC RAILWAY JOURNAL* and have noted with keen interest the idea of filming the problems of the utilities for use in the "movies." The suggestion strikes me as being very good and I am sure would result in a better understanding of our difficulties.

Practically all over the country the problem of the electric railway industry is the same in the main; it is without credit and its franchises need revamping with a view to restoring its credit as well as for making them more flexible, ridding them of the many onerous taxes indirectly required, such as through paving, sprinkling and various other ways in different cities, all of which must reflect in the fare charged. It would seem to me that such a film might be very interestingly worked out along an educational line, re-

viewing the history of the electric railway industry, in which could be shown how the paving requirement is today the relic of horse-car days rather than a just requirement of the electric railway and how little the fare has increased in proportion to the costs of labor and materials. Such a film might be entitled "The History of the Trolley" or "The Past, Present and Future of the Electric Railway," featuring the possibilities of the trackless trolley in the smooth-paved residential districts.

Of course, the need for such educational work is now, and I presume it is too late to have any consideration at this convention of the American Electric Railway Association, but I think it should be made a subject for special consideration and study by that body. A. H. HERRMANN,
Editor *Public Service News*.

[Thomas S. Wheelright, president, writes that he fully concurs with the above views expressed by his assistant, Mr. Herrmann.—Eds.]

People Should Be Induced to Think of the Utilities

TERRE HAUTE DIVISION
TERRE HAUTE, INDIANAPOLIS & EASTERN TRACTION COMPANY
TERRE HAUTE, IND., Oct. 5, 1920.

To the Editors:

I think that the suggestion of using the motion picture is a very good one. I have long felt that there was a great opportunity to get the story before the people in this way, though how impressive it would be, or how lasting the effect, it is of course hard to say. Some years ago I secured "The King of the Rails" from the General Electric Company and got one of the movie managers to show it in his house as an extra film, and I watched its effect the first night it was put on. After the film was run the house applauded very generously, and that was the only time I ever saw an advertising or a propoganda film applauded.

We used the motion picture a little bit last year, as we have a photographer in town who takes moving pictures and runs them in one of the local houses every week or so, under the title "Weekly Pictorial Review of Terre Haute." The occasion was our annual employees' picnic, and we had the photographer take 200 or 300 ft. and include it in his "Weekly Review." This took very well and we heard a good deal of comment about it on the street.

The fact is that people do not think enough about the problems of public utilities, and have not done so in the past, and they should be induced to do so by any legitimate possible means. As the editorial suggestion says, it is not a job for one man or one mind.

If I were going to do anything along this line for the industry as a whole I would call in an expert moving picture producer, the best in his line if possible, and tell him the whole story and the purpose that I had in getting this story before the people through the medium that he could provide, then let him go away and think about it for a few weeks, or as long as he wanted to, and then come back and have another talk, when he could ask questions and straighten himself out on things that might not have been clear to him from the first conference. After that let him go away and work out some plan that he thought would be the best means of putting the story over. Of course, in order to be most effective, this style of publicity would have to have a good deal of local interest, but once the plan were decided upon local features could easily be worked out.

E. M. WALKER,
General Manager.

Pictures Must Be Entertaining and of General Interest

Many Problems Are Common to All Companies and They Could Be Woven Into a Broad Educational Film

BY FRANK WERT

Director of Public Relations Pennsylvania-Ohio Electric Company, Youngstown, Ohio

EVERY medium of publicity is good—for something. The question that bothers us from time to time is the selection of the best means to aid in selling the commodity, service or idea in which we happen to be dealing. What may bring excellent results in one case may prove of little value in another.

The editorial in the *ELECTRIC RAILWAY JOURNAL* of Sept. 25 on "Proper Publicity, Its Need and How Shall We Get It?" and the editorial suggestion on "The Next Step in Publicity Work," both dealing with the use of motion pictures as a medium for electric railway publicity, are most timely and open up a broad field for consideration.

That the motion picture presents an excellent medium for reaching the great bulk of the people need hardly be argued when the millions of persons who weekly attend the motion picture shows are considered and when it is recalled that there is hardly a village so small as not at least occasionally to have its "movie" attraction. It is also a well-known fact that "educational films" have been found valuable by a variety of businesses in acquainting the people with their methods and thus popularizing their product. In the railway industry itself pictures have been found helpful in accident prevention movements and, to a milder degree, in other ways.

The question then does not appear to be the value of the motion picture as a medium of publicity, but rather the ways and means of utilizing it acceptably and beneficially. In this regard two essentials (perhaps obstacles) come to mind:

First—The pictures must be interesting and entertaining as well as instructive.

Second—They must approximate conditions as they exist in the locality in which they are exhibited to carry conviction to the spectators.

In regard to this first condition, we must not forget that virtually all the old methods of advertising in motion pictures have been barred from the better classes of motion picture theaters. They were ruled out because they bored spectators who came to the theater for the sole purpose of being amused and entertained. It proved to be bad business to inflict upon these persons advertising slides and even the cleverer devices which, however, bore the indelible imprint of advertising.

Unless the film has sufficient merit to interest the larger number of the spectators it will be of little benefit. If they simply view it to endure it as it passes before their eyes little or no good can result. As was pointed out in the *JOURNAL*, the motion picture is a 100 per cent medium in that it is read by all its subscribers, but, by the same token, what is thrown on the screen must be interesting or the medium will soon be closed to such films. If an item in a newspaper is not interesting, it need not be read; if a part of a picture program is dull, it cannot be dodged, and the manager will find difficulty in filling the house at each performance, and that is what he is in business for.

For these reasons the wisdom of the suggestion in the *JOURNAL* that the making of pictures be in charge of competent and experienced picture men is apparent.

The matter of the acceptability of pictures from a local viewpoint, however, is one that lies largely with the railway management. It is probable, for instance, that a film, no matter how well designed, that revolves around the use of open summer cars would lose much, if not all, of its force in a community where that type of car is never seen. Again, traffic pictures taken in a city that has broad streets would seem to carry little conviction to the average spectator in a city where all thoroughfares are narrow. There would be unreality in the atmosphere of such pictures which would militate against the lesson of the film, whatever it might be, making the desired and necessary impression.

This is hardly so much of a problem for the railways which are contained within one of the larger cities. With them the expenditure of several thousand dollars for a picture wholly local in its scenes might well be worth while. It is, however, a problem of some moment to the properties which serve the smaller cities, or, perhaps, a chain of small towns, for the initial outlay for a local picture might prove prohibitive.

It is to such companies as the latter that the proposal to make pictures which can be used widely and generally has the strongest appeal, and certainly the development of a plan to this end will be awaited with interest by many of them, and would be of value also to the larger companies, even though they could afford to have their own pictures made.

This might seem like a difficult task, but it should not be deemed impossible. There are many problems of the street railways that, minor details excepted, are about the same throughout the country and in the solution of which the understanding and co-operation of the public is necessary. Films dealing with one or another of these might feel the way to effective motion picture publicity.

One such problem will suffice for illustration. A committee of the American Electric Railway Transportation & Traffic Association has been busy for the last two years on a code of traffic principles. The result of its work will be a generally accepted standard dealing with street traffic from the railway point of view. Regulation of street traffic is a subject of very general interest in all cities, large and small. It is a problem that is pressing for solution more and more each year. No doubt an interesting film could be built around this theme and no doubt many persons could be impressed with the need of local regulation and the direction that regulation should take. Salient points in regard to delays to traffic, accidents and the like could be further impressed upon the spectators by the judicious use of motion picture graphic charts. Perhaps arrangements could be made for the use of localized statistics for such charts to be inserted in the film, bringing this phase of the film close to home, even if the pictorial views must be of "foreign" cities.

Perhaps a better topic might be developed for the screen, but in any event the suggestion of the *ELECTRIC RAILWAY JOURNAL* that careful consideration be given to the use of motion pictures for publicity purposes deserves the attention of the managements of properties, large and small, throughout the country, and there can be no better time for the inauguration of such work than right now.

New Car-Mileage Report System

New System for Keeping Car-Mileage, Taken from Motorman's Meter Report Record, Adopted by Tri-City Railway

THE Tri-City Railway (Davenport, Iowa) installed 100 Sangamo meters during June, 1915, and twenty-five additional cars were equipped with meters one year later. This provides a complete equipment for all single cars. Two-car trains are not equipped with meters. For convenience in obtaining and recording car-mileage the Tri-City Railway has recently adopted a new system. A new form of report card has been adopted which includes space for meter reports, number of trips and mileage made on one side and defect reports on the other. As every car taken out of the carhouse must have a report card turned in for it, this provides a convenient record of obtaining mileage made by the different cars. The contract under which the men work allows a motorman fifteen minutes

in trays. The correct mileage for each run is stamped on the tray so as to make it easy for the operating department to check the various reports for any wrong mileage or other mistakes. Where mistakes are found, the report is returned to the motorman and a correct report is put in its place. A record of the number of bad reports sent in by each motorman is kept and every time a report is returned to a motorman the number of incorrect reports received to that date is written on it. After these reports are checked by the operating department they are sent to the meter clerk to make out the car-mileage per line, the extra car-miles and the total car-miles. He also makes out a monthly meter record for each motorman.

After the meter clerk has finished, the reports are sent to the storeroom, where the mileage is kept for wheels, gears, pinions and lubricants. This new system has reduced the clerical work necessary for keeping mileage records by about 50 per cent and gives each department a correct record. It was quite a task to instruct the motorman in the correct method of figuring out the mileage, but now for every thirty days there averages but one incorrect report from every 300. An accompanying illustration shows the form of report card used.

Resolution by Investment Bankers

AT THE recent annual meeting of the Investment Bankers' Association of America, held in Boston, a resolution was adopted on Oct. 3 urging co-operation between investment bankers and the owners and operators of public utilities and regulating officials in laying the salient facts of public utility operation before the public. The full text of the resolution follows:

Whereas sound and constantly expanding public utilities are essential to the welfare and prosperity of the communities served;

Whereas the conditions resulting from the war have increased the costs of utility operation and of new money required for expansion, and prevented the growth of utility service to meet the increasing requirements of the public and of industry;

Whereas there is a recognized shortage of electrical power, and it is of vital importance to the industries of the country that means be found for providing additional power supply;

Whereas the street railway systems are so tied into the business of the nation that their rehabilitation, maintenance and growth must be permitted and provided by the public dependent on their efficient service;

Whereas the telephone and telegraph have become so important in our daily business and social life that they must extend their service daily to meet the public demands;

Whereas the diminishing coal resources and the increasing demands on the oil supplies throw additional burdens on the gas industries which can be met only by their expansion; therefore, be it

Resolved, That it is the sense of the board of governors of the Investment Bankers' Association of America that there should be co-operation between the investment bankers and the owners and operators of public utilities and the regulating officials in laying before the public full information respecting the vital importance of prompt and continuing expansion of all kinds of utility service, and in encouraging such utility regulation as will provide sound credit as the basis for financing, to the end that the investing public may provide the necessary funds by investment in sound public utility securities; be it further

Resolved, That copies of this resolution be sent to the Governors and the regulating authorities of the several states.

The *Literary Digest* quotes extensively from an editorial in this paper urging that those who use the highways should pay for their maintenance, or at least pay more than those who do not use the highways or who use them little.

Form 1063	Car No.....
Tri-City Railway Company Motorman's Daily Car and Meter Report	Have you tried both fenders today
Date.....192.. Car No.....	Do you find them in working condition
Line.....	Report any defect in car.....
Run No..... Car received from.....	.....
Time end..... A.M.	.....
..... P.M.	.....
Meter read.....	.....
Time start..... A.M.	.....
..... P.M.	.....
Meter read.....	.....
Total kw.-hrs.....	.....
No. of round trips.....	Time lost.....
Miles per round trip.....	Cause.....
Miles on line.....	Report defect in overhead work or track.....
Miles from car house to starting point on line.....	.....
Total miles.....	.....
Miles for arsenal car.....	.....
Line..... Tripper Miles.....	.....
Total miles.....	.....
Conductor.....	.....
Motorman.....	Make out a card for each car used.

REPORT CARD FOR METER READING MILEAGE AND CAR DEFECTS

per day for turning in meter, accident and car reports. Any motorman who does not turn in reports is not allowed this time.

As a convenience in carrying out this system, the correct mileage for each run is posted at the station and each motorman is furnished with a small book with the number of miles per round trip on each line, also the distances from all crossovers, junctions and turning points. This enables a motorman to deduct any lost miles, should he fail to make a complete run, and so correct his report for the actual mileage made.

When these reports are turned in they are looked over by the barn foreman for car defects and are then placed

News of the Electric Railways

FINANCIAL AND CORPORATE • TRAFFIC AND TRANSPORTATION

PERSONAL MENTION

D. U. R. Still Fighting

Alleges Illegal Use of Tax Money by City in Behalf of Municipal Railway Project

Argument is being heard before the Supreme Court of Michigan at Lansing in the suit brought on the motion of the Detroit (Mich.) United Railway seeking to compel Circuit Judge Henry A. Mandell to issue an injunction against the city of Detroit and the city officials concerned in putting out electric railway bonds purchased by the city treasurer and sinking fund commission.

The Detroit United Railway attorney argued that wrongful use was made of tax money by the city treasurer and sinking fund commission in the purchase of the bonds. He also argued that since the city charter prohibited the use of tax money in building or buying a railway, the bond issue was merely a subterfuge for evading that provision of the charter. It was further claimed that the sinking fund commission has authority to buy only such city bonds as are an outstanding debt against the municipality, and that the railway bonds which had never been issued did not constitute an outstanding obligation.

The suit is characterized by Corporation Counsel Wilcox as an attempt on the part of the Detroit United Railway to throttle the city because the company is opposed to competition in the city of Detroit. Mr. Wilcox maintains that the claims of the Detroit United Railway have already been disproved. The bonds which were purchased by the city treasurer and the sinking fund commission are now in the possession of the investing public, having since been sold. The sinking fund and the money in the city treasury are now intact.

In answering the claim of the Detroit United Railway that contracts let by the city for approximately 30 miles of municipal railway are void because they were made before the money was actually obtained for the railway fund by the sale of the bonds, Mr. Wilcox stated that the Detroit United Railway ignores the fact that it has been the practice for the past thirty years to enter into contracts as soon as bond issues have been authorized and before the bonds were actually sold. The validity of this practice has never been questioned before. The statement was made that the sinking fund commission not only had the right but was in duty bound to purchase the bonds since, it is required to invest its money in city bonds if possible and at that time there were no other city bonds to be purchased in the market.

While the Detroit United Railway contends that the purchase of the bonds out of tax money was a form of juggling funds, it is claimed that the city could not sell the bonds since Detroit can pay only 6 per cent interest and the loan market at that time was 7 or 8 per cent. Former instances were cited where the city had to buy bonds in abnormal times, in order to allow the carrying on of municipal work. This action was never questioned before.

That buyers of large experience have not hesitated to purchase these bonds is cited as evidence that the suits filed by the Detroit United Railway are not being taken seriously by the public.

In the claims stated by the Detroit United Railway it is held that the bonds were illegally issued and that contracts made because of them were made illegal inasmuch as at the time the contracts were drawn there was no money in the railway funds with which to meet the obligations involved. The subsequent sale of these bonds to innocent purchasers does not validate the contracts and the bonds are still illegal, according to the company. It asks that the court issue an order to impound the money realized from the sale of the bonds to the public so that the city and investors might be protected.

Curtail Power Consumption

A threatened interruption in the railway service of the Milwaukee Electric Railway & Light Company, Milwaukee, Wis., will be avoided through the co-operation with the company by the business, manufacturing and amusement interests of the city in temporarily curtailing their use of electric energy during the hours from 7 a.m. to 7 p.m.

Twelve steel manufacturers who are among the heaviest users of electric power in Milwaukee have agreed to close their electric furnaces one day each week, two closing each day. Milwaukee theaters will also co-operate by eliminating all out-door advertising for five days in the week, from Monday to Friday inclusive. Similar action will be taken by the local grain milling interests. The Association of Commerce will endeavor to obtain the co-operation of other business interests.

The power shortage has been caused by an unprecedented demand for power. The first unit of a new power plant now under construction is expected to be ready for service in the near future and to relieve the situation. The co-operation of the public was asked through the medium of large advertisements in the Milwaukee newspapers.

\$50,000,000 for 450,000 Hp.

Mr. Gaby Continues His Testimony on Hydro-Radial Costs—Estimates of Prospective Railway Business

At the sitting of the Ontario Hydro-radial (Sutherland) Commission in Toronto, Ont., during the week ended Oct. 23, F. A. Gaby dealt with the Chippewa Canal power undertaking now being constructed by the commission. The estimated cost for 450,000 hp. was \$50,000,000. In addition there would be 160,000 hp. from the Ontario Power Company and 50,000 hp. from the Canadian Niagara Power Company for which the Hydro Commission was paying \$12 per hp., and \$18 per hp. for an additional 10,000 hp. Mr. Gaby stated that the cost would be \$12 per hp., delivered to the radial railways at Niagara, and that after construction and maintenance charges were added this was \$2 to \$3 per hp. higher than was charged today.

200,000 HP. AT CHIPPEWA

The original estimates for the Chippewa Canal power scheme called for only 200,000 hp., while the present plans provided for 450,000 hp., which could be developed for \$9 per hp. per year.

With respect to the Toronto-St. Catharines radial electric railway as projected. Mr. Gaby estimated that 550,000 tons of general merchandise would be handled, of which 300,000 tons would be in carload lots. Most of this would come from the urban districts, while 65,000 tons would come from Hamilton.

On the Toronto & Suburban line the Hydro Commission was prepared to spend some \$287,900 on improvements which would greatly better the service. A deficit was anticipated under Hydro management at first, but Mr. Gaby expected the increase in business to care for increasing operating costs.

OPERATING RATIO ADVANCING

On the London & Port Stanley, now under Hydro supervision, the operating expenses in proportion to revenue had been 66 per cent in 1916, 69 per cent in 1919 and 75 per cent in 1920.

On the Toronto & Eastern Railway, Mr. Gaby stated that when completed and extended into the centre of Toronto, the Hydro-radial line expected to handle 75 per cent of the downtown traffic from the Danforth district within a quarter-mile radius of the route during rush hours, and 60 per cent during non-rush hours.

At the sitting on Oct. 21 Mr. Gaby submitted estimates showing a total of 320 miles of track.

Mr. Mitten Outlines His Attitude

Reluctantly Accepts Commission's Order for Seven-Cent Cash Fare— Men Will Receive Higher Wages at Once

Thomas E. Mitten, president of the Philadelphia Rapid Transit Company, has announced that the company will accept the order of the Pennsylvania Public Service Commission fixing the fare to be charged in Philadelphia after Nov. 1 at 7 cents cash, four tickets for 25 cents. At the same time Mr. Mitten makes it plain that he is keenly disappointed that the commission has seen fit to impose upon the P. R. T. a form of fare increase for which it has not asked. Mr. Mitten has also announced that the company on Nov. 1 will begin paying its carmen at the rate of 72.5 cents an hour, and that they will be given back pay as soon as funds are available. The amount of back pay due the men approximates \$1,000,000.

OFFICIALS of the company estimate that the 7-cent fare with reduced-rate tickets, free transfers and 3-cent exchanges, will yield less in revenue than the straight 5-cent rate sought by Mr. Mitten. Before the Public Service Commission had announced its decision, President Mitten was asked whether he was willing to try out any fare plan other than the one he had proposed. He declined to answer the question. It is believed now that he is quite willing to give the commission's plan a fair trial, knowing that if it proves unsuccessful, the blame cannot be put upon him.

MANAGEMENT DISAPPOINTED

Posters defining the company's attitude have been placed in all the cars. These posters addressed to the riding public read as follows:

The Public Service Commission orders P. R. T. to collect 7 cents cash, four tickets for 25 cents, commencing Nov. 1, 1920.

P. R. T., men and management, fought hard for the 5-cent fare and thank you heartily for your most generous help and appreciation. We are surprised and sorry that your big petition and your voluntary payment of the second fare did not receive more favorable consideration.

P. R. T., men and management, value your friendship. We will try to hold the short distance riders by giving you the very best service possible under present conditions.

In announcing to the men that payment of the higher wages would begin at once, Mr. Mitten said:

We are not quitters; we are not cowards. You must not feel that this is a defeat, because if you will remember when Tulley and I tried to teach you nine years ago what was in our minds in regard to the results to be secured by co-operation, we had more than one disappointment and you did not believe it in one telling. Now the tables are turned and you have become the teachers. You are trying to tell the world how peaceful relations can be established and maintained between capital and labor under our co-operative plan, and what wonderful economic results have been here secured.

POLITICIANS TO BLAME

You are trying to tell Philadelphia and certain politicians that their failure to recognize our good work and great accomplishment cannot disturb the integrity of our organization. Courage is sustained when the cause is just. Setbacks such as we have just received only serve to strengthen our determination, even as the healthy, well-nourished tree is strengthened when its energy is driven back to its roots by the pruning of its branches. Strike talk must be discouraged for that harks back to earlier days. Strikes are the weapon of the ignorant; persuasion and persistency in the right are our great weapons and must prevail.

You are, I am confident, going through with this fight in the same dignified way that you have thus far. This, despite the abuse of the Councilmen when you went down to present your petition, despite the thing that has been done to us here and now.

There is unquestionably in this community a feeling that we have been wrongly dealt with. Our best remedy is to let that

seed sink in and flourish. We have the right of this question and it is going to be impressed upon the people.

We must not talk against our government, because in America our government is of ourselves. We all have our votes. We ourselves select our representatives. To find fault with our hand because it is not clean and therefore desire to cut it off is futile. We would clean our hand and it is again a useful member. So it is for us to work for clean government.

COMPANY'S CAUSE JUST

The unrest of today that we see throughout the world is born of distrust and disbelief in the good intent of those in high places. P. R. T. men and management, have confidence in each other, and as surely as you and I now sit here we will succeed. Every seeming defeat we meet, such as now, but strengthens us, strengthens our purpose and weakens our enemy. Why? Because we are right and right must prevail.

I do not want you to lose your dignity with your passengers. You will be asked, particularly by those who are not overly well educated, why this increased fare? I know what you have been saying; I know what I would be inclined to say, but I don't want you to say it. This is the reason for the window sign, which will have been placed in the cars. Take the contents of this window sign for your text and you cannot go wrong. We cannot lose so long as our cause is just. We have got the money to pay our rent.

We will start our new wage scale Nov. 1 and we will accumulate the rest of the money as quickly as we can for your back pay. The amount due you for back pay up to Nov. 1, when we begin paying on the higher scale of wages, will be about \$1,000,000, and when we pay this to you we will try to pay it in one lump sum, so that you may put it away and add it to your savings, for as sure as we are sitting here the time is coming, and coming soon, when prices will be lower, houses will be cheaper, and every dollar you save now, in your saving account, will have at least \$2 worth of purchasing value in days to come.

Removal of New Jersey Commissioners Before Court

The Senate of New Jersey, in special session, has refused to confirm the appointment of the new Board of Utility Commissioners, named recently by Governor Edwards. In consequence it is expected the whole matter will now be threshed out through quo warranto proceedings instead of certiorari.

Supreme Court Justice Swayze refused to issue a writ of certiorari against the Governor at the behest of the members of the old board to review the executive's action.

The Senate in refusing to confirm the nominations referred them to the judiciary committee. The Senate also asked Attorney-General McCran to determine the legality of the Governor's act.

It is expected that the Attorney-General will apply for a writ of quo warranto to require the members of the present commission to show by what right they hold office.

In commenting on the refusal of the Senate to confirm the nominations, Governor Edwards said:

It is the plain duty of the Senate to act upon the appointment of the new commissioners. They have the right of rejection if in their judgment any of the men I have nominated are improper appointments, but they have no right to hold up the business of the state by a refusal to act at all.

The message sent by Governor Edwards to the Senate with the nomination was as follows:

As you are perhaps aware, charges were filed with me by the city of Jersey City against John W. Slocum, George F. Wright, Harry L. Knight and Andrew Gaul, Jr., former members of the Board of Public Utility Commissioners, for neglect of duty and misconduct in office. In accordance with the provisions of the statute, copies of such charges were served upon those former members and protracted hearings held.

Full opportunity was given for the presentation of evidence by both sides. The result of the hearing was my finding that the charges had been proved. I accordingly removed the said persons as members of said Board of Public Utility Commissioners.

It therefore becomes necessary for me to make certain nominations to fill the vacancy caused by such action. Those nominations accompany this message.

It may be suggested that the removal of the persons in question was without warrant in law, and for that reason your honorable body should not act to confirm the new appointments. It is a sufficient answer, it seems to me, to say that the Supreme Court, to which the removed persons applied for relief, has refused to review the action of the Executive Department.

Improvements at Springfield Are Progressing Satisfactorily

Early in the year the Chamber of Commerce of Springfield, Mass., declared in favor of a monopoly of transportation by the Springfield Street Railway under proper regulation and guaranties. The wisdom of this action was certified to when Peter Witt presented his report on the Springfield Street Railway as an investigator employed by the city of Springfield.

During the winter the officials of the chamber held several meetings with officers of the Springfield Street Railway with a view to securing the extension of the Carew Street line to East Springfield, the double tracking of the St. James Avenue line from Thompson Street to the Westinghouse plant, and the extension of the Page Boulevard line to connect with the Indian Orchard line.

The railway from the beginning recognized the necessity for this work, but was unable to finance the extensions. The officials of the company realized that the Chamber of Commerce is not a financing organization, but that the extensions were necessary, and that the transportation facilities of the city must keep pace with its other activities.

The Chamber of Commerce decided to help sell \$300,000 of bonds of the railway, this being the amount necessary to finance the projects mentioned. This issue has now been nearly all subscribed. The railway began the construction of the lines some time ago, and by the end of the year hopes to have the new routes in operation.

Employees Before Court in Receivership Case

Kansas City Trainmen Ask Court to Retain Present Management and Preserve Pleasant Relations

The presentation by representatives of employees of the Kansas City (Mo.) Railways of a promise and petition was one of the striking features of the receivership hearing in Kansas City on Oct. 21. The employees promised their co-operation in operation and service to the public, declared that they expected and would promote uninterrupted service and asked that present pleasant relations with officials be continued. Judge Kimbrough Stone, on the bench, expressed appreciation of the spirit in which the petition was offered, and said that the employees' suggestions would be considered.

ONE of these suggestions was that Col. Philip J. Kealy, president, be made a receiver, or continued as operating head of the company. Colonel Kealy, immediately after the petition was presented, declared that he had not been aware that such a recommendation was being considered and that it was unauthorized. He asked that the petition be disregarded as to himself.

MR. PEW SPEAKS FOR MEN

The employees were represented before the court by John P. Pew. He said that he did not appear in behalf of any one party of the receivership proceeding, but desired to speak for a moment. He explained that when the employees learned that the receivership proceeding was pending, they voluntarily circulated petitions for signature and subsequently asked him to appear for them. He represented 3,300 working people. The position of the employees was this:

Perhaps 60 per cent of the gross receipts of the company go to pay for labor. Of every 8 cents you deposit for a fare practically a nickel goes to pay for labor. The pay-roll is about \$6,000,000 a year. Their attitude is that the first interest to be considered is the public; that the next interest to be considered is the interest of the employees; and the third the property. The property, indeed, has right in this, but what it gets is incidental to these others, and unless these others are considered first then property rights are of little value.

He said that following the strike in December, 1918, a new operating organization had been built up around 200 platform men who remained in the service of the company. Moreover, a most comprehensive plan had been devised for collective bargaining and for the settlement of grievances, the details of which were set out in a book which he offered as evidence. Since December, 1918, no grievance had come up for settlement that had passed beyond the division committee. He then read the objects sought to be attained by the Kansas City Railways Employees' Brotherhood.

EMPLOYEES PROMISE CO-OPERATION

In concluding Mr. Pew said the employees promised the court, the receivers and the people of Kansas City that "we will work whole-heartedly and together for the good of the company and for service to the public. Under no circumstances will we permit any interruption of this service." The employees desired:

(1) That no outside labor interest or those not in the company's employ be given any part in the present proceedings. (2) That nothing be done to dis-

turb the pleasant relations existing between the employees and their officers. (3) That Col. P. J. Kealy be retained either as a receiver or as the operating head of the company.

Mr. Pew apologized for speaking in behalf of parties not in actual interest to the suit, but expressed the belief that the court would welcome the suggestions of the employees and heed their request.

Mr. Kealy at this point stated to the court that he should like the record to show that the matter which Mr. Pew stated came to him as a great surprise; that it was not authorized and that while he appreciated the compliment, he would not have the court consider the matter as authorized by him. He respectfully requested that his name be withdrawn from any consideration in the matter suggested by Mr. Pew. He said:

It is embarrassing and, while complimentary, I should like the court to consider the withdrawal of my name under the circumstances.

The court said that it was a source of gratification to know that the attitude of the employees was as stated. Assurance was given that the suggestions from the men would be carefully considered.

Except for the preamble the petition presented by Mr. Pew was as follows:

Since the appointment of a temporary receiver there have daily appeared in the newspapers statements that numerous interests would ask representation. We respectfully submit that the interests of the 3,500 men whose daily labors make possible this public service, and whose livelihood is dependent upon the success of this company, are just as important as those of financial and civic interests.

There have been rumors that those who left the service in December, 1918, without warning to the public, causing tremendous financial loss to Kansas City, and untold inconvenience to the public, would attempt either openly or otherwise again to interfere in the operation of this property. Such an attempt if successful could only result in bad feeling, factional strife and again allow of the interference of foreign agitators in the present situation.

LABOR SITUATION GOOD

The labor situation on this property is without question the best in its history. The feeling between employees themselves and the relations between them and their officials are those of co-operation, mutual help and square dealing. Collective bargaining has been provided for and grievances are immediately adjusted. In the past eighteen months under our present officials this organization has been developed from practically nothing to its present state of efficiency. There are today only about 600 in the employ who were here prior to December, 1918.

We therefore respectfully petition the court:

1. That no outside labor interest nor those not in the company's employ be given any part in the present proceedings. 2. That nothing be done to disturb the present pleasant relations existing between the employees and their officials. 3. That Col. P. J. Kealy, under whose leadership this

organization has been built up, be retained either as a receiver or as the operating head of the company. We have confidence in his ability and we know that the spirit of co-operation he has made possible will result if possible in better operation than at present.

Should a different man be placed at the head of this property it would require months for him to familiarize himself with the organization, the property and the service. The employees would be at a disadvantage, as would the public.

EMPLOYEES PROMISE CO-OPERATION

On our part we promise the court, the receivers and the people of Kansas City that we will work whole heartedly and together for the good of the company and for service to the public. That under no circumstances will we permit any interruption of this service.

This petition is the joint effort of the Kansas City Railways Employees Brotherhood, to which over 2,000 employees belong, and of the presentation committees elected by and representing every employee of the company. It is the outgrowth of a unanimous feeling that we have won the right to ask representation before the court.

The amounts opposite our names are subscribed for the purpose of employing counsel and defraying our expenses in the present proceedings.

On Oct. 22 Colonel Kealy addressed his fellow employees as follows:

Your action before the Federal Court yesterday is one of the most remarkable examples of loyalty and co-operation in the history of the electric railway industry. There should now be no question in the mind of anyone where this organization stands in relation to agitators, dictators or outside labor interference. You have demonstrated that you are able to conduct your own affairs without such influence; that you have all the necessary machinery for collective bargaining, and that you have the ability to use it.

I cannot find words to express my deep gratitude for your expression of confidence. There have been many heavy responsibilities connected with the Kansas City Railways, especially during the troublous times of the past eighteen months. The knowledge that I have had the respect and loyalty of my fellow employees has lightened this load and made a most arduous task a pleasure.

In the pending proceedings I have no personal ambition. I have long looked forward to the day when I could with a clear conscience lay down the responsibilities my position imposed, when I could escape the oft-times unfriendly criticism and publicity. I had thought the time had come when I could step aside.

However, if I should be asked to continue the work we have carried on together, my acceptance would be only because of your wishes, and in the knowledge that I have behind me the united and loyal co-operation of a wonderful organization.

Should my connection with the organization be severed, however, I shall take away with me the knowledge that I have enjoyed your friendship and respect, and that your co-operation has made possible the progress we have made in the past year. This knowledge is sufficient reward. Your action will remain a treasured memory. With all my heart I thank you.

As noted elsewhere in this issue Francis M. Wilson and Fred W. Fleming have been named permanent receivers of the railway.

Seattle Men Want Seventy-five Cents

Trainmen of the Seattle (Wash.) Municipal Railway have applied to Mayor Hugh M. Caldwell for a conference, with a view to revising their contract, looking toward increased wages. The communication to the Mayor points out that at a special meeting of the railway employees on Oct. 8 it was decided to ask for a conference between the employees, the Mayor and D. W. Henderson, superintendent of street railways, "at the earliest possible date." Among the demands of the men are the following:

All motormen and conductors to be paid 75 cents an hour; the regular day to be eight hours, with time a half for all time over eight and a half hours; guarantee of eight hours' pay a day, seven-hour runs to be considered a regular run; all runs not completed in ten consecutive hours to be paid half time for all time intervening. This affects "swing runs," where men work two or three hours, then are off for three or four hours, and return for a second shift. The men also ask that 75 per cent of the runs be made straight through.

All trainmen who work as extra men to be guaranteed \$150 a month; all regular Sunday and holiday runs to be completed in 4½ to six hours, the same to pay eight hours; allowance for the ten minutes spent at the carhouse after reporting and before taking their cars; allowance of fifteen minutes extra time each day to turn in daily reports; extra time when relieving crews where it is necessary to report at the carhouse earlier than the customary ten minutes; guarantee of eight hours when regular runs are canceled; discontinuance of the practice of allowing men who have worked regular runs to take trippers or do other extra work; this change, the letter says, is designed to distribute the work.

Mayor Caldwell has not yet replied to the communication, or indicated what action will be taken.

Welfare Reports Published

The reports of the welfare departments of the Interborough Rapid Transit and the New York Railways for the year ended June 30 have just been made by H. H. Vreeland, director of welfare. The policy of the organizations is to benefit each and every employee physically, mentally and morally. The work is carried out under definite and concrete rules of helpfulness. The Bureau of Nurses alone made a total of 2,925 calls upon the sick.

Finding employment for the idle and assisting widows of employees to obtain the State Widow Pension, sending employees to the country to regain their strength and vigor are also practical demonstrations of what these benevolent organizations have been doing.

Not satisfied with caring for the physical comforts of the employees the Interborough and the New York Railways' welfare organizations offer educational advantages in the school for operators where training in the elementary theory of electricity is given.

In the matter of purely social activities in the interest of the entertainment of the employees in their non-working hours the past year has been a very successful one. The reports in detail are given in the October issues of the *Interborough Bulletin* and the *New York Railways Employees' Magazine*.

Toledo Awaits Local Election

Settlement of Franchise Matter There Overshadows the National Issues

The fight for a railway settlement in Toledo, Ohio, assumed toward the close of the campaign more importance than the national contests. The vote on Nov. 2 will be a double one with the possibility of approval of both municipal ownership and service-at-cost plans as submitted.

M. O. DEFEAT PREDICTED

On Oct. 28 the indications were that the twin bond issues for a municipal line will be defeated. Very little campaigning has been done in the city in behalf of the municipal ownership proposal, members of the municipal ownership commission, which drafted the ordinance, centering their energies on a drive against the service-at-cost franchise.

The election will provide Toledo citizens with the opportunity of making a definite and clean settlement of a problem that has kept the city from development for many years. The Doherty interests have operated the lines of the Toledo Railways & Light Company for more than six years. They inherited a bitter fight for franchise renewals. Past history has been dragged into the present battle for the service-at-cost plan.

W. L. Milner, chairman of the cost-of-service commission, has made a strong campaign for his ordinance. This measure Mr. Doherty and other railway experts have declared to be one of the best of its kind even though the company was forced to yield on many disputed questions. Of the two afternoon dailies, the *News-Bee* is fighting the franchise and favoring the municipal ownership propositions. Negley D. Cochran, its editor, has made a personal matter of the question with Nat Wright, editor of the *Blade*. The *News-Bee* has opposed a settlement of the issue for several years. Its editor once served on a commission which drafted a community ownership plan which at no time during the pending discussion had a chance for adoption. Many of the provisions of this grant, however, were better for the railway than the present service-at-cost franchise, which he is opposing.

RAILWAY OUSTED LAST YEAR

At the primary election municipal ownership was given a dreadful thrust. A few more than 20,000 voted on the measures. The registration for the Presidential election has totalled more than 89,000 and will be the largest expression ever polled on any railway matter in Toledo. It is thought the majority of the women voting will support the service-at-cost plan.

It is nearly a year since the famous ouster ordinance went into effect. That measure was directly responsible for the negotiations which have led to the plan of settlement now before the people.

News Notes

Algiers-Gretna Men Vote to Strike.—Motormen and conductors of the South New Orleans Light & Traction Company operating between Algiers and Gretna, La., have voted to strike on Nov. 1 unless granted an increase in wages. The officials of the company believe there will be an amicable arrangement between the company and the employees in view of the hoped-for increase in fares. The wage demand will probably be granted to the men if the Commission Council of New Orleans passes favorably upon the application of the company for increased rates.

Cities Asked to Operate Lines.—General Manager Pulliam of the Wisconsin Public Service Company, after testifying before the Wisconsin Railroad Commission that service in Manitowac and Two Rivers is given at a loss, invited these cities to take over the lines and operate the cars. The city is asking for extension of lines on the west and south sides. On the other hand, the company is demanding increased fare on city lines, dismissal of the petition for extensions, and the right to remove tracks on certain streets. The city contends that if the proper extensions were made the lines could be operated at a profit for the company. The matter is pending before the Railroad Commission.

City Planning Commission Promoting Inquiry.—The City Planning Commission of Kansas City, Mo., has appointed subcommittees to investigate and report on the following subjects of improvement: Transportation, industry, commercial districts, highways, zoning, residential districts, recreation. The committees have available data included in a report by George E. Kessler, adviser to the board of park commissioners. Mr. Kessler made a report of similar import more than twenty-five years ago, and as engineer assisted in putting that report on the landscape as the present park and boulevard system. His report on this present subject made special reference to the possibility of subways and elevated structures for diverting heavy traffic and alleviating congestion and to the possible necessity for interurban freight and passenger stations. It was intimated at the meeting that additional interurban lines may be expected to enter Kansas City. R. P. Woods, vice-president and general manager of the Missouri Short Line, an interurban electric road, was made chairman of the committee on transportation. Mr. Woods was formerly city member on the board of control of the Kansas City Railways.

Financial and Corporate

Surplus Earnings Increase

After Paying Preferred Stock Dividend Surplus of United Light & Railways Amounted to About \$700,000

Surplus earnings for the United Light & Railways Company, Grand Rapids, Mich., for the year ended June 30, 1920, show an increase over 1919 of \$145,000, or 26 per cent. This surplus was obtained after a preferred stock dividend of \$603,000 had been deducted. The net income for 1920 was \$1,302,599. Compared with \$1,161,583 in 1919 the increase in net was \$141,016, or 12 per cent.

Gross earnings of the subsidiary companies increased about \$1,000,000. The operating expenses increased almost as fast, allowing the net earnings to be increased only \$538,850, or 1.9 per cent over 1919. The net profit of the subsidiary companies due the United Light & Railways Company amounted to \$1,935,605, an increase of \$67,184, or 3.6 per cent. After adding the interest and dividends receivable, and miscellaneous earnings, and subtracting all the deductions for interest and general expenses, the net income was found to be \$1,302,599 as previously mentioned.

This company is a holding corporation. It controls public utility concerns in Iowa, Indiana, Michigan, Illinois, and Tennessee. The total capital stock in the hands of the public amounts to \$19,905,099. Total funded liabilities in the hands of public are \$29,218,800, making total capital liabilities of \$49,123,899.

Among the railway properties which the company controls are the Cedar Rapids & Marion City Railway, the Grand Rapids, Grand Haven & Muskegon Railway, the Mason City & Clear Lake Railroad and the Tri-City Railway & Light Company. These companies operate more than 200 miles of electric railway.

Trolleys Continue Decline

Long Island Roads Report a Decrease of Nearly 230 per Cent Over Year 1918

Electric railways operated by the Long Island Railroad show a total deficit for year ended Dec. 31, 1919, of \$22,308. This is more than double the deficit of 1918. Five companies are included in the returns. Only one of

upon application made to it that the company is entitled to the advance.

Steps taken by the company to abandon certain lines were met with remonstrances by Kingston people and its Taxpayers' Association, and at a hearing before Chairman Charles B. Hill, Francis C. Merritt, representing the Taxpayers' Association, stated that in his opinion residents of Kingston would much prefer to pay a higher rate

Year ended Dec. 31, 1919	Ocean Elec. Ry.	Huntington R. R. †	Northport Trac.	Nassau County Ry.	Glen Cove R. R.	Total
Operating revenues.....	\$205,578	\$37,699	\$11,645	\$17,977	\$26,400	\$299,299
Operating expenses, taxes and uncollected railway revenue.....	153,708	48,133	18,017	20,721	28,018	268,597
Operating income.....	\$51,870	*\$10,434	*\$6,372	*\$2,744	*\$1,618	\$30,702
Non-operating income.....	302	155	212	212	212	1,093
Gross income.....	\$52,172	*\$10,279	*\$6,160	*\$2,532	*\$1,406	\$31,795
Deductions from gross income.....	50,993	2,340	586	38	146	54,103
Net income.....	\$1,179	*\$12,619	*\$6,746	*\$2,570	*\$1,552	*\$22,308
Dividends.....	None	None	None	None	None	None
Balance to profit and loss.....	\$1,179	*\$12,619	*\$6,746	*\$2,570	*\$1,552	*\$22,308
Outstanding capital stock.....	\$35,000	\$28,950	\$45,000	\$35,000	\$10,000	\$153,950
Outstanding bonds.....	\$20,000	\$26,000	None	None	None	\$46,000
Miles of single track.....	15.59	19.97	2.74	1.60	3.50	43.40

*Deficit. †Dissolved Sept. 23, 1919.

these, the Ocean Electric Railway, is self-supporting. The net income of even this company decreased over last year by \$13,000. The returns of the Huntington Railroad are not comparable, because the company was dissolved on Sept. 23, 1919, and a full year's report is not available.

Consent of City Needed

Saul Zielonka, City Solicitor of Cincinnati, Ohio, in a recent opinion returned to W. C. Culkins, street railway director, held that under the existing franchise the Cincinnati Traction Company cannot dispose of any property with a clear title without the consent of the city. The City Solicitor held that under the present service-at-cost plan and the recently enacted ordinance the city has an option on the company's property, and that the company is not in a position to dispose of its property without the consent of the city. The question was brought up after the railway had disposed of the Bogan Street carhouse without first notifying the office of the Street Railway Director.

Petition for Abandonment Denied

The Public Service Commission for the Second District of New York has denied the application pending before it for approval of abandonment of certain lines of the Kingston Consolidated Railroad, pending the disposition of an application to be made for a 7-cent fare in that city in place of the recent 6-cent fare. The Kingston Common Council has consented to the additional 1 cent, providing the commission shall find

of fare than to see any part of the road abandoned. Mayor Palmer Canfield, Jr., expressed the opinion that a majority of the people would prefer to pay 7 cents than to have the line abandoned.

Chairman Hill holds that it is the duty of the commission to withhold its approval of the proposed abandonment and deny the application. His recommendation to the commission provides that the present proceedings may be renewed after the application for an increase in fare has been decided.

INCOME STATEMENT—UNITED LIGHT & RAILWAYS COMPANY

Year Ended June 30:	1920	1919	Percentage Change
Gross earnings of subsidiary companies.....	\$10,695,639	\$9,664,500	+10.7
Operating expenses (including maintenance, general and income taxes).....	7,868,653	6,891,364	+14.2
Net earnings of subsidiary companies.....	\$2,826,986	\$2,773,136	+1.9
Deductions from net earnings:			
Interest on bonds, sub-companies due public.....	\$681,008	\$695,550	-2.1
Interest on notes, etc., sub-companies due public.....	28,028	29,199	-3.5
Dividends and earnings on preferred stock.....	170,238	170,795	-0.3
Profit due minority stockholders.....	12,107	9,170	+32.0
Total deductions from net earnings.....	\$891,380	\$904,714	-1.5
Net profit of subsidiary companies due United Light & Railways.....	\$1,935,606	\$1,868,422	+3.6
Interest and dividends receivable:			
On bonds and stocks of other companies.....	\$1,241	\$1,203	+3.2
On bank balances and certificates of deposit.....	6,122	5,816	+5.3
Miscellaneous earnings.....	545,271	323,289	+68.7
Total gross earnings of United Light & Railways.....	\$2,488,240	\$2,198,730	+13.2
Deductions from gross earnings:			
General expense, including taxes.....	\$253,066	\$178,530	+42.0
Interest on first and refunding 5% bonds.....	456,129	438,462	+4.0
Interest on 6% three and five-year bond secured gold notes.....	44,533	90,000	-50.5
Interest on 6% 2 1/2 year bond secured gold notes, "series A".....	72,252	90,000	-19.7
Interest on 7% 5 year bond secured gold notes, "series B".....	105,000	76,903	+36.6
Interest on 7% one year bond secured gold notes, "series C".....	57,807	.....	.....
Interest on 7% bond secured gold notes, "series of 1920".....	32,396	.....	.....
Interest on ten-year convertible gold debentures.....	120,000	120,000	.....
Interest on commercial loans.....	44,458	43,252	+2.8
Total deductions from gross earnings.....	\$1,185,641	\$1,037,147	+14.3
Net income.....	\$1,302,599	\$1,161,583	+12.1
Preferred stock dividend.....	603,249	606,986	-0.6
Surplus earnings.....	\$699,350	\$554,597	+26.1

Permanent Receivers Named

Messrs. Wilson and Fleming Placed in Charge of Affairs of Kansas City Railways

Judge Stone in the Federal Court at Kansas City, Mo., on Oct. 26 named two permanent receivers for the Kansas City Railways to succeed F. C. Niles, temporary receiver. The permanent receivers are Francis M. Wilson, now United States District Attorney, and Fred W. Fleming, real estate dealer, formerly manager of the Kansas City Life Insurance Company. Each will give bond for \$50,000.

It was expected that the receivers would qualify before Saturday and have had time by then to reach conclusions as to certain contracts now under way. The court set Saturday morning for receiving the recommendations of the receivers and establishing the status of contracts, particularly that on the Twenty-third Street viaduct.

The final order appointing Messrs. Fleming and Wilson receivers of the company was made on the afternoon of Oct. 27 by Judge Stone. Midnight Wednesday was set as the hour for them to take charge of the property.

ORDER OF CLAIMS FIXED

The final order avoided establishing general rules for priority of claims and accounts. The receivers are expected to make up lists of bills due, of contracts and similar obligations, prepare their recommendations and present the lists, the recommendations and the opinions to the court.

The original order mentioned Aug. 1 this year as the date previous to which supply bills for operating necessities would not have priority, but the final order of the court on Oct. 27 threw all these bills into the class of other obligations, the status of which must be fixed after the receivers have considered them and reported to the court. Such listing and reporting to court will, it is considered, avoid the necessity for creditors coming in with intervening petitions as they will have their day in court.

Municipal Road Has Small Deficit

Fred Boeken, superintendent of the San Francisco (Cal.) Municipal Railway, expresses himself as well pleased with the showing of the railway for the fiscal year ended June 30. There was a deficit of \$22,131, but at the present 5-cent fare this is considered auspicious, particularly as \$486,551 was set aside for depreciation. The total earnings for the year were \$2,729,015. Against this was charged off the following amounts:

Operating expenses	\$2,002,101
Depreciation (18%)	486,551
Bond interest	233,503
Compensation insurance	28,991
Total	\$2,751,146
Total earnings	2,729,015
Deficit	\$22,131

Mr. Boeken states that the month of September was one of the best in the history of the road and that the sys-

tem more than paid all charges last month with \$7,000 actual net profit. In this connection Mr. Boeken said:

If business keeps going through the fiscal year as it has started we will be able to wipe out any deficit that may have been shown for the last fiscal year and have a profit to the road's account in addition to the depreciation fund that we are gradually piling up.

Accumulated Shortage of \$591,365 in Dallas

The Dallas (Tex.) Railway has issued a statement covering operation for the month of August and for the thirty-five months under the present franchise. The company operated under a 5-cent fare up to June 27, 1920, when a 6-cent fare was put into effect to continue for one year. It is pointed out by Richard Meriwether, vice-president and general manager, that the company even under the 6-cent fare has failed to earn the authorized 7 per cent on its invested capital by \$24,574, and that the accumulated shortage on permissible return, covering the thirty-five months of operation under the franchise granted on Oct. 1, 1917, is \$591,365.

The detailed financial statement of the company follows:

Total property value, determined in the manner provided by the franchise—	
close of business Aug. 31, 1920	\$8,971,533
(This represents the amount of money invested in the actual property as agreed with the city, and is not the stock, bonds or outstanding securities.)	
Authorized return—7% per annum on property value (for August) ..	\$51,884
(This is the 7% per annum on the amount of money invested in the actual property; not on stocks, bonds or other outstanding securities. It is the amount the company is permitted to earn by the franchise now in effect with the city.)	
Gross income from all sources, month of August, 1920	\$279,201
Operating expenses, month of August, 1920	251,891
(Operating expenses do not include interest on bonds, stocks, notes, commissions or discounts on loans or cost of raising money. Oak Cliff rental or dividends on stocks; these items are paid out of the "return," if any is earned; otherwise they are not paid.)	
Balance earned for return, month of August, 1920	\$27,309
(This is the actual amount of money earned during the month, and is the difference between the gross income and the operating expenses. Out of this return must be paid interest on bonds, notes and securities, commissions or discounts or loans or costs of raising money, Oak Cliff rental and dividends on stock, if any.)	
Shortage in permitted return, month of August, 1920	\$24,574
(This represents the difference between the amount of money the city franchise says we are permitted to earn and the actual amount of money earned.)	
Amount net earnings for August available for distribution to stockholders. None	
Amount net earnings for August available for transfer to surplus reserve. None (Self-explanatory. If there is a shortage in the "permitted return" for the month, there cannot be any money available for transfer to the surplus reserve.)	
Total shortage for thirty-five months (Oct. 1, 1917 to Aug. 31, 1920, inclusive) on permissible return	\$591,365
(This is the total amount of money which we have fallen short of earning the 7 per cent per annum on the dollars invested in the actual property since we have been operating under the new franchise.)	
NOTE —Six-cent fare became effective June 27, 1920.	
Passengers carried in May, 1920 ..	5,682,705
Passengers carried in Aug., 1920 ..	4,955,580
Decrease in passengers carried in August compared with May	727,125

Bus Line Sold

Puget Sound Railway Disposes of Auto Lines Started as Experiment When Jitneys Appeared

A deal has been consummated whereby the transportation business of the Puget Sound Auto Bus Company, a subsidiary corporation of the Puget Sound Power & Light Company, has been transferred to Joseph Silver and W. W. Whipple, Seattle. Five 2-ton Mack trucks, the good will of the company and the assistance of the company that made the sale in getting the new owners started in the business are included in the deal. The amount of money involved in the transaction has not been made public.

The route heretofore served by the Puget Sound Auto Bus Company lies between Seattle and Bothell, a distance of approximately 19.5 miles. The bus system was organized about five years ago and developed by the Puget Sound Power & Light Company, under the capable direction of W. H. McGrath, vice-president. The line has maintained hourly schedule between Seattle and Bothell. It is understood the system has been well patronized and that some money was made.

TWO LINES STARTED

Shortly after the "jitneys" made their appearance on Seattle's streets the Puget Sound Traction, Light & Power Company, as it was then known, determined to go into the auto bus business, as an experiment, using the buses as feeders to its interurban lines. The company was after data; it wanted statistics on the cost of operating bus lines. Two lines were started, one between Bothell and Seattle, the other between Auburn and Enumclaw. The project was undertaken originally as the Washington Auto Bus Company, but later following a re-incorporation and the sale of the Auburn-Enumclaw line the name of the company was changed to the Puget Sound Auto Bus Company.

W. J. Grambs, manager of auxiliary operations of the Puget Sound Power & Light Company, handled the negotiations attendant upon the sale of the line. In speaking of the sale he said:

We sold for several reasons. The two most pertinent ones are: first, we got a fair price, and, second, the business is too small for us to continue to engage in it. I believe it is safe to say, the Puget Sound Power & Light Company will not engage in the auto bus business again. What plans we may have had have been abandoned. We are through with the auto bus business. It is too small.

Mr. Grambs believes under private ownership the lines will thrive. He states that Silver & Whipple, the new owners, have gone about the proposition in a way that cannot help but produce results. Already they have interested patrons of the line by selling them stock in the company. The company is incorporated for \$15,000. Shares in the concern are sold for \$10 each. To date more than 200 shares of stock have been sold without solicitation.

Detroit Lines May Be Segregated—Company in Strong Position

Confirmation comes by way of Montreal of the rumor current in Detroit of the possible segregation of the suburban and city lines of the Detroit United Railway. A. J. Ferguson, vice-president of the company, resident of Montreal, says the company is in a position within its own resources to provide for its financial needs for a considerable time in the future. In consequence no temporary financing is contemplated. Demands upon the company for increased facilities are increasing and if any permanent plan of financing is adopted segregation of the lines will undoubtedly result. Mr. Ferguson is quoted by the Montreal *Gazette* as follows:

The general situation of the company is that by reason of withholding increased dividends, representing a fair return on the value of its property it has employed in serving the public, the railway has accumulated a large surplus. In January, 1902, the company was authorized to issue \$25,000,000 of bonds, secured by a mortgage on its property, to provide for underlying bonds and to meet requirements from time to time with reference to the extension and development of its lines.

It was considered at the time that the provision made by this \$25,000,000 mortgage would provide for necessary extensions and betterments indefinitely, but the increase in population and the development of industries and commercial activities within the territory that is served by the company has been so great that the provision thus made has been exhausted, the mortgage having now been closed several years.

The increased demand for extension of the company's system and general facilities continues, and our bankers have advised that before, or in connection with, the adoption of any permanent financial plan, the company's properties be segregated—the city lines from the suburban.

If this plan, which is under consideration, shall upon full investigation and consideration be deemed wise, it would involve a reorganization to some extent, and also the adoption of a comprehensive program with reference to the financial needs of the company, both for the near and distant future.

The company proposes efficiently to serve the people within the territory occupied by its system, having full regard to the future increase in population.

If a plan of reorganization and for permanent financing be finally approved by the board of directors of the road it will of course, be submitted to the stockholders for their consideration.

Utility Credit Cannot Be Injured with Impunity

Chester Cleveland, a member of Mayor Thompson's cabinet, and a special assistant corporation counsel of the city of Chicago before the Public Utilities Commission in matters affecting the Chicago companies, in a recent interview in the Chicago *Herald-Examiner* says that any newspaper printing a statement concerning a public utility company such as affects its credit or standing in the community and upon which full proof cannot be furnished may be sued for libel by the utility and a full recovery of damages obtained.

The city representative cited the point in connection with the suits for \$20,000,000 damages brought by Mayor Thompson in the name of Chicago against two newspapers. In those suits it is claimed that articles were "recklessly and maliciously published" and have "made it difficult for the city to

borrow money because of the alleged reflections upon the name of the corporation—the city of Chicago."

In commenting upon the suits, Mr. Cleveland said in the interview:

If these newspapers persistently published that the Chicago Surface Lines or the Chicago Telephone Company or the Chicago Elevated Railroad, or any other of the great financial institutions of Chicago, were bankrupt and their credit exhausted, the corporation so libeled would undoubtedly sue for more than the city has sued in these suits.

The Chicago official says that not only could suit be brought and damages obtained because of publication of statements affecting credit, but that any other untrue charge which might hold a corporation, such as a public utility, up to ridicule or incite public feeling against it, would offer full grounds for legal action under the libel law, some such statements offering the basis for indictment and prosecution on criminal charges.

American Light & Traction Net Earnings Reduced

Gross earnings of the American Light & Traction Company, New York, N. Y., for the twelve months ended June 30, 1920, were \$4,162,515 as compared with \$4,211,398 in 1919, a decrease of \$48,883, or about 1.2 per cent. The net income was \$3,894,234, a decrease of \$77,483, or 1.9 per cent.

During the twelve months, cash dividends on the preferred stock required \$854,172, and the common stock \$2,340,492. Stock dividends on the common required \$2,340,491, making a total deduction for all dividends of \$5,535,154, \$79,338 more than the previous year.

Commenting on the action of the di-

Winnipeg Bus Costs Are 25.71 Cents per Bus-Mile

Experience of the Winnipeg (Man.) Electric Railway with its motor bus service in operation since May, 1918, indicates that the motor bus can be used to the best advantage in a new district where travel does not justify the initial cost of railway construction.

The company operates seven sixteen-passenger buses on routes which serve as feeders to the railway. Only five buses are in regular operation, the others being held in reserve for emergencies. The bus services were started as an expedient. It is the company's intention to replace the buses with electric railway service when conditions warrant. The company has prepared a statement covering the cost of operating five of these buses for the seven months ending July 31, 1920. The figures follow:

Cost of five busses.....			\$12,930
Total miles operated.....			66,183
		Total	Cost
		Costs	per Mile,
			Cents
Drivers.....	\$5,366.30		8.12
Tires.....	980.84		1.48
Gasoline.....	3,593.14		5.42
Oil.....	328.90		.48
Labor for repairs.....	2,056.42		3.11
Materials for repairs.....	1,072.91		1.62
Storage rental.....	350.00		.53
Insurance:			
Liability.....	\$630.00		
Fire.....	52.78	682.78	1.06
Taxes including driver's			
licenses: provincial and city			
car licenses.....	152.00		.23
General expenses, including			
supervision, accounting and			
other overhead expenses.....	312.93		.47
Total of above expenses.....	\$14,896.22		22.52
Depreciation.....	1,508.50		2.28
Interest on investment.....	603.40		.91
Total costs.....	\$17,008.12		25.71

INCOME STATEMENT—AMERICAN LIGHT & TRACTION COMPANY

Year Ended June 30:	1920	1919	Percentage Change
Earnings on stocks of subsidiary companies owned by this company.....	\$3,215,996	\$3,417,867	- 5.9
Miscellaneous earnings.....	946,519	793,531	+19.3
Gross earnings.....	\$4,162,515	\$4,211,398	- 1.2
Expenses.....	268,281	239,681	+11.9
Net earnings.....	\$3,894,234	\$3,971,717	- 1.9
Surplus reserve June 30, 1919.....	11,150,696	12,634,796	-11.8
Total surplus earnings.....	\$15,044,930	\$16,606,513	- 9.4
Dividends deductions for 1920:			
Cash dividends on preferred stock.....	\$854,172	\$854,172	.....
Cash dividends on common stock.....	2,340,492	2,300,823	+ 1.7
Stock dividends on common stock.....	2,340,491	2,300,822	+ 1.7
Total dividends.....	\$5,535,155	\$5,455,817	+ 1.5
Surplus balance June 30.....	\$9,509,775	\$11,150,696	-14.7

rectors in cutting the common dividend from 2½ per cent in cash and stock to 1¾ per cent, quarterly, Alanson P. La-throp, president, said:

The reduction in common stock dividend as compared with previous quarters was deemed advisable in consequence of the decreased earnings due to the abnormal advance in cost of material and labor and to the necessity of conserving cash to take care of extensions and betterments required by subsidiary companies to meet franchise requirements.

Among the railway properties controlled by the company are the Muskegon Traction & Lighting Company and the San Antonio (Tex.) Public Service Company.

It will be noted from the above that motor bus costs total 25.71 cents per bus mile. The cost of street railway service in Winnipeg during the same period was 27.60 cents per car mile. In the comparison it is seen that there is a difference of 1.89 cents per mile in favor of the bus, but this makes no allowance for the greater carrying capacity of the car. Another factor is the increasing price of gasoline. Gasoline in Winnipeg cost 37 cents per gallon in January last, 47 cents last June and in October is costing 51 cents. The price for electricity, on the other hand, has remained practically constant.

International \$44,735 Behind

The income account of the International Railway, Buffalo, N. Y., for the period from Jan. 1 to Sept. 30 follows:

Operating revenue.....	\$8,249,140
Operating expenses.....	A-6,370,064
Net operating revenue.....	\$1,879,076
Taxes.....	495,534
Operating income.....	\$1,383,541
Non-operating income.....	38,815
Gross income.....	\$1,422,357
Deductions from gross income.....	1,237,209
Net income.....	A-\$185,147

A—Does not include \$229,882 additional charge for the six months January to June necessary to comply with the Public Service Commission formula for the determination of the proper allowance for depreciation.

Financial News Notes

Municipal Road Authorizes Bonds.—The municipally-owned Norton & Taunton Street Railway, Taunton, Mass., has authorized a further bond issue of \$30,000, to be shared equally by the cities and towns, for the purpose of providing car and power additional equipment.

Decade Average Values in Iowa Valuation.—The report of the property appraisal of the Tri-City Railway of Iowa in Davenport will probably not be filed for another month. The appraisers will furnish data on replacements for 1920 as well as an average of replacement values for the period since 1910.

Lee-Huntington Line Being Removed.—The work has started of removing that part of the Berkshire Street Railway from Lee to Huntington, Mass., built in 1913 when the road was under New Haven domination. Ten or twelve miles of track will be removed. There has been no regular service by the company over the road for several years now.

Receipts Falling Off in Baltimore.—According to Herbert B. Flowers, general manager of the United Railways & Electric Company, Baltimore, Md., the number of fares to be shown on fall records will be below that of the past few years. Half-time operation and abandonment of night shifts in many industries are being reflected in the company's receipts.

New Note Issue Plan.—It is expected that the one-year 6 per cent notes of the Hagerstown & Frederick Railway, Hagerstown, Md., will be paid at maturity, new financing having been arranged to provide funds therefor. It is contemplated that a new issue of \$1,050,000 of 8 per cent notes will be issued, to be dated Oct. 15, 1920, secured by collateral pledge with the trustees.

Petition for Abandonment Denied.—

A petition of the Delta Light & Traction Company, Grenada, Miss., for authority to abandon its railway service was heard recently by the Railroad Commission and the petition was denied. Disposition of the matter is now pending in the Circuit Court on a writ of certiorari with prospects of a settlement at a conference between the Mississippi authorities and the officers of the traction company.

\$13,000,000 Issue Planned at Youngstown.—A syndicate of local investment houses in New York has purchased and will probably offer to investors soon \$13,000,000 of twenty-year 7½ per cent bonds of the Pennsylvania-Ohio Electric Company, Youngstown, Ohio. The proceeds of the sale will be used in part to redeem \$11,967,000 of 5 per cent bonds of the Mahoning & Shenango Railway & Light Company maturing on Nov. 1.

Paducah Company Reports Profit.—An amended bill of complaint showing earnings from operation for twelve months ended Sept. 30 has been filed in the Federal Court by the Paducah Street Railway. The amended bill submits a detailed account of its business and an estimate of the value of its properties. The total revenue of the company was \$159,424, and the cost of operation, excluding taxes and depreciation, was \$129,590.

Road at Carlisle to Suspend.—The committee representing the holders of the bonds of the Cumberland Railway, Carlisle, Pa., has announced that operation of the road will be discontinued on Nov. 1. The road extends from Carlisle to Mt. Holly Springs Park and Newville Glens Springs Park. The property of the railway was sold under foreclosure recently, following failure by the company to pay interest on outstanding bonded indebtedness.

Hearing by Court on Service Suspension.—Federal Judge Julius M. Mayer has issued a temporary injunction restraining the Public Service Commission from bringing action in any court other than that of the United States to compel Lindley M. Garrison, receiver for the Brooklyn Rapid Transit Company, to operate certain lines which have been idle since the strike two months ago. A hearing on the injunction is to be held on Nov. 1. Residents of Brooklyn deprived of service are protesting vigorously against the abandonment.

Threat to Surrender Franchise.—Surrender of the franchise held by the South Covington & Cincinnati Street Railway in Cincinnati, Ohio, is probable if the present agreement between the city and the company cannot be amended by act of the City Council, it recently developed at a conference of W. W. Freeman, president, and Polk Lafoon, general manager of the company, with W. C. Culkins, Director of Street Railways. A clause in the present franchise specifies that not more than a 5-cent fare may be charged on this line as long as that is the rate paid

on the Cincinnati Street Railway. Whether this can be interpreted to warrant a 3-cent increase on the "Green Car Lines" following the precedent established by the Cincinnati Street Railway will be passed on by the Cincinnati City Solicitor.

\$28,702 Needed for Hyde Park Line.—An expenditure of \$28,702 is necessary to put into safe and proper condition the roadbed, tracks, poles, wires and other appurtenances of the Hyde Park railway system for its operation for one year by the Boston (Mass.) Elevated Railway, according to a report Mayor Peters has received from the State Department of Public Utilities. To put the system into safe and proper condition for five years operation \$68,208 is needed according to the report. The city will provide \$30,000 under the provisions of a legislative act of this year. The city has appropriated so far this year \$80,000 for Hyde Park transportation facilities. Of this sum \$30,000 remains unexpended. This will probably be used to meet the \$28,702 expense estimated by the Department of Public Utilities.

Reorganization Rumors Denied.—Rumors to the effect that an early reorganization of the Pittsburgh (Pa.) Railways, now in the hands of the receiver, will be made are denied by W. A. Thompson, president of the Philadelphia Company, which controls the Pittsburgh Railways. He says reorganization is out of the question until the matter involving the foreclosure of the Southern Traction Company, a subsidiary, is straightened out and that this seems a long way off. Receivers Charles L. Fagan, S. L. Tone and W. D. George also declare there is nothing to the rumor. They say the report developed through the visit to Pittsburgh of Eastern bankers, who hold bonds of the Philadelphia Company, to look over the physical properties. This they do frequently. No unusual significance is to be attached to their trip now.

May Buy Bay State Property.—The property of the Bay State system in New Bedford, Mass., controlled by the Eastern Massachusetts Street Railway, is desired by the Union Street Railway. This company will offer to purchase the Bay State line from Lund's Corner to the city line. There has been a temporary agreement under which the Union Street Railway has been operating cars over the Bay State tracks to Sassaquin. This agreement will expire on Dec. 1. If the trustees of the Eastern Mass. Street Railway should refuse to sell the road the line might be torn up. In this event the Union Street Railway will probably build a new system on the present location. Homer Loring, chairman of the trustees of the Eastern Massachusetts Street Railway, seems anxious to hold on to the line in the hope that the Legislature of next year will do something toward having the company which now owns the line restore its abandoned service.

Traffic and Transportation

Galveston's Need Great

Company Seeks Injunction Against City in Fare Case—Engineers Differ on Valuation

Henry J. Dannenbaum, special master representing the Federal District Court for the Southern District of Texas, has concluded the taking of testimony in the suit of the Galveston Electric Company against the city of Galveston. The company is seeking an injunction restraining the city from enforcing the provisions of a municipal ordinance limiting the fare on the local lines to 5 cents. The railway contends that the 5-cent fare, which was reimposed by the city after a 7-cent fare had been installed, is confiscatory.

The chief points of difference between the engineers who made surveys of the property are: The amount of going concern value to be added to the "bare bones" value of the property in order to determine a valuation for rate-making purposes; the probable reproduction new value of the property; the amount of accrued depreciation now existing as pertains to the company's property; the amount to be allowed the company annually from current earnings as depreciation value, and the rate of a fair return which the company should be allowed to earn on the valuation figure thus arrived at.

DIFFER ON VALUATION

The engineers have reached an agreement on the undepreciated record cost of the property from 1881 to June 30, 1920, which they place at \$2,100,537, exclusive of the value of the franchise and of material and supplies on hand. They have also reached an agreement on the undepreciated cost of reproduction new of the plant on a historical basis, exclusive of franchise value, going concern value, bond discount and brokerage fee. This they place at \$1,720,000.

Consideration was given in this estimate of \$202,000, consisting of overhead expenses; \$136,281, cost of grade raising, together with various estimations made on the cost of rails. This item also includes \$186,000 worth of transmission property. Other material issues that have been reconciled by the engineers are the record costs of the property and the reproduction value based on the prices at which the component parts of the plant were purchased.

H. P. Gillette, valuation engineer representing the company, offered statistics to show that the company had earned a fair return on its investment in only ten years since 1881, and that the company is now facing receivership unless relief is afforded in increased earnings. Mr. Gillette tes-

tified that during the years when a fair return was earned, the company earned 8 per cent after 1.5 per cent of earnings had been charged off for depreciation. He also offered testimony to show that the company's plant had been practically rebuilt during the last twenty years.

Henry E. Elrod, representing the city, maintains that the annual depreciation should be balanced by the development, in so far as these two items are equal, for with the funds allowed for depreciation new equipment is purchased and new parts of the plant installed to replace the old parts. The two engineers are more than \$100,000 apart on the matter of accrued depreciation.

Attorneys for the city, basing their calculations on Mr. Elrod's findings, maintain that the company is now making a return of 8 per cent on its invested capital. The company's representatives assert that a rate of 8 per cent return would be adequate, but that the company is not now making anything like that per cent. The difference in the two calculations lies in the amounts to be charged off for development and maintenance and for depreciation.

Concessions for Steady Riders

Regular patrons of an electric railway are entitled to concessions in the shape of reduced rates, according to an opinion recently handed down by the Pennsylvania Public Service Commission. The commission ordered the Buffalo & Lake Erie Traction Company, Buffalo, N. Y., to reduce the ticket rate on its lines in Erie, Pa., from 7.5 cents to 6½ cents. The railway was authorized to continue charging an 8-cent cash fare on its Erie lines. For rate making purposes the commission fixed the value of the company's lines in Erie at \$4,100,000.

Commissioner Rilling, in ordering the reduction, said that every one who regularly uses an electric railway line "has more than a temporary interest therein." Mr. Rilling remarked that "the house in which they live has a greater value if the means of communication between it and their place of business is adequate and ample." He said further:

A reciprocal regard by the utility and the public for their respective interests and duties and a frank avowal of respective obligation and interdependent relations, would be most helpful in adjusting any conflicting situations that may at any time arise.

It is important that the service rendered a community by its public utility be efficient, economical and adequate, the same as its fire department or any of its other local governmental functions. * * *

Rates to be paid utilities should not be maintained at a fixed and definite stationary amount, but should reflect the conditions under which each is obliged to operate; same to be increased or decreased as existing conditions require.

Fare Settlement Nearer

Court Orders Des Moines Receivers to Curtail Wage Payments Unless Adjustment Is Reached

Federal Judge Martin J. Wade has issued an order looking to a permanent settlement of the financial difficulties of the Des Moines (Iowa) City Railway. Judge Wade has ruled that unless a permanent fare adjustment has been made within thirty days, the employees of the railway shall be paid the back wages due them only in such amounts as shall be available after the payment of operating expenses, including current wages.

Judge Wade has also announced that he will appoint a special master to recommend to the court a plan for the relief of the company. He has declined to sanction a further increase in fare pending the master's report. A temporary 6-cent fare is now in force.

In handing down the order Judge Wade said:

I find that contrary to expectations the extra 1-cent fare provided in order heretofore made has reduced the travel so that there is little left, after paying the current advanced wages, to apply on the back pay. I also find that the company is not earning enough to meet fixed charges. I intended of course that the net results from the 1-cent increase should be applied upon wages.

CANNOT DEplete OPERATING FUNDS

Last month the full amount from the 1-cent extra fare was so applied and under all the circumstances I feel that the same should be done this month, but of course this cannot continue. As I have repeatedly said, I cannot take the money which belongs to other funds to pay the advanced wages, and I am only making this order in the hope that before another month is up some plan will be devised which will make some definite provision for payment of a substantial amount each month upon the back wages.

I do not feel that I am justified in making another advance in fares until the matter has been thoroughly considered whether it is possible for the city to work out some plan to take care of this emergency. I am going to appoint a master not with any view of fixing permanent fares, but with a view of arriving at a plan which will carry the company a few months in the hope that by that time something definite will be done by the city. The street railway cannot run unless there is enough income to pay wages and fixed charges. There is no question of profit involved, because the company is willing to operate so long as the expenses of operation can be paid from income.

The 6-cent fare was authorized by the court last August to allow the company to grant a demand of its carmen for an advance in wages from 60 to 70 cents an hour. The men subsequently struck because of the failure of the order to provide for the payment of back wages. Judge Wade thereupon made the wage increase retroactive to March 1.

One-Man Cars for Morgantown

One-man cars will be operated on the loop lines of the West Virginia Utilities Company, Morgantown, W. Va., at an early date. J. K. Buchanan, general manager, said:

We have reached the point where we cannot operate and maintain the loop line with our present revenues. I do not believe that higher fares would solve our problem, because if we boosted the fare the volume of passenger traffic would be reduced to the point that our income would be no greater than at present. We have finally decided upon the one-man car. In the past few years this style of car has become increasingly popular and each month sees its introduction into more towns. It is no new thing.

Ten-Cent Fare in Connecticut

Commission Grants Company's Application for Higher Rate as an Emergency Measure—Zone System Completely Scrapped

The Connecticut Public Utilities Commission on Oct. 22 granted the petition of the Connecticut Company, New Haven, for a straight 10-cent fare on its lines throughout the State. The new rate goes into effect on Nov. 1. The only exception where the ruling does not apply is in the New London territory, where a 10-cent fare is already being charged. Free transfers will be continued. Commutation tickets will be issued good between the traffic centers of towns. The present fare on the other lines within the State is 7 cents. The commission explained in its decision that the ruling was only temporary, as the commission hopes that when the Legislature convenes next January it will solve the traction problems that exist throughout the State. The order granting the increase was signed by Commissioners Richard T. Higgins and Joseph W. Alsop. Commissioner C. C. Elwell opposed the 10-cent fare and filed a dissenting report.

WHEN the 10-cent rate goes into effect the zone system will be scrapped completely and the fare limits which prevailed under the former 5-cent rate will again come into existence. The zone system was put into effect in November, 1919, and was modified in May and again in August, but has never been a paying proposition to the traction company in any section of the State.

Lucius S. Storrs, president of the company, contends that the 10-cent fare is a partial but not a complete solution of the State's traction problems. He holds that the provision in the commission's ruling that the trolley question is to come before the Legislature does not necessarily imply that fares can be reduced at that time, even if the Legislature gives the railway relief from taxation. He points out that the large amount of unpaid taxes would have to be handled and provided for before reduction of fare rate could take place even if relief is given in other respects.

LEGISLATURE MAY ACT

Several of the Connecticut cities, which at first thought of appealing for a rehearing on the commission's order have decided to await legislative handling of the transportation problem of the state. There is a realization that both the Connecticut Company and the Public Utilities Commission are laboring under certain restrictions in that neither can take any steps regarding jitney competition or the elimination of any of the various imposts, both of which make the fare situation difficult. The legislature convened in January and while it failed to make any move in 1919, the situation has grown so acute that public sentiment will demand action in 1921. Under the Connecticut borough system of legislative representation however, the suburban and rural districts are in control, whereas the fare situation is more acute in the cities.

The fare change from 7 cents urban and 6 cents per two-mile suburban zone to 10 cents on the old 5-cent zone limits needs explanation in order that the real change in charges be understood. The actual effect is that all 7-cent riders under the present scheme will pay 10 cents under the new and practically all 13-cent riders will pay 10

cents. This practically covers the various city areas.

Outside of the cities, the new rate per mile is the same as the present—namely approximately 3 cents. In other words the new rate will be 10 cents for the old 5-cent zone of about 3 miles. The ultimate result therefore is that the congested city rider is raised from 7 to 10 cents, the rider on the outskirts has his fare reduced from 13 to 10 cents, whereas the suburban or interurban rider is charged the same as before.

MONTHLY TICKETS CONTINUED

The Connecticut Company under the new schedule will not return to the form of commuters' ticket book, issued under the old fare system, but will issue monthly commuters' tickets as at present on the basis of 2.5 cents a mile. An undated commuters' ticket book would annul the effect of a 10-cent fare on those lines on which commuters' rates apply, company officials state, since a large majority of passengers would ride on commuters' tickets. Under the present system of monthly tickets only those who make use of them every day buy them and all others pay single fares.

The commission's order reads in part:

The Connecticut Company is hereby ordered and directed to establish and put into effect on its entire system, excepting the New London Division, on and after Nov. 1, 1920, a flat 10-cent fare with fare limits based upon the original 5-cent fare areas, as per plan and schedule filed with the commission, entitled: "Schedule of Fare Limits, Docket No. 3429," with free transfers at all established transfer points; and the company is authorized to make such mutual adjustments of apparent inequitable fare terminals and lapovers as herein before referred to in this finding.

School tickets shall be issued at one-half the above regular rates.

The company shall issue commutation tickets good for round trip daily, between the traffic center of any incorporated city or borough having a population of 25,000 or more according to the latest authenticated census, or any designated point within such city or borough and points more than five miles distant therefrom, on all lines radiating from such traffic centers, for the number of days in any month, less Sundays and legal holidays; such commutation tickets to be sold at the rate of 2.5 cents per mile; to be issued to the individual commuter and be non-transferable and to expire at the end of each month.

All previous orders of this commission inconsistent herewith are hereby cancelled and annulled.

In granting the new rates the commission said in part:

It is apparent from all the facts connected with this case that the flat 10-cent fare proposed by the company is not excessive, viewed from the point of producing more revenue than the company is legally

entitled to, and no logical maximum rate that the commission could establish would produce sufficient revenue under existing conditions and only partially restricted competition to wipe out, short of several years, the existing past due obligations of the company and to pay thereafter a fair return on the value of the property after the payment of proper operating expenses, fixed and overhead charges.

Assuming a return to the flat fare on the original fare limits, which seems to be generally desired, the question for the commission to consider and determine at this time is what the flat rate should be for such fare limits—whether 7, 8, 9 or 10 cents.

The interlocutory order issued July 30, 1920, was a temporary adjustment and the commission feels that any order issued by it at this time should and will have to be of a temporary nature as to its duration and effect. The commission, under the direction of the Legislature, is making an investigation of street railway conditions in Connecticut, and will report to the next General Assembly, and expects to be able to make some recommendations which with legislative action will tend to solve or at least relieve the present street railway difficulties. Pending such investigation, report and legislative action, the adjudication and establishment of rates for street railway service will of necessity be of a temporary nature.

As stated in the interlocutory order, the commission is of the opinion that the general public would prefer a return to substantially the old flat rate zones or fare limits and the establishment of a system of flat rates for such fare limits, although certain communities have expressed the desire for a distance tariff outside of the original city zone or fare limit.

The plan and schedule of zones or fare limits filed by the company in connection with its petition for a 10-cent flat fare, are substantially the same as the zones or fare limits established and maintained by the company under the original 5-cent flat fare. As previously expressed by the commission, those fare limits are not in all cases equitable, being in some cases unfair to the company and in others unfair to the traveling public, and any adoption at this time of the original fare limits should be with the understanding that certain inequalities and defects should as soon as convenient be adjusted and ironed out by the company in conference with the patrons involved, and when necessary under the order and direction of this commission.

It is with extreme reluctance that the commission at this time contemplates the necessity of a further increase. We feel impelled, however, to the view that it is of vital importance . . . that the railway industry be preserved, even at the cost of a high rate of fare, pending a more final and permanent solution.

Provided there had been no unfair burdens resting on the company, in the nature of paving and bridge obligations, and had it not for the past five years been confronted with the unregulated public service automobile, * * * we believe there would have been no need for a petition to increase the rate to 10 cents at this time.

Taking into consideration all the facts connected with the case . . . we are of opinion that pending the final investigation and report of this commission to the Legislature, and possible legislative action thereon, the flat 10-cent fare asked for by the company, based on the original 5-cent fare limits, should be granted as just and reasonable maximum rates and charges at this time.

Commissioner Elwell's dissenting report reads in part as follows:

The Connecticut Company was warned by this commission not to adopt the distance tariff system before holding a public hearing, but the warning was unheeded, and after eight months' trial the experiment was pronounced a failure by President Storrs when he appeared before the commission asking for a charge to the present rate, which was granted as a temporary measure, and since Aug. 9 the company has been operating under the 7-cent city area collection, with 3 cents per mile for suburban territory.

Figures furnished by the company showed that it received about 12 per cent more revenue between Aug. 9 and Sept. 30 than was collected for the corresponding period of the previous year. What it would have collected had there been no change from the old 6-cent rate is problematical.

In less than three months this whole matter will be in the hands of the State Legislature for adjustment. In the meantime, I believe we should allow the company to re-establish the old 5-cent limits with the same lapovers and charge 7 cents where they originally collected 5 cents.

Full Jurisdiction Exercised

California Commission Defines Its Authority in Granting an Increase in Freight and Passenger Rates

Apprehensive of a construction being placed on its recent action in granting increased rates to the railroads to conform to those granted by the Interstate Commerce Commission as having been a concession of the powers of the State to the mandate of a national governing commission, the State Railroad Commission of California addressed a communication to the Interstate Commerce Commission clearly defining the legal position upon which it desires to stand.

The state commission declares that its decision in the matter of increasing the rates in California was to place them on a parity with the rates granted by the national commission and that its action was based on the policy and practical needs of the situation rather than what the commission construed to be a mandate of the law. The state commission firmly sets forth its opinion "that the powers of the state authority over intrastate rates have not been nullified or reduced by the transportation act."

Inclosed with the communication was a copy of the California Commission's rate decision in which the commission voiced its opinion that practical necessity demanded the adoption of the interstate commerce rates for intrastate business. The California Commission then says:

"We are now without challenge exercising full jurisdiction over state rates."

There are now pending before the Interstate Commerce Commission several cases involving the power of that body to increase state rates resulting from the failure or refusal of several state commissions to place state rates on a parity with the increased rates authorized by the Interstate Commerce Commission. The California Railroad Commission was asked to join with the other state commissions in a presentation of its views on the matter, but it did not do so as time and distance did not permit of the receipt and study of the proposed presentation by other states. On this point the California Commission says:

However, to whatever extent the views of this commission may differ from the views of those state commissions which refused to adopt the increases granted by the Interstate Commerce Commission, we desire to emphasize complete agreement and accord with any and all state commissions in so far and to the extent that such commissions defend the legal right of state commissions to determine, fix and establish reasonable rates for intrastate business. To that extent it is this commission's desire to adopt and stand with all other state commissions entertaining similar views.

Wants More in Grand Rapids

To meet the demands of its employees for an increase in wages the Grand Rapids (Mich.) Railway has applied to the Grand Rapids City Commission for an advance in fare. The company has offered its carmen a maximum of 60 cents an hour, but will be unable to pay at this rate unless fares are raised. No

specific fare is mentioned in the petition to the city authorities, who are asked to determine a just and reasonable rate. The present fare is 7 cents cash with sixteen tickets for \$1.

The company submits figures to show that since April, 1918, a total deficit of \$212,992 has accrued, with a total surplus of \$8,878, making a net deficit of \$204,112. In July, 1920, the deficit was \$5,446. In August it was \$2,455. The deficit for the month of September amounted to \$8,982. This was in spite of the fact that receipts were the largest of any month in the company's history. The petition says in part:

Our motormen and conductors in August made demands for a greatly increased wage as compared with the 51-cent maximum rate which was being paid them at the time we previously asked for the increased rate of fare. We offered them an increase of 9 cents per hour or a maximum of 60 cents per hour for employees who had been in the service one year or more. Part of our employees have accepted this rate but the majority have asked for an arbitration in the matter, claiming they should have a still higher scale.

At the 60-cent maximum rates our operating expenses will be increased approximately \$10,000 per month. We expect that during the ensuing year we will have to pay nearly, if not quite, this 60-cent maximum rate, and will have to have the revenue necessary to meet it. Had we been operating during the past month at the wage rate in effect previous to Sept. 1, our operating report, instead of showing a loss of \$8,982, would have showed a gain of \$1,266. For each 1 cent per hour of increase in wages our operating expenses are increased approximately \$1,000 per month.

You of course know that for the past two years we have not attempted to get a rate of fare which would yield us a profit, but one merely which would permit us to pay expenses. The last dividend payment on our preferred stock was made Oct. 31, 1918, and the last dividend payment on our common stock was made March 1, 1918.

Under the existing conditions we feel that we must have an increase of fare to take care of the increase in wages already agreed to.

Save Your Money—Use the Trolley

A handy timetable for patrons of the electric railway in Mount Vernon and New Rochelle, N. Y., is a booklet, entitled "Hello, Fred, How Is the Bus Running?" It is published by the Westchester Electric Railway. Passengers who ask for one and take it along with them on their ride to Tuckahoe or Pelham and read it will most certainly be playing the "glad game" thereafter.

The booklet is entertaining and instructive and points a moral, too. Especially will it be of value to the car rider who always complains about poor service. Let him read of the woes of Friend Fred, owner of an auto who, in an accommodating way, gave a lift to nine persons one morning all in a hurry to get to the railroad station; of the subsequent catastrophe to two "shoes" costing about \$90 as contrasted with a cost of 45 cents on the trolley (even if he had been wildly extravagant and paid all nine fares); of Fred's resolve to give up his car and take advantage of the comfortable, fast and cheap electric railway service provided for him.

Then, too, the little book gives real information about automobile expenses that should be of value to the auto aspirant. As Fred says, "It's a Wise Guy Who Knows What Becomes of His Money."

Transportation News Notes

Suburban Rate Doubled.—The Idaho Public Utilities Commission has authorized the Boise Valley Traction Company, Boise, to raise the fare on its Hillcrest loop line from 5 cents to 10 cents. The company has applied to the commission for an increase in fare on two other lines.

City Will Run Buses.—The City Council of Pottsville, Pa., has voted to establish a line of motor buses between Pottsville and Yorkville in competition with the line of the Eastern Pennsylvania Railways. A 5-cent fare will be charged. The railway charges a 10-cent fare between the two towns.

Want More in Tuscaloosa.—Officials of the Tuscaloosa Railway & Utilities Company, Tuscaloosa, Ala., have announced that they will apply to the Alabama Public Service Commission for an increase in the fare charged on the company's railway line from 6 cents to 7 cents. The company will also ask for an advance in gas and power rates.

Would Raise Pittsfield Rate.—The Berkshire Street Railway, Pittsfield, Mass., has petitioned the State Department of Public Utilities for permission to raise its fare from 5 cents to 6 cents. The increase is made necessary by the advance in wages recently granted the company's employees as a means of ending the strike which tied up service on its lines some time ago.

Minimum Fare Eight Cents.—The Denver & Interurban Railroad and the Denver & Intermountain Railroad, Denver, Col., recently increased their rates for both passenger and freight service. Under their new schedule, the minimum fare on the lines of both companies is raised from 7 cents to 8 cents. The fare between Denver and Golden has been advanced from 28 cents to 48 cents.

Higher Freight Rates Asked.—An increase of approximately 40 per cent in express and freight rates is asked by the Indianapolis & Cincinnati Traction Company, Indianapolis, Ind., in a petition which the company recently filed with the State Public Service Commission. The petition asks that the new rates be 150 per cent of the first-class freight rates now in effect for electric railways in Indiana.

Court May Pass on Rate Powers.—The Illinois Public Utilities Commission has announced that if necessary, it will bring to the United States Supreme Court the issue of State jurisdiction over intrastate rates. The commission recently issued an order granting an increase of 33½ per cent in freight rates as against the increase

allowed by the Interstate Commerce Commission. It has since amended this order so as to allow an increase of 35 per cent on intrastate traffic.

Buses for Abandoned Routes.—The Board of Estimate and Apportionment of New York City has directed Commissioner Grover A. Whalen of the Department of Plant and Structures to establish bus lines over routes of the Brooklyn Rapid Transit Company's surface lines which have not been in operation since the recent strike began. Operation of these lines, nine in all, was discontinued by the company at the direction of Federal Judge Julius M. Mayer.

City Fights Fare Rise.—Steps have been taken by the city of Reading, Pa., to prevent the Reading Transit & Light Company from raising its fare on its local line from 6 cents to 8 cents. The company recently announced that effective Oct. 27 it would begin charging 8-cent fares on its city lines and 9 cents in each zone on its suburban lines. The railway has since offered to compromise the dispute by selling four tickets for 30 cents. The city is still contesting the increase in fare from 5 cents to 6 cents two years ago.

Jitneys Prohibited in Denver.—The emergency jitney service in Denver, which has been in operation since Aug. 1 because of the strike of the employees of the Denver Tramway, was suspended on Oct. 5. Manager of Safety and Excise F. M. Downer declared that although many drivers had ceased to operate buses since the strike settlement there were between 200 and 300 jitneys in operation when the order was given. During the strike the jitney men were permitted to drive buses in Denver without license or restriction.

Seven Cents in Fort Worth.—The Northern Texas Traction Company, Fort Worth, Texas, recently announced that it would increase its fares in Fort Worth from 6 cents to 7 cents, effective Oct. 22. Fares were raised from 5 cents to 6 cents on May 1 of this year. The City Commission of Fort Worth has ordered an investigation of earnings to ascertain if the second increase is justified. The company's franchise does not limit the fares to be charged. If investigation shows that earnings are now adequate, injunction to restrain 7-cent fares will be sought.

Fare Increase Enjoined.—Judge George L. Bell has issued a temporary injunction restraining the Georgia Railway & Power Company, Atlanta, Ga., from raising the fare on its lines in College Park. The company had announced its intention of raising the fare from 5 cents to 7 cents, beginning Oct. 20. The city in asking an injunction, contended that the company's franchise limited the fare to 5 cents. The company was refused an increase on its lines in College Park and Decatur in the recent order of the State Railroad Commission in which an increase in fare from 5 cents to 7 cents on the Atlanta city lines was authorized.

City Favors One-man Cars.—W. C. Culkins, Street Railway Director of Cincinnati, Ohio, has arranged for a survey of the city's traction situation with a view to the adoption of one-man safety cars by the Cincinnati Traction Company. Mr. Culkins recently declared that the one-man car "was the most important advance in electric traction development for a long time," and that the greatest obstacle to the use of such a car in Cincinnati was the double trolley system. This announcement was made in connection with the installation of several "safeties" by the Cincinnati, Milford & Blanchester Traction Company on its lines in the city.

City Must Make Complaint More Definite.—The Supreme Court of Wisconsin held on Oct. 19 that the city of Milwaukee must make more definite its complaint against the orders of the Wisconsin Railroad Commission granting the Milwaukee Electric Railway & Light Company an increase in its rates of fare. The Wisconsin Railroad Commission had permitted increases in fares in the city of Milwaukee. The city brought an action in the Circuit Court of Dane County for a review of this order. The railway then asked the court to compel the city to make its complaint more definite. This the court did and from this ruling the city appealed to the Supreme Court of the State. The Supreme Court held that the city could not appeal in this case.

Commission Lacks Rate Power.—The New York Court of Appeals has denied the motion made on behalf of Lindley M. Garrison, receiver of the Brooklyn Rapid Transit Company, for a re-argument concerning the right of the Public Service Commission to permit the company to raise the fare on its surface lines to 8 cents. The decision of the court stands, that the commission has no jurisdiction over the fare when the fare is stated in the franchises. The court held that the fare could not be increased without the consent of the Board of Estimate. The Appellate Division of the Supreme Court will listen early next month to arguments on the jurisdiction of the commission over fares on the rapid transit lines. An order by the commission states that it is without jurisdiction and the court action is to dispose of the question finally.

Eight Cents in Santa Barbara.—The Santa Barbara & Suburban Railway, Santa Barbara, Cal., has been authorized by the State Railroad Commission to raise its cash fare from 5 cents to 8 cents. The company has been directed to sell five tickets for 35 cents. The City Council recently made concessions in the matter of service furnished by the company, and the commission recommends that the latter take advantage of this permission to curtail its operating costs. The introduction of one-man safety cars on the Santa Barbara lines is also recommended by the commission, which holds that the system is efficiently operated. The railway has never paid a dividend, has been operating at a steady deficit

since 1914, and since 1916 has failed to earn operating expenses. It is capitalized at \$899,000.

Court Sustains Nickel Fare.—Interpreting the franchise of the Toledo, Bowling Green & Southern Traction Company, Findlay, Ohio, Common Pleas Judge William F. Duncan recently held that the twenty-five-year grant, obtained in 1915, limited fares to 5 cents for all purposes. Ten-cent charges in some instances had been collected by the company. A ruling also was handed down by Judge Duncan overturning a decision of the Council five years ago ordering the company to move its North Main Street tracks from the side to the center of the street. Judge Duncan held that the present Council has full authority to deal with the matter of tracks. The Council recently repealed an ordinance granting the company a 10-cent fare. The railway has applied to the State Public Utilities Commission for authority to cease operation.

Merchants Combat High Fares.—Merchants doing business in Quincy, Mass., have formed an organization to protest and possibly to take action against the present fares on the Eastern Massachusetts Street Railway. The movement is headed by Col. Henry L. Kincaide, who has declared that unless a cheaper rate can be given by the company he will advocate abolition of all car service in Quincy and the installation of jitneys. He believes the 5-cent zone system could be replaced. At present there is a 10-cent zone system in the city, the fare for a ride from one side of the city to the other being 20 cents. From Quincy Square it costs 20 cents to go to South Braintree, 15 cents to Braintree, 20 cents to East Weymouth and 30 cents to South Weymouth. The merchants who are now protesting declare the high fares are seriously affecting both the city and the suburban business.

Holds "Safeties" Violate Law.—The operation of one-man safety cars in Texas constitutes a violation of the State "Jim Crow" law requiring separate cars or separate sections of cars for negro passengers, according to Homer Stephenson, city prosecutor of the city of Houston. Mr. Stephenson, in moving to dismiss a case involving alleged violation of the "Jim Crow" law on the part of a passenger, explained that the State law provides that there can be no violation until the conductor of the train or car shall request the passenger to take a seat in the proper compartment or section and the passenger refuses to comply. Mr. Stephenson said there is no conductor on the one-man cars and hence there can be no violation of the "Jim Crow" law on such cars, and he concludes that the operation of such cars then constitutes a violation of the "Jim Crow" law. A number of "safeties" were recently placed in service on the lines of the Houston Traction Company. Additional cars will soon be in operation.

Legal Notes

MISSISSIPPI—*City Held Not Liable for Death of Driver of Motorcycle from Collision with Guy Wire Posts.*

Where a municipal street was 37 ft. wide and 17.7 ft. of this width was in good condition for vehicles, and where an electric railway had been authorized to set poles between the travelway and the sidewalk about 3½ feet from the outer limits of the travelway, neither company nor city is liable for the death of the driver of a motorcycle who was killed while running his cycle at a high speed and collided with a pole. [Gulfport & Mississippi Coast Traction Company, et al., vs. Manuel, et al., 85 Southern Rep., 308.]

MISSOURI—*Risk of Falling Into Unlighted Pit Held Not Assumed by a Car Cleaner.*

A car cleaner working in a carhouse did not assume the risk of injury by falling into a pit which the master had negligently failed to light, although he knew of its presence and the failure to light. [Haggard vs. Southwest Missouri Railway, 220 Southwestern Rep., 22.]

NEW YORK—*Lessee of News-stands Held To Be Invitee and Not Mere Licensee.*

The lessee of a news-stand at an entrance of a rapid transit company's subway station and his employee, while on the station platform buying subway tickets in bulk to be resold to customers and others using the entrance, the resale being in fulfillment of the lessor's obligations to the company, were held to be invitees, as to whom the company was bound to exercise ordinary care, and not mere licensees. [Verdini vs. Interborough Rapid Transit Company, 182 New York Supp., 754.]

NEW YORK—*Detective Bureau's Employee, Guarding Cars, Held Not Railway's "Special Employee," Within Compensation Law.*

Where a detective bureau had a contract with a railroad during strike to furnish guards to protect passengers on cars, an employee of the bureau, injured in collision while serving as guard, without knowledge as to whether he was in the employ of the railroad or merely an employee of the bureau, was not a special employee of the railroad within Workmen's Compensation Law so as to prevent him from resorting to a common-law action against the railroad for negligence. [Murray vs. Union Railway of New York City, 127 Northeastern Rep., 907.]

NEW YORK—*Mortgage Provisions as to Sinking Fund Applicable to Bonds Not Issued to General Public.*

Where a tramway company issued bonds secured by deed of trust, stipulating for payments to the sinking fund, and certain of the bonds were delivered to the trustee as custodian, subject to the company's order, and the company on various occasions pledged such bonds as collateral, the sinking fund provisions applied to such bonds as bonds issued and outstanding, though

they were not issued to the general public, and the loans for which they were pledged were from time to time paid. [Bankers Trust Company vs. Denver Tramway Company, 183 New York Supp., 326.]

OHIO—*Lessee of Interurban Railway Held Not "Owner in Fee of a Strip of Land by the Side of a Highway."*

The lessee of an interurban railway, which was the grantee by a board of county commissioners of a right-of-way upon and along the side of a public highway, does not thereby become the owner "in fee of a strip of land by the side of a highway" within the contemplation of Sec. 1209, General Code, so that the company becomes liable as abutting property owner for improvements to the street. [Dayton & Troy Electric Railway vs. Scott, treasurer, et al., 126 Northeastern Rep., 879.]

PENNSYLVANIA—*Pedestrian Contributorily Negligent in Stepping on Track Without Looking.*

A pedestrian's failure to look immediately before stepping on the track of a street railway is negligence per se and bars recovery, although he looked before stepping from the sidewalk to cross the street to take the approaching car and although the approaching car did not slow down according to law at the cross street and stop for passengers as was customary. Where there is no evidence upon the subject the presumption is that a pedestrian crossing a street railway track looked immediately before stepping upon the track to see whether a car was approaching. [Griffith vs. Philadelphia Rapid Transit Company, 110 Atlantic Rep., 76.]

TEXAS—*Derailment Raises Presumption of Carrier's Negligence.*

In a passenger's action for injuries sustained by exposure when compelled to walk four miles to a town after a derailment of the car wherein he was riding, where the allegations of negligence were general, the rule of the presumptive negligence from the fact of derailment obtained, and, to overcome such prima facie case of negligence, it was necessary for the company to show that the accident could not have been avoided by the exercise of the utmost care reasonably compatible with the prosecution of its business. [Dowdy vs. Southern Traction Company, 219 Southwestern Rep., 1092.]

WISCONSIN—*Surrender of Franchise and Acceptance of Indeterminate Permit Held Not to Relieve Company of Payment for Using Streets.*

An interurban railway surrendered its franchise for an indeterminate permit, as authorized by a State law, but this surrender was held not to relieve the company of an obligation under its former franchise to pay \$1,000 a year for the use of the streets of the city which gave the original franchise. [City of Oshkosh vs. Eastern Wisconsin Electric Company, 178 Northwestern Rep., 308.]

FEDERAL COURTS—*Separate Coach Law Held Not Interference with Interstate Commerce as Applied to Particular Road*

A Kentucky statute requiring railroads to furnish separate coaches for white and colored passengers is not an unconstitutional interference with interstate commerce, as applied to an interurban railway whose termini and stations are all in the State of Kentucky, though it is operated by another Kentucky corporation, whose lines extend into Ohio, and carries passengers for a single fare and without change from points on the first road into the State of Ohio. [South Covington & Cincinnati Street Railway Company vs. Commonwealth of Kentucky, 40 Supreme Court Rep. 378.]

INDIANA—*Company Held Liable to Trespasser for Defective Electric Wire.*

If an improperly insulated wire passing through the branches of a small tree on private property was obviously dangerous to persons coming in contact therewith, and if the electric company should reasonably have anticipated that children in their play would climb into the tree, then the company is liable for injuries to a child climbing into the tree, though the child was a trespasser. [Fort Wayne & Northern Indiana Traction Company vs. Stark, 127 Northeastern Rep., 460.]

LOUISIANA—*Last Clear Chance Does Not Apply to a Man Walking on Track*

Where a man in full possession of his faculties was walking on a railroad track and was struck and killed by a train, the doctrine of last clear chance does not apply, since his negligence continued up to the moment of the accident, and his chance of seeing the train and getting out of the way was as good as that of the motorman seeing him in time to avoid running him down. [Hudson vs. New Orleans Railway & Light Company, 84 Southern Rep., 492.]

MICHIGAN—*Legislature Cannot Divest Itself of Right to Fix Reasonable Rates.*

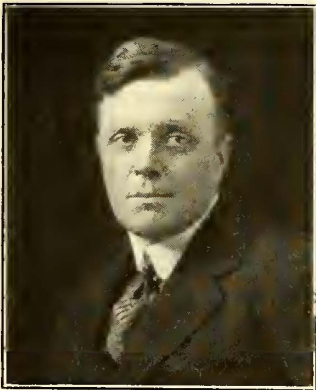
Rate Act, Sec. 2, fixing the rates which passenger carriers may charge, is not invalid because the rates prescribed by municipal franchises were increased without the consent of the municipality affected, since the Legislature cannot divest itself of the right to reassume and exercise powers granted it by the constitution, among which is the power to fix reasonable rates. [Groesbeck, Attorney General, vs. Detroit United Railway, 117 Northwestern Rep., 727.]

Personal Mention

London's Motor Managers

Authors of Paper Before A. E. R. A. Convention Pioneers in Their Respective Fields

Frank C. Pick and George J. Shave, the authors of the paper "The Motor Bus in Urban Transportation," presented at the Atlantic City convention, modestly said of themselves in that paper by way of identification that they were "engaged in the management of motor omnibus service in Greater London." That was a typical British statement, but it does not satisfy the curiosity of the American reader of the



F. C. PICK

paper, particularly when the magnitude is considered of the undertaking with which Messrs. Pick and Shave are connected and proper weight is given to the value of the information contained in their discourse.

Neither does the meager fact satisfy that was mentioned in the foot-note to the paper that Mr. Pick is commercial manager of the London General Omnibus Company, Ltd., and that Mr. Shave is manager of maintenance of that undertaking. It may be, as Messrs. Pick and Shave said, that the abstract problem of the place of the motor bus in transportation appears simple as A, B, C, but that is only because the authors have solved the problem. And a tremendous one it was, with a possible significant lesson for America.

If any man can be said truly to understand the meaning and application of the phrase "selling transportation" it is Frank Pick. His very title, commercial manager, is unique in the nomenclature of electric railway transportation. It is Mr. Pick who has been the moving spirit under his famous chief, Lord Ashfield, in developing means of attractive publicity and aids to the traveler that have made the fame of London's T. O. T. (Tube-Omnibus-Tram) journey around the world. Upon his

return from government service in coal control, Mr. Pick at once plunged into a maze of official hearings on fares and the place of each class of transport facility in London; but his amazing knowledge of London's complex traffic has enabled him to run the gantlet of prolix parliamentary procedure without losing his good humor or his memory.

Particularly during the long-drawn-out years of the war did Mr. Shave have a most unenviable task. Early in the struggle the government took over hundreds of buses for war service and throughout the war Mr. Shave found himself with a personnel so diminished that it was a problem to keep the remaining buses going, let alone build new ones for enormously increased traffic. With the coming of peace, however, Mr. Shave and his confrères have turned their thoughts to the development of larger and still better buses, the first result being the new type, "K," a 46-seater and, more recently, a 57-seater significantly referred to by the public as the "Hush-Hush."

C. A. Semrad Heads Colorado Association

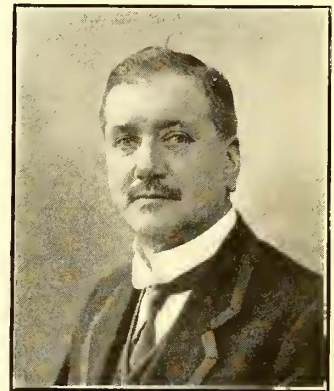
C. A. Semrad, general manager of the Western Light & Power Company, Boulder, Col., was elected president of the Colorado Electric Light, Power & Railway Association at the recent meeting of that body in Glenwood Springs.

Mr. Semrad was born on July 3, 1885, at Highland, Wis. He was graduated from the University of Wisconsin, College of Electrical Engineering, in June, 1908. In the following year he served as an instructor in hydraulics and water power at the same institution. He was then employed by the Union Light & Power Company, St. Louis, Mo., for about a year, at the end of which time he became a cadet engineer of the Northern Colorado Power Company. Four years later he was made general manager of the Cheyenne, Wyo., Light, Fuel & Power Company, a subsidiary of the Western Light & Power Company. He subsequently became general manager of the latter company.

Herbert Markle Re-elected

Herbert Markle, general manager of the Appalachian Power Company, Bluefield, W. Va., has been re-elected president of the Public Utilities Association of West Virginia. The association is made up of representatives of the electric railway, light and power, artificial gas, water and telephone companies of the State. Mr. Markle has been serving as its president for the past five years.

Mr. Markle is a native of Indiana. Graduating from the School of Electrical Engineering of Purdue University in 1895, he entered the employ of the Jenney Electric Company, Indianapolis. After serving with that organization for several years, he joined the Northern Electric Manufacturing Company as district sales manager, with headquarters at Chicago. For a few months he also served with the Fort Wayne Electric Company after the consolidation of that company with the Northern Electric properties. Eleven years ago he joined the Byllesby organization, and for three years was stationed at Stillwater, Minn., as manager of several properties of the Northern States Power Company. For the past eight years he has been general manager of the Appalachian Power Company, with headquarters in Bluefield. This company, in addition to operating large power installations, owns the electric railway system in Bluefield.



G. J. SHAVE

Bert Dunkin, auditor of the Albia Light & Railway Company, Albia, Iowa, has been appointed acting manager of the company to succeed Ralph W. Boyer, who has resigned to enter another line of business.

Ralph W. Boyer has resigned as general manager of the Albia Light & Railway Company, Albia, Iowa, to enter another line of business. Mr. Boyer has been connected with the company for the past eleven years.

Rolla Wells, receiver of the United Railways of St. Louis, Mo., has been elected president of the Employees' Mutual Benefit Association of the company. The by-laws of the association were amended by unanimous vote of the board of directors to permit of the election of Mr. Wells.

A. L. Gibson has been appointed superintendent of the Lawrence District of the Eastern Massachusetts Street Railway, Boston, Mass. Mr. Gibson started as a uniform man in the Chelsea District of the Bay State System and later became a car foreman. For several years he has been superintendent of the district which includes the lines in western Reading and Wakefield.

Manufactures and the Markets

DISCUSSIONS OF MARKET AND TRADE CONDITIONS FOR THE MANUFACTURER,
SALESMAN AND PURCHASING AGENT

ROLLING STOCK PURCHASES

BUSINESS ANNOUNCEMENTS

Demand for Paint Exceeds Production

Electric Railways Not Buying Heavily at Present—Deliveries Improving and Prices Seem Steady

Electric railways have not been buying a large amount of paint recently, according to a survey made among several of the large manufacturers. The general demand for paint on the other hand has all along been very good, with the result that in some cases manufacturers have been as much as four months behind on orders. Several producers are finding the general demand for paint slackening just now, and do not expect it to resume heavily again until spring. Others say that sales are picking up and should continue to increase, especially on behalf of electric traction companies which are repainting much of their old equipment. A feature of this demand is the growing use of enamel on cars.

BRIGHT PROSPECTS FOR 1921 SALES

Without exception paint makers give very optimistic opinions on the prospect for next year's business. Almost no cancellations, it is stated, have been received and great hopes are being based on the return of the building industry in 1921. Electric and steam railways are also expected to buy more heavily. The latter have already greatly increased their requirements since the advent of higher rates, it is said in some quarters.

Little prospect of lower prices in the near future is held out. One producer is shading prices a trifle, it is true, but not officially, and though virtually all the other paint makers think prices have reached their peak, the consensus of opinion seems to be that present levels will be maintained for some time to come. The reason for this is said to be the undersold condition of the market and because raw material in many cases has been contracted for in advance at the old prices. No reduction is noted in the high cost of pigments. On the other hand, turpentine and linseed oil have eased off in price, and one of the largest paint manufacturers thinks that if this trend of raw material should continue and labor costs be reduced lower prices will prevail.

Paint ingredients are in good supply but some complaint is heard of not being able to obtain sufficient quantities when needed. There is a scarcity of tin cans, according to one representative manufacturer, and this is said to be due to an inadequate tin plate supply. Stocks of the finished product in many cases are low owing to the heavy

demand this year, though one or two manufacturers report a good supply. The next few months are counted on to replenish stocks so that all supplies should be in good shape to meet the spring demand. Production is very generally up to full capacity and the labor situation in the industry is favor-

able. As a result, deliveries are improving in several instances, and producers who have been far behind on filling orders are now catching up. One representative company is able to fill orders for paint from stock, but in general deliveries range from about two to six weeks.

Steady Prices for Trolley Rope Prevail

Good Demand Exists—Current Requirements Handled Readily Despite Inability of Factories to Accumulate Stocks—Opportunity for Standardization of Sizes Seen

Trolley rope continues in steady demand, according to representative manufacturers. A leading maker of this material recently reported to a representative of the *ELECTRIC RAILWAY JOURNAL* that his orders have shown a steady increase during the past half year. Another manufacturer stated that the volume of business is holding up exceedingly well, with no falling off in inquiries or purchases. The drop in the price of spot cotton in the general market has not been reflected in any changes in trolley rope quotations as yet.

Purchasers do not appear to expect an immediate downward movement in prices, but it is thought that if the present level of raw material prices is maintained lower quotations will follow after existing stocks of cotton are exhausted.

PRICE TREND NOT CLOSELY DEPENDENT UPON SPOT COTTON

The price of spot cotton, it was stated, is not an accurate barometer of trolley rope quotation possibilities. The long fibered cotton required in the production of this class of rope is very difficult to obtain at present. One leading manufacturer states that he is unable to secure definite delivery dates and prices on this commodity. This class of cotton sells for perhaps 40 to 50 per cent above the spot quotations, and it is pointed out that the number of bales changing hands is a better index of market conditions than the extreme quotations published daily. The minimum prices quoted lately on spot cotton are held by trolley rope manufacturers to be largely speculative. The two controlling factors in the maintenance of present prices appear to be the existence of raw material stocks purchased long ago and the sustained high wages received by labor. There appears to be no downward movement in wages in the rope factories as yet. Long-continued transportation difficulties and increased

freight rates have also caused manufacturers considerable anxiety.

Night work is not necessary to meet the present demand, and a tendency toward increased production on the part of labor is noted. Deliveries of trolley rope in quantity are being made on a basis of eight to ten weeks from the receipt of order. There are virtually no factory stocks, although it is the custom in some plants to build up these and maintain them during normal times. Current prices for trolley rope range from about 90 cents to \$1.25 per pound according to grade. Some talk of the desirability of cutting down the number of sizes specified by purchasers is heard, although it does not appear to be the plan of the manufacturers to reduce the variety. The $\frac{1}{4}$ -in. size is commonly used, and though a good demand exists for the $\frac{3}{8}$ and $\frac{1}{2}$ -in. sizes as well, there is a feeling in some quarters that an opportunity for standardization exists which might ultimately lead to quicker deliveries and lower prices.

Credit conditions are said to be fair only. Many orders are paid on a sixty to ninety-day basis notwithstanding their being billed for a thirty-day payment. Register cord is not in heavy demand at present and current quotations on the better grades run around \$1.20 per pound. No difficulty is met in handling urgent needs for either trolley rope or bell cord.

Deliveries of Cars for St. Louis Not Much Delayed

St. Louis Car Company declares there is no foundation for the report that there may be six months' delay in the delivery of the cars which it is building for the United Railways of St. Louis because of the recent fire in the St. Louis Car plant. The delay at most will not exceed three months, according to the car company.

Friction Tape Deliveries Improving

Raw Material Plentiful and Production Has Increased, but Demand Is Less—Prices Seem Steady

Accumulation of raw material and increased production, coupled with a moderate falling off in orders has resulted in greatly improved delivery conditions in the friction tape market. A representative manufacturer informed the *ELECTRIC RAILWAY JOURNAL* a few days ago that he could easily handle orders as large as 50,000 lb. a week, quoting seven to ten days' delivery. Factory stocks are not being built up, however. The price question is the chief obstacle to larger business. The cost of cotton sheeting has eased off somewhat, but the mills are still heavily loaded with orders and no marked tendency toward a sharp decline can be seen in the present price of raw material.

One manufacturer pointed out that no very great price reduction on friction tape is to be expected before January. Wages are maintained at the high level attained some time since and the cost of coal purchased under a \$5 contract has increased to \$18 and \$21 per ton in this plant within a few months. A very heavy demand for rubber hose has set in and tape manufacturers making diversified products are less affected by fluctuations in buying than are producers of a few very limited lines. Tape prices, it is said, are not figured upon the maximum price of cotton sheeting to the manufacturer, and for this reason quite a substantial decrease in raw material cost would be required to have much effect upon the quotations of tape producers. Current prices run from 60 to 70 cents per pound. Recent suggestions as to the desirability of using white and gray tapes have borne good fruit and less than 1 per cent of the tape sold by a large producer is now white. Labor conditions are good and so far it has not been necessary to lay off employees to any extent in this field. Few cancellations are being received.

Rail Bonds Decrease in Price

Softening copper prices are responsible for a reduction in rail bond prices which went into effect about the middle of this month, it is stated. The reduction is slight and corresponds to the price advance made about two months ago. The further trend of prices is uncertain, according to one of the leading factors in this line.

The supply of rail bonds at present is said to be adequate for all needs, especially as demand has lessened recently and raw material is plentiful, it is stated. Deliveries are encompassed within a range of two to three weeks. No cancellations have apparently been received and manufacturers hope for good business to develop from the prospects that are now seen for further electrification of roads. Foreign demand is slightly better at present than has been the case recently, one

of the leading manufacturers states, and sales abroad should continue to increase.

At the date of going to press word has just been received of a further drop in rail bond prices. The amount of the reduction, which goes into effect on Oct. 30, is approximately the same as the cut mentioned above.

Sales of Electric Coin-Handling Machines Growing

Increase in Multiple Fares Aids Demand—Raw Material Supply Favorable and Deliveries Are Good

Electrically operated coin handling machines for sorting, counting and wrapping coins of various denominations are coming into increasing favor with electric traction companies. One of the factors promoting their use, besides the saving effected in time, is the elimination of additional employees to handle the money. Another reason for the stronger demand is that with the increased fares that many street railways are securing the number of additional coin denominations involved has brought greater problems in the handling of fares, with a consequent trend toward machine sorting, counting, etc.

With the increase in demand from electric railways and a favorable volume of orders from other interests, manufacturers are very generally finding it necessary to increase their production. Except for some complaint on the item of castings little trouble is being found with the supply of raw material. There is a scarcity of the wrappers used for wrapping coins, however, according to one of the large manufacturers. This is caused by inability to obtain paper. The small motors used in these machines are now said to be in plentiful supply.

Stocks are not usually accumulated, it is stated, except of partially assembled units. This is because the filling of orders depends upon the coin units that are to be handled in each case. Deliveries, however, are proceeding satisfactorily. One representative company is able to ship in about ten days. Another concern which specializes on a more complicated device for sorting, counting and wrapping coins in one operation can fill orders in about a month. The use of metal tokens by many lines has somewhat complicated the situation where machines for handling coins alone have been devised. This factor has already been provided for in some instances, and will be taken care of soon in others, it is stated.

Prices in this line have reached their peak and will probably hold steady for some time, according to a representative manufacturer. On the other hand, another producer announces an increase in price of about 9 per cent to become effective on its products Nov. 1. The reason for this is said to be the fact that no advances had previously been made covering the period of rising costs of labor and raw material. Labor conditions are improving.

Coal Situation Easing Up

With coal production running well over 12,000,000 tons weekly, and with indications pointing to a suspension of the lake priority order, it is believed that coal will be obtainable in ample quantities in the very near future. There is great congestion at lower lake ports, due to the fact that the saturation point seems to have been reached in the Northwest. This condition promises to make available within the next few days some four thousand additional cars of coal daily. Once this amount of coal is added to the distribution in the so-called lake territory and in the East it is believed that public utilities will have little further difficulty in securing their coal.

Since the new service order, it is reported by the national committee on gas and electric service, there has been no single case in which an emergency has been met with assigned cars. If a utility runs short of coal it must now first establish that it cannot secure the coal through ordinary commercial channels. If that is established this committee, through the cooperative agreement existing with the railroads and the National Coal Association, makes arrangements directly with the operator with whom the utility has a contract.

Rolling Stock

The Chicago Surface Lines, on Oct. 26, had received six of the ten standard safety cars ordered from the J. G. Brill Company about Sept. 15.

Puget Sound Power & Light Co., Bellingham, Wash., expects eight new safety cars for its lines to be shipped from St. Louis on Nov. 2, it is announced.

Berkshire Street Railway Company, Pittsfield, Mass., has secured delivery of nineteen safety cars, it is announced, and will operate on a one-man car basis except on some of the long interurban runs. A few safety cars have already been in operation on the Pittsfield lines for several months. The heavy double-truck cars will be taken off all city lines.

The Detroit (Mich.) Street Railway Commission has called for bids on twenty-five new trolley cars for use on the municipal lines now under construction. The cars specified are to be of the one-man safety type. It is the hope of the city to have the cars delivered before Jan. 1, 1921, so that they can be operated soon after that date if necessary.

Interstate Public Service Company, Indianapolis, Ind., expects completion of the seventeen new freight cars now under construction at the plant of the company at Indianapolis by Nov. 1, according to L. M. Brown, superintendent. The cars will be 39 ft. long, 8 ft. 4 in. wide and will have a capacity of 50,000 lb. The eight new all-steel passenger cars which were to have been

delivered last June are now promised by the middle of November and may be in operation a month later, according to Mr. Brown.

Track and Roadway

Houston, Bay Shore & Texas City Traction Company, Houston, Tex.—The Houston, Bay Shore & Texas City Traction Company, incorporated recently with a capital stock of \$300,000, has filed with the State Secretary an amendment to its articles of incorporation certifying to an increase in its stock to \$1,000,000.

Interstate Public Service Company, Indianapolis, Ind.—The Interstate Public Service Company will make some extensive additions in the maintenance of way department in its plant at Scottsburg, Ind., in the early spring. Among the improvements will be a general shop building and new car-houses. The project will entail an expenditure of approximately \$300,000.

Eastern Massachusetts Street Railway, Boston, Mass.—The Department of Public Utilities has notified Mayor Peters that it will authorize a city expenditure of not more than \$300,000 for improvement and repair work on the Eastern Massachusetts Street Railway in the Hyde Park section now being operated by the Boston Elevated. The city created a loan fund this year for such expenditures and this will be the first draft.

Detroit (Mich.) Municipal Railway.—The Street Railway Commission of Detroit has awarded a contract for furnishing steel trolley poles to the National Tube Company, Pittsburgh. The company's price for supplying 1,700 30-ft. trolley poles (steel tubes) and 400 30-ft. heavy poles is \$151,680.

Phillipsburg (N. J.) Transit Company.—The Phillipsburg Transit Company will place new special work across the Pennsylvania Railroad tracks in Union Square, Phillipsburg.

Phillipsburg (N. J.) Transit Company.—The Phillipsburg Transit Company will expend \$20,000 for paving 3½ ft. alongside its tracks for a distance of 3,960 ft. along Main Street, Phillipsburg. The paving will consist of brick set on a concrete base and the contract has been awarded to Korp & Korp, Phillipsburg.

Public Service Railway Company, Trenton, N. J.—A plan to connect Camp Dix with Trenton and other nearby towns was recently discussed by Mayor Frederick W. Donnelly, of Trenton, and Major General Summerall, of the big army cantonment. The scheme under consideration is to build a spur from the camp to connect with the southern division of the Public Service Railway. The plan was suggested by M. D. Warren, traffic manager of the Trenton Chamber of Commerce, who will take up the matter further with the army officials at Camp

Dix. Camp Dix is eighteen miles from Trenton.

Staten Island Midland Railway, New York, N. Y.—The property of the Staten Island Midland Railway, which the city will begin to operate on Dec. 1, will need general overhauling according to the Commissioner of Plant and Structures. Repairs will be made to the roadbed, wires and poles.

Power Houses, Shops and Buildings

Public Service Railway, Trenton, N. J.—The new terminal of the Public Service Railway at the Camden, N. J., ferries has been completed and cars are now running around the loops.

Boston (Mass.) Elevated Railway.—The Boston Elevated Railway has built a garage at Broadway and Washington Street, Boston, to house motor wrecking apparatus and emergency motor car and crew.

Trade Notes

G. E. Anderson, formerly assistant eastern sales manager of the Duff Manufacturing Company, Pittsburgh, Pa., has been promoted to southwestern sales manager and placed in charge of the company's new branch office located in the Railway Exchange Building, St. Louis, Mo.

C. W. Hunt Company, Inc., announces the formation of the C. W. Hunt Engineering Corporation, with offices at 143 Liberty Street, New York City, for the purpose of handling all sales entailing engineering in connection with the Hunt products and all engineering services previously performed by the company.

The Ajax Metal Company, Philadelphia, Pa., has issued a new export catalog in two editions, one English and one Spanish, covering all Ajax products from Babbitt metals to car brasses and castings and ingot metal. The text and illustrations are identical in both cases. Copies of either edition will be sent to interested persons.

A. L. Whipple, who was with the Curtain Supply Company, Chicago, as general sales agent, and later became sales manager for Forsyth Brothers Company, Chicago, in 1907, and in 1913 vice-president of the Standard Heating & Ventilating Company, has been appointed representative of the Locomotive Stoker Company, Pittsburgh, Pa., with offices at 50 Church Street, New York City. Mr. Whipple was for several years active on the entertainment committees of both the steam and electric railway annual conventions. Before his connection with the Locomotive Stoker Company he was vice-president and acting general manager of the Railway Improvement Company, New York City.

Hugh Pattison has joined the staff of the heavy traction department of the

Westinghouse Electric & Manufacturing Company to make special engineering studies under the direction of F. H. Shepard, director of heavy traction. Mr. Pattison has been closely identified with the industry since completing the course in applied electricity at Johns Hopkins University in 1892. Since then he has been associated successively with Frank J. Sprague, Westinghouse, Church, Kerr & Company, George Gibbs and others. Mr. Pattison took an active part in the application of multiple-unit control in Boston and Brooklyn and in the electrification of the Long Island Railroad, the West Jersey & Seashore Railroad and the Pennsylvania Railroad. He is a member of the A. I. E. E., the A. S. C. E. and the A. S. M. E.

The Ackley Brake & Supply Corporation, 50 Church Street, New York, announces the appointment of the Power Equipment Company, Oliver Building, Pittsburgh, Pa., with Charles A. Saints, manager, as agent for the sale of Ackley brakes and G & B mineral oil paint in the territory covered by western Pennsylvania and West Virginia.

Shaw Crane Works, Muskegon, Mich., has made an interesting installation of two Shaw Overhead Wharf Cranes manufactured by them, at pier No. 6, East River, New York City, the N. Y. State Barge Canal Terminal. They are of the overhead type, traveling on tracks above the shed roof with the boom in a vertical position when changing location so that the pier is not obstructed. The cranes carry freight to and from inside the shed in a straight line without swiveling, the outer end of the boom extending 23 ft. 3 in. beyond the edge of the pier and 10 ft. inside the shed when in operation. A light trolley travels along the boom capable of supporting 3,000 lbs. when the latter is at any angle up to 45 degrees.

New Advertising Literature

Cable Joints.—The Standard Underground Cable Company, Pittsburgh, Pa., has issued bulletin No. 740-1, covering cable joints and jointing material.

Copperclad Wire.—Copper Clad Steel Company, Rankin, Pa., is distributing a twenty-three page booklet, entitled "Copperweld Wire," on copper-clad steel wire.

Portable Cranes and Hoists.—The Canton Foundry & Machine Company, Canton, Ohio, is distributing a thirty-four page booklet, covering its portable floor cranes and hoists.

Concrete Poles.—Massey Concrete Products Corporation, Chicago, Ill., is circulating catalog supplement No. 5, an eleven-page booklet which illustrates and describes Massey hollow reinforced concrete poles for telegraph, transmission and trolley lines. Copies may be had on request.