

# Electric Railway Journal

Consolidation of Street Railway Journal and Electric Railway Review

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## Is the Engineer

### Coming Into His Own?

THE engineer is at last a factor in politics. The two leading presidential candidates have not only condescended to reply to a questionnaire submitted by a group of engineers but have also violated their own stated rules in so doing. To all but the engineers, questionnaires to candidates are taboo.

We rejoice that, at last, the engineer is a weight on the political scales. The engineer has been broadened and cultivated by the civic duties thrust upon him by the war, and may peace only enhance his civic and political influence. We need trained men, men with analytical minds, in the nation's politics, so "all hail" to the new era in American politics presaged by the questionnaire.

## Standardization of Branch-Off Frogs Means Economy

WE HAVE commented more than once upon the advantages to be gained through the adoption of a standard system of track spirals. The committee on way matters presented the basis of such a system at the Atlantic City convention last year, and the discussion on the floor seemed most favorable to the proposition. The present committee has been charged with the completion of the subject and it is very probable that a uniform system of spirals will be recommended in its forthcoming report.

If this should be the case and the report should be approved the way will be paved for the prompt consideration of the co-related subject of standardization of branch-off frogs, which a uniform system of spirals would make possible. Some railway companies have already done this for their own systems and have found the scheme not only workable but also economical.

With a single system of spirals available, the matter may be approached with confidence in an attempt to standardize branch-off frogs generally. However, this cannot be done until an agreement can be reached in the standardization of double-track center distances through the special trackwork layouts. Even with a uniform spiral having a limited number of radii and with the rather large number of varying track center distances now prevailing it is possible to have more than 5,000 different branch-off frogs. A reduction in this number of frogs is dependent upon the reduction of the number of variable center distances, and it is believed that these can be reduced one-half without causing any serious trouble. Such records as we have seen indicate that these distances might be reduced to ten fixed standards without requiring any company to vary its standards more than 2 in., while in the majority of cases the variation would not be more than  $\frac{1}{2}$  in. Such small variations could hardly be objected to either by the railway companies or by the municipal engineers, particularly in view of the fact that the variations from

tangent track center distance standards need only be made through the special trackwork layouts.

Further study shows that it would be possible to reduce the 5,000 or more branch-off frogs to less than 80 per cent of that number through limiting the number of variable track center distances. Such a prospective saving is worth trying for and we hope that the Engineering Association can see its way clear to give the subject the attention which it seems to merit.

## Illumination—

### A Power Plant Aid

IN THESE days of operating economies every agent for reducing costs is welcomed and few realize the importance of good lighting as an aid to efficient operation. We pointed out in our editorial of April 17 the fact that it takes time for a man to visualize an object and that good illumination enables a workman to do more work in a given time in car shops. Good illumination now means 10 or 12 foot-candles and not 2 or 3 in order to speed up production.

The power house of a railway company also affords an opportunity for the application of good illumination. New power houses are designed to afford ample light in the firing aisle and other parts of the boiler room, but the older plants require extreme care in movement, even in daylight, because of inadequate lighting. The old dirty, dark boiler room can never be made to operate efficiently by simply adding stokers, meters and draft and other regulating devices. Efficient operation requires every instant that intelligent attention be given to the devices added to aid power production, and unless proper illumination is afforded this attention will not be obtained. In order to see instruments and control levers and to produce the proper psychological and physiological condition in power plant operators good illumination is necessary.

The old boiler rooms should no longer be dirty and inefficient if costs are to be kept down, and illumination is one of the cheapest auxiliaries available to aid in maintaining operating efficiency. The indirect benefits will more than offset the cost of the required system and power plant operators will find it profitable to study their plants with the object of redesigning the illumination system to obtain better results.

## The Brooklyn Strike Is Petering Out

ACCORDING to all the evidence so far, the strike on the Brooklyn Rapid Transit System was brought about by the radical element to obtain control over a large industrial organization in that city and one essential to its business and civic progress. The triumph of such an effort would mean the domination of the operation of the system by the same element which caused the strike, accompanied by an enormous increase in operating expenses. This, in turn, would have been

reflected in greatly increased fares or correspondingly reduced service.

Fortunately for Brooklyn, the radicals seem to have over-reached themselves. The large body of employees are realizing that they have been forced by a trick into a strike which they did not want, and they are rapidly becoming still further disgusted by the sporadic attacks on trains and cars and other extremes in which the violent element among the strikers is indulging. The return of the men to common sense, to which indications point as this paper goes to press, is a subject of congratulation to the management, the public and the employees themselves. Wages cannot go on increasing in the railway industry and in other industries without still further adding to the high cost of living and perpetuating the vicious circle of continually higher prices which benefit nobody.

This statement of the Brooklyn strike would not be complete without a word of commendation for the police of Greater New York. While not taking sides, they seem to have been promptly on the spot when injury to life or property was threatened and showed energy and courage in repressing disorder.

### Lawyers' Strategy in Iowa?

A RECENT decision of the Iowa Supreme Court set aside the right of municipalities to contract with street railway companies as to the rate of fare. On a liberal interpretation of this decision several companies promptly announced that on their own authority a higher rate of fare would be installed. Apparently these companies expect by this procedure to throw the burden of proof upon the municipal authorities if the latter choose to oppose the action of the company by appeal to the courts. The railway companies are setting up a rate of fare which in their own opinion is not unreasonable and which will meet adequately operating and maintenance costs, interest charges and a rate of return on the investment that will attract new money. From a lawyer's standpoint they have placed themselves in a strategic position.

Perhaps Iowa companies cannot be blamed for "taking the bull by the horns" after the starvation treatment most of them have received at the hands of the city authorities, who have heretofore held control. The companies are now apparently acting within their legal rights, but it seems to us that, from the standpoint of public policy, their action is fraught with dangerous possibilities. Going completely over the heads of local authorities and in absolute disregard of one of the terms of a franchise made in good faith, though it seems in bad law, is very likely to invite antagonism and to embitter the people against the corporation for what is sure to be termed its high-handed methods. It seems to us that the same end could have been accomplished, though of course not so readily, by appealing to local authorities to grant a reasonable increase in fare, which they would then be practically bound to do in the face of the Supreme Court decision. This would show that the company wanted to keep faith with the municipality so long as the latter would act within reason. The company could then reserve its action of increasing fares on its own account as a last resort when local authorities had refused to acquiesce in an adjustment that was equitable.

But even if the present action of the companies is

justifiable, who is to be the judge as to what is not an unreasonable fare? We doubt that it was the intent of the Supreme Court to lay wide open to the initiative of the street railway companies the setting up of the rate of fare. And while the decision neither sanctions nor prohibits such free action of the corporations, it seems to us that the latter are likely to have prejudiced their case by so doing when the matter comes up for further court ruling, as it surely will.

### Transit Anaemia at Bridgeport

WHEN an experienced practitioner is examining a patient for anæmia he will not permit himself to be deceived by such indications as fleshiness. He proceeds to a blood test. In the case of a transportation system that blood test is the amount of business done at the downtown shopping center, assuming that there has been a change only in the method of transportation and not in the industrial or weather conditions. Paradoxically enough, what goes on during the ordinary peak hours is less indicative, because the traffic during those hours is compulsory traffic. People must get to and from their work somehow or other, whether they walk, are bumped along on motor trucks or squeezed into a dirty, odoriferous conveyance. But the mid-day shopper is largely a voluntary rider. She can do part of her purchasing at the neighborhood shop, use the telephone for other items or put off some—and these the biggest—purchases for weeks if need be. Then, too, there is the mail order house, but that is more remote as a factor because the mail order habit is not built up quite so readily in a large city with good stores.

What, then, does the blood test disclose at Bridgeport after six to seven weeks of all-jitney, no-railway operation? That the business men of the city are simply frantic at losses in revenue equivalent to 25 to 50 per cent of their usual summer-day earnings; they want the cars back at any price, realizing as never before that there is a great difference between even tolerable trolley service which is clean and dependable and individualistic jitney bus operation which offers no attraction to the very people who do most of the family buying. Possibly the merchants would have brought their influence to bear earlier were it not for the fact that when both services were available at least half of the riders chose the jitney. The merchants did not appreciate the fact that a great many of the finer class of women would not ride in these non-descript vehicles under any consideration and that these women feel the same way regarding the use of such vehicles by their children. It may be said, however, that if the store owners needed a lesson as to the difference between a responsible company and hundreds of come-and-go jitney drivers, they have paid an exorbitant price for it by this time.

But to come back to our figure of speech as regards anæmia. It is not merely the ragamuffin character of the service that has been injuring the business and social life of car-less Bridgeport. It is the gradual degradation and thinning out of the transportation service, the circulatory medium of the town. During the first jitney week operators came pouring in from the adjacent communities in the hope of an extraordinary harvest. When these men found that they would have to stick to the 5-cent fare instead of profiteering—*à la Toledo*—

they, in the famous phrase of Mark Twain, "went away from there." It seems, also, that there has been a large increase in the number of operators who run buses during the fat hours and engage in other work during the lean hours. Furthermore, quarrels among the jitney operators themselves have revealed that many are cutting back, thus leaving the people at the outer ends of the routes with little or no service. Hence as the weeks passed the tendency has been for the quality of the city transportation medium to become poorer and poorer.

The merchants were first to recognize this, but the amusement men were next, and then even the realty men, who are always so keen for duplicate methods of transportation so long as the other fellow pays for it. The manufacturers and the general working class public were probably the last to feel the withdrawal of trolley service, for their needs are of the "must" variety. Indeed, although Bridgeport has just now passed a jitney restricting ordinance, it is quite probable that the bulk of the voting population would have been willing to let things run until the discomforts of winter travel were upon them before exerting much pressure on the councilmen. Even with the trolleys returned and the jitneys restricted, the public will not forget that the latter did give one permanent advantage—speed. Therefore, unless the railway is prepared to furnish an equivalent in the way of service, there may be a demand for a recall of the jitneys when their sins are forgotten but their virtues remembered. No electric railway can afford to have so potentially powerful a competitor in the background for use as a club whenever the community sees fit. On the other hand, there are many places where a railway company could well do a little "busing" of its own as a supplementary and auxiliary service. Once the railway itself uses the bus in a community welfare way, that no individual operator could think of doing, the possibility of competitive bus operation is reduced almost to the vanishing point.

### "We Can't Write Articles"

RECENTLY one of the executives in a large railway company remarked to a member of our editorial staff with respect to a matter under discussion, "We can't write articles." He was undertaking to explain why he did not feel able to pass on his very valuable experience to other railway men in the form of a technical report. Our representative promptly expressed his disagreement with this conclusion, for he knew very well that this engineer could have prepared a most acceptable and effective article on the matter under consideration.

This little incident would not be worthy of record here if it were not an instance altogether too frequently typical of the experience of our staff. It is a variety of stage fright from which railway engineers and executives suffer and against which they should fight.

We do not believe that the average engineer will compose a technical article with the poetic beauty of a Shakespeare or a Milton, nor do we hope for the elegance and the formality of style of Ruskin. Thank goodness we do not get such a result; it would not be acceptable to a technical paper as regular diet even if it were available. We do get straightforward statements and plain readable English that says something valuable to our readers. The same style which a man

uses in his every-day business correspondence serves admirably for a technical article. It "puts across" his idea in the most effective way.

In this connection it should be emphasized that the technical man who has achieved satisfactory results by novel means or developed a new device has a certain duty to the industry as a whole. He owes it to his fellow workers in the railway field to share with them his achievement just as they, through technical literature, continually share their advances with the industry. No one likes to be a slacker in such a common cause and it is, therefore, important to get rid of this feeling that you cannot write, for any man who writes an effective business letter can write a good technical article as well.

### Fun? Yes, but Not at the Expense of Serious Discussion

THERE was a time when the national conventions of street railway men were junkets more than anything else. These undoubtedly served a useful purpose in getting and keeping traction men acquainted. The operating problems in the early days were simple; there was not much necessity for going into detail. They were rather individual problems anyway; at least they were so considered.

Now we have in the annual convention of the American Electric Railway Association and its satellites a highly organized mechanism which requires the concentrated attention of railway men and manufacturers if it is to function properly. Each year there is more reason why the delegates should be carefully selected and charged with a reasonable weight of responsibility to make the time and expense account investment a profitable one. A compelling reason now is that the convention has become a school where the latest in intelligent railway management is taught. It constitutes, in fact, a short (very short) fall course in that vital subject, with general lectures for all, and more specific discussions for the specialists. The degree given at the end of the course is B. N. I. (Bachelor of New Ideas). If any attendant goes home without his degree he may be considered as having failed, or "busted," as they say in some schools.

Another thing this year is the increase in transportation rates. It will cost more to get to Atlantic City, and hence increased value must be extracted from the sessions.

At the same time we would not minimize the importance of the entertainment features of the convention, which should be a complement and not a detriment to the meetings. At our conventions, however, as at others which might be mentioned, the ratio of attendance at the sessions to the total registration is not what it might be; in other words, the "convention operating ratio" is low. That this fact is appreciated by many is illustrated by the informal talk at a recent committee meeting attended by men who themselves thoroughly enjoy the "good time" features of the conventions. They agreed that one of the best ways to attract and hold membership is to prove by performance that the meetings are held primarily for the good of the electric railways and not for the personal entertainment of the lucky ones who are delegated by the company members to represent them. Let each attendant this year resolve to carry back from the convention as many new and helpful ideas as possible.

This Is Number Seven of a Series of Articles on Salient Phases of the Electric Railway Situation

# California and Her Traction—Part II

By Edward Hungerford

That the traction systems of California have seen their hardest days is the firm belief of Paul Shoup, president of the Pacific Electric Railway, the largest single system in the country, and vice-president of the Southern Pacific Company. Mr. Shoup backs up this statement by figures. He is further substantiated by William Von Phul, president of the United Railroads of San Francisco, who said to me that in the past year the revenues of the property which he heads had been increased by \$1,118,000. Unfortunately, increases in both operating cost and taxes had gone ahead a little more than proportionately, about \$1,200,000 for the twelve-month. So in the long run the company had nothing whatsoever to show for its greatly increased business.

Similar reports were made by the officers of the Municipal Railroad. The California Street Cable Railroad undoubtedly would have re-

**M**R. HUNGERFORD found an optimistic spirit among the railway men in California—a feeling that the electric railways have seen their hardest days. Traffic is increasing and automobile competition shows signs of diminishing. Interesting comment is made on the electric roads in southern California and in the Oakland district.

ported likewise. Yet whence was this flood of traffic coming? On the surface of things, at least, San Francisco was enjoying no great business boom. Automobile kings were not setting up great factories by the dozens—as in Flint or Detroit or St. Louis. Nevertheless, a more careful examination of the situation there at the Golden Gate did show a

This is a typical view in downtown Los Angeles. It shows Broadway taken from the corner of Sixth Street. The well-paved streets and equable climate of southern California encourage the use of all kinds of vehicles, and the view shows horse-drawn vehicles and bicycles as well as automobiles and electric cars.

large resumption of building activities, many of which had been deferred until after the conclusion of the war. While the gradual cessation of the local popularity of the jitneys was unquestionably another real factor in the increased street railroad earnings.

From Los Angeles too came similar reports; both from the local street railway system and from the big Pacific Electric, which has its head and front in that thriving city. In six months to April first the earnings of the Pacific Electric have increased to \$6,378,907 from \$5,343,063; incidentally, once again its expenses to \$4,956,486.76. The Los Angeles Railway makes a like showing. Then it was that I asked Mr. Shoup, as the person best informed on the entire traction situation in California, for the real translation of these figures.

"They mean that the peak of the competition of the automobile,



publicly or privately owned or operated, has been reached out here—and passed,” was his reply. “Not only is the rapidly rising cost of cars and tires and gasoline and oil beginning to deter the overenthusiastic motorists, but I think that the novelty of excessive motor riding also is rather wearing off. The hazards of driving on crowded highways are becoming more apparent and parking space in towns and cities more a question of doubt. In addition to our great numbers of motor stage routes in every direction, we now have some 500,000 automobiles in California licensed for pleasure purposes, to which should be added the cars owned and operated by the 100,000 Easterners who come out here every winter. The competitive effect of all these cars has been, and still is, vast indeed. But we already can see in it a declining curve.”

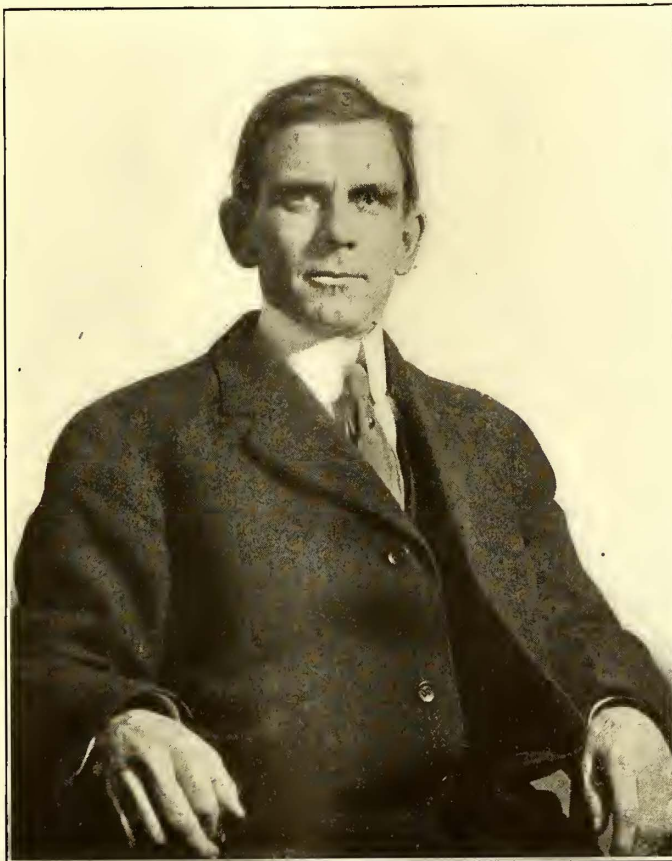
I think that I can follow Mr. Shoup perfectly. On a glorious California Sunday in May we drove together out from San Francisco in the Santa Clara Valley toward San José. The excellent highroads were thronged with cars. Yet driving that day was not without its perplexities. Not only was gasoline very high priced—for California—but there was precious little to be obtained at any price. One drove from

service station to service station, and occasionally when he was known or favored was grudgingly doled out two or three gallons of the precious fluid. There was not an ounce of it to be spared. While from the more remote counties of the northern part of the State came tragic reports of “gas” tanks completely emptied; not a drop of it in whole townships even for emergency purposes. The gasoline famine was upon the land; a tragedy which traction men at least were enabled to regard with complete equanimity.

I felt, even myself, that I could perceive a distinct lessening of that traffic upon the highway and the gain upon the steel road. On the preceding afternoon I had ridden from Marysville through to Oakland—140

miles—upon two extremely well-operated interurbans, the Sacramento Northern and the San Francisco-Sacramento, and had found their three-car trains well filled. And at 3 cents a mile. It looked like good business. It was good business.

And yet do not under-rate the volume of that motor bus and motor truck and private motor car competi-



PAUL SHOUP

President of the Pacific Electric Railway and vice-president of the Southern Pacific Company, who sees better times ahead for the electric railways of California. Mr. Shoup's views on automobile competition are given by Mr. Hungerford in this article.

tion today or tomorrow. Even if our national supply of gasoline runs low and fails utterly to keep pace with our very great national increase of self-propelled vehicles upon our highways, the automobile manufacturers will proceed promptly to develop a substitute fuel. Do not forget that, Mr. Street Railwayman. The highway is bound to be a real competitor of yours for many a year to come. Yet not necessarily a competitor, with everything in its own favor.

#### IMPROVEMENTS PLANNED AT LOS ANGELES

It is another phase of this very press of competitive traffic, however, that has led Mr. Street Railwayman Shoup, who harbors no delusions as to the strength of his automobile

adversaries, to look forward toward the eradication of many of the grade lines and grade crossings that have slowed up the operation of his Pacific Electric lines. From the beginning these lines have been well built—the important main stems to Long Beach and to Pasadena being entirely on private rights-of-way from the points where they leave the Los Angeles streets, just outside of the heart of that thriving city. It is this interior radius, however—between the private rights-of-way and the P. E.'s great main station at Sixth and Main Streets—that the troublesome delays occur. It matters not that all the way from the Los Angeles River, near the old business center, up to South Pasadena, 6 miles, there is not a single grade crossing—except one, little used now—and so no interruption whatsoever from the heavy automobile traffic of Southern California. It is the eight or ten blocks of congested Main, San Pedro and Aliso Streets, Los Angeles, through which every one of the two hundred cars or more that run between that city and Pasadena pass, that slows so greatly the passage of the great red interurbans.

So Shoup has planned to eliminate these delays, not only to the Pasadena and San Bernardino cars but also to those running to Long Beach and other

ocean-shore communities to the south and west of Los Angeles. With typical thoroughness and energy he has planned an elevated structure leading out from the great terminal station of the Pacific Electric there at Sixth and Main Streets and, a short distance from there, branching to the north and to the south until it reaches these same private rights-of-way of which we were just speaking. There would be some 2½ miles of this structure all told, and it would carry all the way from two to four tracks. Moreover, as now planned it would pass and have physical connection with the new Arcade Station of the Southern Pacific lines in Los Angeles and the sole interchange point of their vast traffic through that city.

Nor is this all: The plan provides that a part of the connection of the proposed elevated railway to the Pasadena main stem of the Pacific Electric shall pass over and upon a portion of the right-of-way of the Los Angeles & Salt Lake Railroad. By adopting the construction plans in the right fashion it then would be easily possible for the Salt Lake route to abandon its present badly located and somewhat temporary passenger terminal in Los Angeles and by a line adjoining the Pacific Electric's new elevated lines bring its trains right into the Southern Pacific's commodious Arcade Station, which tracks in turn will take all Southern Pacific trains off Alameda Street, a busy thoroughfare through the city, which it has used for some forty years or more. In a similar fashion the Santa Fé might also abandon its own present depot and so help to achieve that pet dream of some of the Angelenos, a real union station for all their railroads.

But whether these last steps are ever accomplished or not, the fact remains that by the simple device of tapping the Arcade Station, with its projected elevated line, the Pacific Electric could and would be of great help to a large percentage of the tourists who annually visit Southern California, to say nothing of the great volume of the steady all-the-year traffic. Already it has been a real factor in the upbuilding of those two great suburban cities just outside of Los Angeles: Pasadena, with 45,000 population today, and Long Beach, with 55,000. A goodly proportion of the steam railroad travel bound in and out of Los Angeles is destined to or from these two communities. Some years ago the Southern Pacific folk saw the wisdom in abandoning for passenger service their 12-mile branch up to Pasadena and letting the Pacific Electric collect and distribute this form of traffic. The new plan as suggested will render such interchange far easier. And a scheme will soon be effected which will transform the present comfortable Southern Pacific station in Maryland Avenue, Pasadena, into a complete terminal for Pacific Electric cars and so relieve in turn the streets of that rapidly growing suburb, which themselves some time ago began to reflect in no small degree the increase in automobile traffic and congestion.

Here then is quickly established that correlation between the long-distance and the short-distance elec-

tric train or car that broadminded and far-seeing students of transportation conditions in the United States have long desired to see come into effect. In far too many cases have there been differences or misunderstandings or long-existent feuds to delay such sane and logical progress. At Pasadena there is neither. Simply a sensible understanding of the fact that with the new elevated completed, as well as the transformation of its Southern Pacific terminal, the trip from its heart into the heart of Los Angeles can be made in from twenty-five to twenty-seven minutes. It now takes from thirty-five to forty. While to the Pasadenian bound for the north—let us say to San Francisco—the time saving is far greater. His trolley car will drop him direct at the Southern Pacific's new station, saving him both the time and expense of transfer.

#### HIGHER FARES ARE NEEDED

With so simple a relief plan all worked out one wonders why it has not long since been put into effect. The answer is simple: The improvement work as at present laid out by the engineers is far from a cheap job; their estimates for it run all the way from \$2,000,000 to \$5,000,000. One speaks quite easily in millions these days, yet one does not obtain those selfsame millions quite so easily. Particularly when one is engaged in conducting a property whose operating costs have climbed from 30 to 40 per cent since 1914, and whose wage-rolls alone—for from 4,500 to 5,000 people—have gone up 78 per cent just since 1916. Cross-ties today cost just twice what they cost five years ago, while rail is up from \$28 or \$30 a ton to \$47—at the rolling mills. At the Pacific Electric's receiving station transportation across the continent brings this figure close to \$70. At this writing I am advised that the money has been found and only the consents of the State Railroad Commission and Los Angeles city are necessary.

Against these great increases in cost, increases in fare have as yet been but slight. Local fares in Los Angeles still stand at 5 cents. Yet that city, like San Francisco, will in all probability be forced to face the necessity of at least a 6-cent fare. Six-cent fares already have begun to creep into California, which, seemingly, has been far slower to feel increased living costs than most of her sister states in the East. Oakland, San José, Fresno and Stockton

already have them, with Sacramento soon to follow, while in San Diego local fares, with the exception of a limited zone in the heart of the city where a 5-cent fare still prevails, have been placed at 7½ cents, with a slight reduction when tickets are purchased in quantities.

The Pacific Electric's fare increases have been correspondingly slight. The flat round-trip fare of 50 cents which formerly prevailed from Los Angeles to any of the seashore communities roundabout here from Long Beach to Santa Monica—the one-way distance varying from 15 to 25 miles—has been increased to but 60 cents; the one-way fare from 35 to 40. Sixty cents for 30 to 50 miles seems cheap enough. In the minds of the Pacific Electric folk it is far too cheap. They feel that their standard long-distance rate of 3 cents a mile, based upon the practice of their steam railroad competitors, is none too high.

It is not to be denied that the motor bus competitors also are a large factor in the regulation of single-trip fares in some directions and possibly round-trip fares. Shoup himself would be the last to deny such a factor. He has a way of taking direct hold of questions such as these. It is fairly characteristic of him.

"Yet I cannot but believe," he says, "that these motor buses are now bound to come more and more under public control. They are going to be taxed, fairly but certainly. They are going to have to pay their fair share for the renewal and maintenance of the very pavements for which the street railway companies paid in the beginning, and the tax is going to be based in some way in proportion to the weight of the vehicle and the consequent destruction that it does to the pavement. All of which means of course competition on terms nearer equality. And which, combined with the steady increase in cost of operating a gasoline-vehicle of any sort, is already beginning to give us a fairer chance in California. As I said at the beginning we have, in my opinion, reached the peak of the situation and are already come to a slightly easier point."

#### RAPID TRANSIT LINE IN OAKLAND ALSO

In Part I of this article I spoke of the peculiar problems and perplexities confronting the street railways in San Francisco today. I omitted

taking cognizance of the two rival systems in the three large communities on the far side of San Francisco Bay until after I had mentioned the head of the Southern Pacific electric properties. For, remember, if you will, that all of Shoup's activities are not concerned with the huge Pacific Electric property, although that is of itself a man-sized job, with its more than 1,000 miles of track and its 2,000 cars. He also operates the Fresno, Stockton and San José local systems, which are S. P. properties, as well as the Peninsular Railway, connecting the last of these systems with Los Gatos and Palo Alto, and the Visalia Electric Railway—some 200 miles of track in all. The direct suburban lines of the Southern Pacific up at Portland and at Oakland, Berkeley branch and one or two edge of San Francisco Bay are electrified. This last is a really remarkable system, built up of the Berkeley branch and one or two other small feeders of the parent Southern Pacific system. From these, and some other brand-new routes, was built up a suburban system, operated by overhead pantagraph trolley and in and out of the main Southern Pacific ferry terminal at Oakland Mole as well as a secondary ferry terminal on Alameda Mole. Its trains of bright cherry-colored steel coaches, each seating 120 passengers, are absolute models in electric traction. They long have been the admiration of trolley men from afar when they come to the Golden Gate.

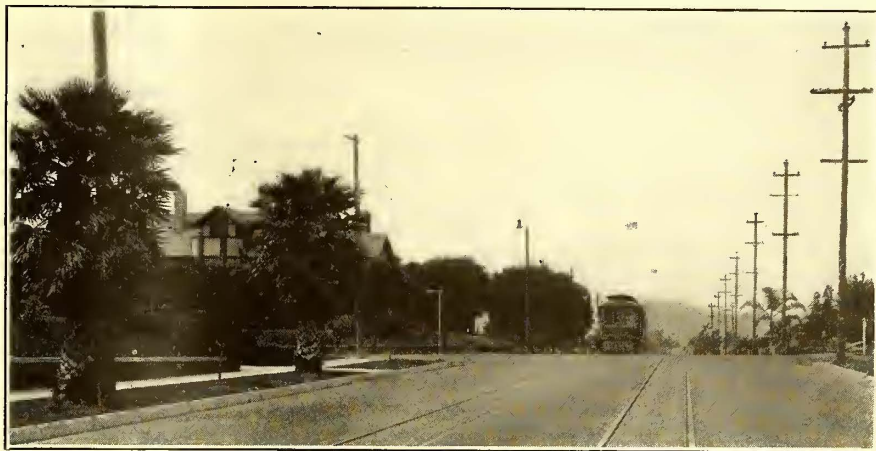
Yet even this is an unprofitable system. That it was overbuilt even the Southern Pacific people would probably be willing to concede today. That it could last thirty days without the strength and support of the parent system no one is willing to admit. In some earlier paragraphs I called attention to the hotly competitive conditions in San Francisco and the excellent service that ensued as a result and said that here was a regular argument for the man who says that transportation efficiency may only come under conditions of real competition.

Oakland and Berkeley are quite as competitive in their street railway service as is San Francisco. While the Southern Pacific was transforming and expanding its suburban lines at the east side of the bay, a shrewd resident of the first of these towns had purchased its local street railway system and was preparing to develop it into a real rapid transit

system that would also serve Berkeley. The man had plenty of that thing we Americans like to call vision, plenty of capital, too, and out of it all was evolved the so-called Key Route, whose bright new yellow cars were hooked together in trains and were quite the pride of the communities which they served. They ran out to a brand-new ferry terminal or "mole" and from it a fleet of ferryboats ran to and from the great union ferry house in San Francisco.

The yellow cars are not so bright as they were in those days. The Key Route has fallen into days of adversity. If it were not for the ownership of the Oakland local street railway lines its days would be even

trict that could and, in all probability, eventually will be abandoned and pulled up. There are lines of the Key Route too that in the event of consolidation would become equally superfluous and would suffer a like fate. And in all probability the ferry house and "mole" would disappear—as far as the Key Route is concerned at any rate. It has been suggested as a likely terminal for the Southern Pacific's long-distance competitors into San Francisco—the Santa Fé and the interurban systems to Stockton, to Sacramento and the north. But whether this last step be ever taken or not, I think that I shall not have to live many years to see the day when the rapid transit services at the east side of San Francisco Bay



The suburbs of Los Angeles are noted for their large number of handsome residences, well-kept lawns and attractive surroundings. This view, with its palms, is characteristic.

harder than they already are. True it is that it has had some slight revenue relief in the fact that it shared with the Southern Pacific's electric lines the recent general increase in the flat fares from San Francisco to Oakland, Berkeley or Alameda from 10 cents to 15, and engages in some slight advantage over its big steam competitor in the fact that the Southern Pacific is forced to pay even its electric train operators the steam train wages, a schedule considerably higher than that of the average traction company. But even these advantages do not seem enough to spell a permanent opportunity for the Key Route.

#### CONSOLIDATION IN OAKLAND AND BERKELEY DESIRABLE

The eventual solution of its pressing problems, like that of the competing street railways of San Francisco, seems to be consolidation. There are suburban electric lines of the Southern Pacific in the Oakland dis-

shall be permanently and securely merged.

Such a day cannot, in my opinion, come too quickly. To one who has preached, and he hopes consistently, transportation efficiency gained by consolidation and correlation, there are plenty of texts in the metropolitan district of San Francisco. We have just seen how good planning and good old common sense may effect such efficient correlation in Los Angeles. The opportunities in the great communities to the north are quite as great, if indeed not greater. The economies which they may accomplish are not alone those of money, not merely benefits to the companies which establish them. They are to be written in the service to each of the 35,000 commuters who cross daily from Oakland ferry houses to San Francisco and cross back again at night. They are economies at wholesale. And so almost bound to accomplish wholesale results.

# A Model Traffic Ordinance Considered

## Tentative Ordinance Presented for Discussion—Rigid Specifications on Right of Way, Speed Control and Parking—Discussion by National Traffic Officers' Association

**T**HE third annual convention of the National Traffic Officers' Association was held in San Francisco, August 23-27. The convention devoted its efforts toward perfecting a motor vehicle act which would be uniform for all states and discussed a tentative model traffic ordinance presented under the auspices of the A. E. R. T. & T. A.

The convention was addressed by Mayor Rolfe of San Francisco and by Governor Stephens of California on Monday, after which the president of the association, Daniel A. Sylvester, gave his annual address. On Tuesday the morning was devoted to committee hearings and the open session in the afternoon was taken up with six addresses on various aspects of traffic regulation. W. H. Maltbie, general counsel of the United Railways & Electric Company of Baltimore, talked on "Traffic Regulations from the Standpoint of Electric Railways." Another open session was held Wednesday afternoon, at which technical traffic and vehicle problems were discussed by several automobile representatives. On Friday morning a proposed "International Vehicle Law" was presented at an open session by E. W. Braun. The association desires uniformity in state and city traffic regulations and the proposed law covered all phases of transportation. The morning sessions were taken up with committee discussions.

The electric railways committee spent a great deal of time in discussing a proposed "Model Traffic Ordinance," presented by its chairman, W. H. Maltbie. Mr. Maltbie served on the committee on code of traffic principles of the American Electric Railway Transportation & Traffic Association.

### ABSTRACT OF PROPOSED ORDINANCE

Section 1 of the proposed ordinance deals with definitions and departs from the conventional ordinance in defining only two terms. "Main Thoroughfare" is defined as "any street or part of a street upon which street cars are operated and also any street or part of a street so signed." "Delivery District" is defined as "the area of traffic congestion officially designated as such." The ordinance also calls every traffic agency a vehicle except a street car.

The ordinance is unique in that Section 2 specifies no definite speed limit, but simply states "Every driver shall keep his vehicle under such control as will enable him, by the exercise of ordinary care and diligence, to avoid collision or other interference with other vehicles or pedestrians who are proceeding in accordance with traffic regulations."

In the event of accidents the ordinance specifies that a presumption of negligence shall lie upon the vehicle violating traffic rules, and as between a vehicle or street car proceeding under a traffic officer's direction and a pedestrian, upon the pedestrian.

The section specifies right-hand curb stops in all two-way streets and states that no vehicle shall cross a foot way at any point other than a street or alley crossing without coming to a full stop. The usual signal and

lighting rules are specified and the section prohibits any vehicle passing a stopped or stopping street car, unless the car is at a safety zone, and all vehicles, except on one-way streets, must pass a street car on the right-hand side, but must pass other vehicles on the left-hand side. The police department is given authority to establish safety zones and all vehicles are prohibited from driving through or over any safety zone.

In regard to right of way the section specifies that a "despatched" vehicle (proceeding at the direction of a traffic officer) or street car shall have the right of way, but that subject to the right of way of emergency vehicles and despatched vehicles, the street car shall have the right of way. Traffic on "main thoroughfares" is given the right of way over traffic on other streets, and all drivers of vehicles approaching a "main thoroughfare" must slow down and enter and cross such a thoroughfare at a rate of speed that will permit them to stop their vehicles within their lengths. Unless otherwise specified the "right and left" rule is applied to all traffic.

Section 3 deals with pedestrians and prohibits stepping on or off a moving street car and provides for movement under traffic officer direction at despatched crossings.

No building or heavy object whose movement may obstruct traffic can be moved along or across street railway tracks except under a special permit, is one of the miscellaneous provisions of Section 4.

Section 5 specifies the use of mufflers and prohibits noisy loads, operation with a flat wheel or flat tire or other defects that may interfere with private or public comfort.

The ordinance is unique in dealing with "delivery districts" in that Section 6 states that "the authorities shall have the power to designate, wherever traffic congestion shall in their judgment warrant such designation, certain special areas which shall collectively be known as the "delivery district." This section also gives the proper authorities the power to specify hours as the morning and evening traffic peak hours and defines slow, medium and fast-moving vehicles.

Section 7 deals with general regulations covering deliveries, stopping at curbs, licenses, etc., and Section 8 provides that no parade shall pass through a delivery district without a permit and that no parades may be held during traffic peak hours or block any street car line for longer than five minutes.

Parking provisions are covered by Section 9 and are specific as regards parking in delivery districts, near fire plugs, public buildings, etc. Section 10 covers traffic in one-way streets and Section 11 deals with special regulations in the delivery district. It states that vehicles shall not stop for delivery or loading of goods during peak hours and limits the size of vehicles which may operate in the delivery district.

Section 12 deals with street car regulations and states that cars shall be kept in good operating condition, be equipped with head and tail lights visible at



certain unstated distances front and rear, be provided with life guard, fender or other approved protective device and make fixed stops for passengers and such other stops as may be determined. Violation of the ordinance is considered a misdemeanor, but the penalty for conviction is left blank.

The ordinance is well drawn and shows that the committee has studied traffic conditions in detail. The provision regarding main thoroughfares and their crossings should expedite street car schedules, and giving the street car the right of way, other things being equal, should also aid car movement.

W. H. Maltbie in discussing the ordinance pointed out that the present traffic problem grows out of the development of the automobile, which has increased the speed of traffic movement and the number of traffic vehicles, and that the modern office building has increased the concentration of traffic in the delivery districts. He stated that regulation is essential which must provide safety at every point, expedite traffic and afford protection to individual rights to the street, such as the access of property owners to their property, drivers, riders, pedestrians and freight movers to passage through the streets, and all classes of emergency traffic.

The solution of the problem must be a compromise based on give and take, the rights of the few yielding to those of the many and the normal service to the emergency service, but no right must be entirely denied.

Mr. Maltbie continued by saying that traffic conditions differ in the various localities of a city so that district traffic regulations and rules are essential; that conditions vary from hour to hour in the districts so that peak and off-peak rules and regulations must be provided, and finally that the nature of the rules and regulations depend on the character of the traffic, which necessitates a classification of traffic with individual rules and regulations for each class.

#### ELECTRIC RAILWAYS WELL REPRESENTED

Ten committees were appointed to make recommendations for a model traffic law, each committee to cover its respective field. The railway industry was well represented on the committees, as is indicated by the following list of committees and the names of the railway representatives: Arrests and penalties, J. H. Handlon, general claim agent United Railroads of San Francisco; auto and truck transportation, W. V. Hill, manager California E. R. A.; electric railways, W. H. Maltbie, general counsel United Railways, Baltimore, and W. R. Alberger, vice-president San Francisco-Oakland Terminal Railways and president California E. R. A.; general laws, F. E. Chapin, general manager Peninsular Railway and San José Railroads; headlights, E. M. Maggard, general manager Petaluma & Santa Rosa Railway; municipalities, E. L. Lewis, assistant general manager Los Angeles Railway Corporation; organization, W. M. Abbott, chief counsel United Railroads of San Francisco; rules of road, F. W. Webster, general manager Visalia Electric Railroad, Fresno Traction Company, Stockton Electric Railroad and Central California Traction Company; safety first and safety appliances, C. E. Brown, general manager San Francisco, Napa & Calistoga Railway; steam railroads, H. A. Mitchell, general manager San Francisco, Sacramento Railroad.

On the last day of the convention the executive com-

mittee of the association decided to put the committee reports in the hands of a special committee which would have time fully to digest the various recommendations and prepare the desired model traffic law in time to submit it to the Dec. 2 meeting of the executive committee. On this committee for framing the law the following men were named: David Farres, Automobile Club of Southern California, Los Angeles, chairman; W. H. Maltbie, counsel for United Railways & Electric Company, Baltimore; Robert W. Martland, secretary California Auto Trades Association, San Francisco, David Von Schaak, National Safety Council, New York; E. W. Braun, Associated Chambers of Commerce, Elgin, Ill.; Percy E. Towne, American Automobile Association, San Francisco; J. B. Monahan, Southern Pacific Railroad, San Francisco; J. E. McCurdy, Peninsula Rapid Transit Company, San Mateo, Cal., and Dr. Clayton H. Sharp, Illuminating Engineering Society, New York.

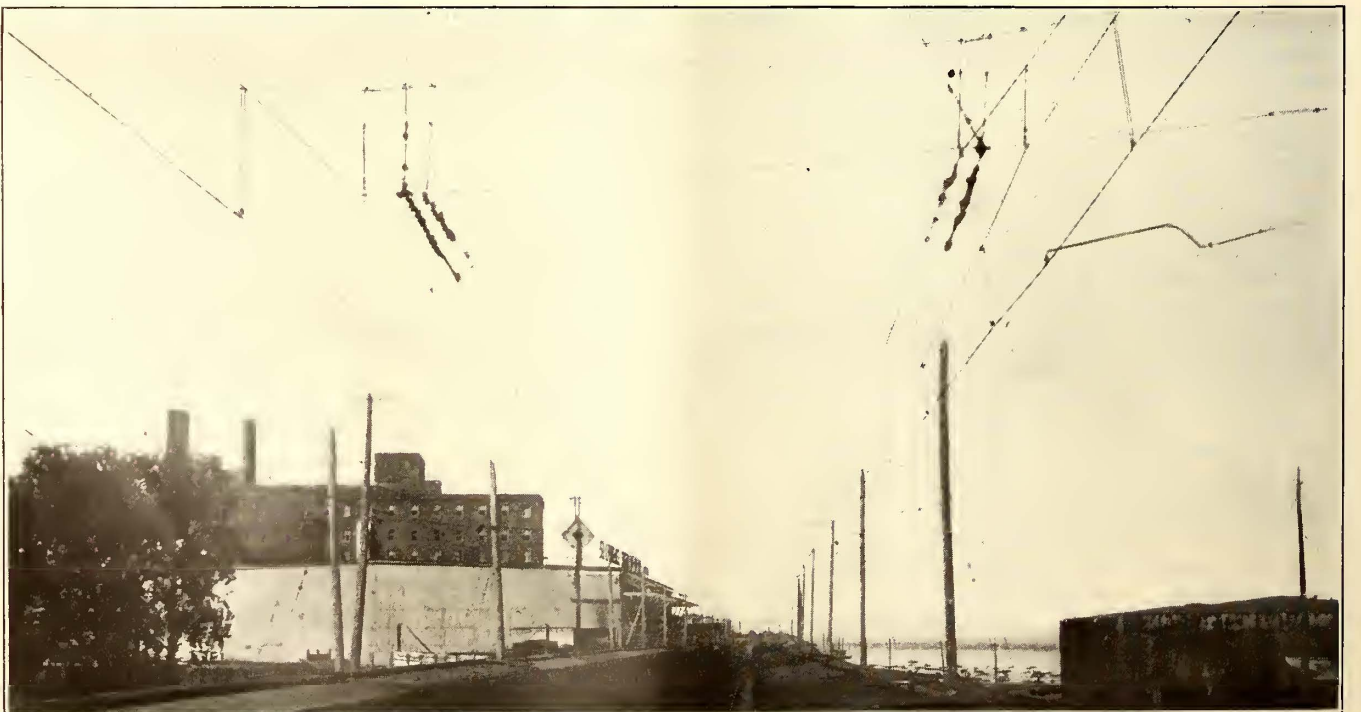
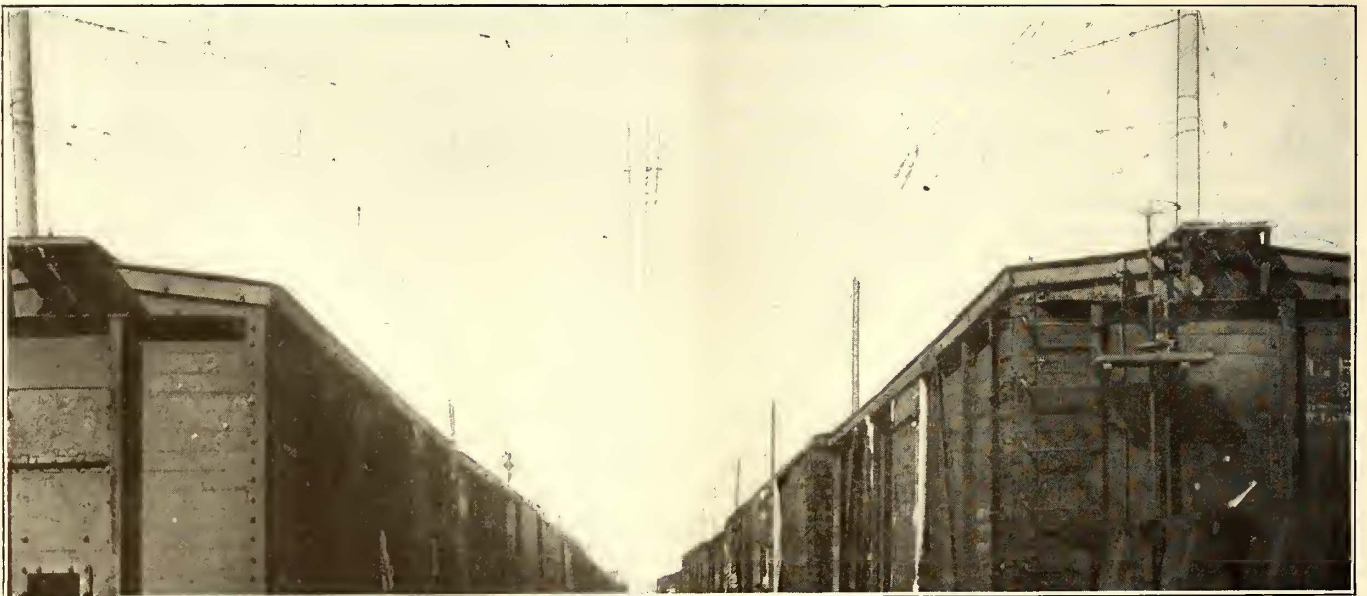
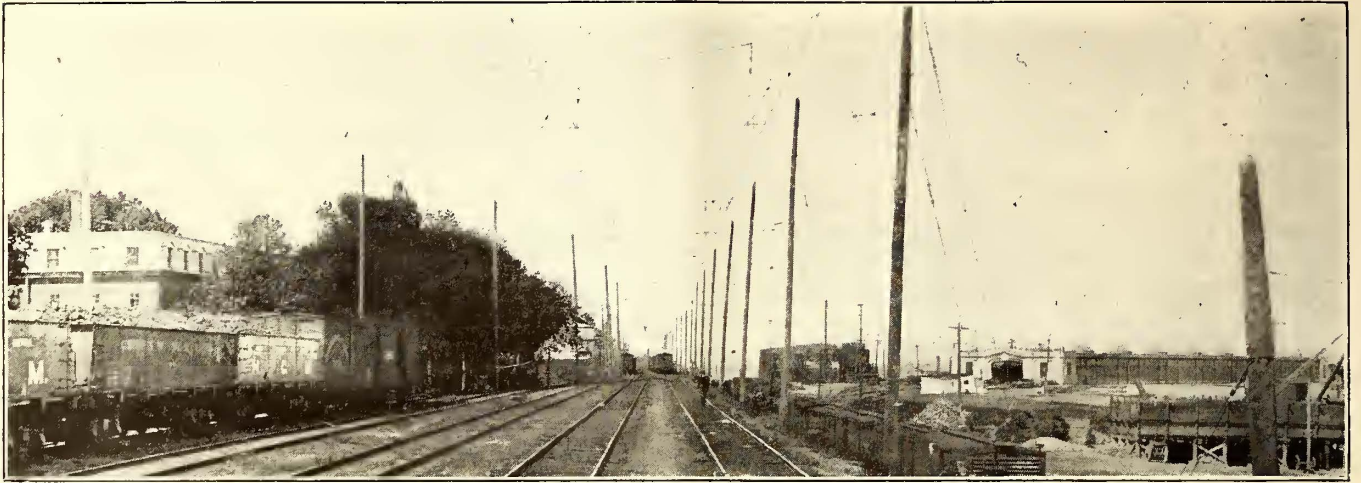
While the recommendations of all the committees are to be considered in framing the proposed model law where they can then be studied as a whole, it may be of interest nevertheless to mention here some of the provisions recommended. The electric railways committee approved specifically many sections of the "model traffic ordinance," which was printed and circulated at the convention by a committee of the American Electric Railway Transportation & Traffic Association. The general laws committee approved the provision that all motor vehicles must come to a full stop before crossing steam or interurban electric railways. The auto truck and transportation committee recommended that motor vehicles for passengers and freight-carrying purposes be considered as common carriers and that their control should be vested in utility commissions of the states in which they operate.

Mr. Maltbie is to write that part of the proposed law that deals with city traffic, while Mr. Farres will write the portion that deals with the highways, after which the committee as a whole will pass on the material presented.

The meetings were held in the San Francisco Municipal Auditorium, where ample space was available for the display of a large number and variety of safety devices under the same roof, with meeting halls of large and small size suitable for the general and committee sessions.

The association voted to change its name to the International Traffic Officers' Association. Lieut. Daniel A. Sylvester of the San Francisco traffic police was re-elected president and Chicago was chosen as the next place of meeting, the date to be fixed by the executive committee.

The Illinois Committee on Public Utility Information, 203 South Dearborn Street, Chicago, Ill., has recently issued its Speakers' Bulletin No. III, entitled "Regulation of Public Service Companies." This bulletin is for the purpose of suggesting ideas to speakers who are called upon to express themselves with reference to public utility problems. The present bulletin endeavors to assemble opinions of experts on fundamental questions concerning regulation and furnishes information about law and practice which have drawn around regulatory commissions. It emphasizes the spirit of regulation which governmental bodies are exercising the country over to give fair dealings both to the public and to the public utilities.



THE TOP VIEW SHOWS THE STANDARD OVERHEAD CONSTRUCTION ON TANGENT OF THE MONTREAL HARBOR COMMISSION. THE LOWER VIEWS ILLUSTRATE THE CONSTRUCTION AT CURVES AND SWITCHES



PORTION OF THE UNELECTRIFIED WATERFRONT OF MONTREAL, SHOWING PIERS, TERMINAL RAILWAY, ETC.

## Electrification in Montreal

**Montreal Harbor Commission Is Installing 2,400 Volts on 58 Miles of Terminal Track—  
Work Decided on Before War, but Now Being Carried Out**

**U**NDER the direction of the Montreal Harbor Commission, at the head of which is a former electric railway manager, William G. Ross, Montreal harbor has become the second in North and South America and the seventh in the world as to the value of foreign commerce passing through it. The harbor may be considered to extend a distance of about 17 miles on both sides of the St. Lawrence River, and as it is at the head of ocean navigation on the St. Lawrence River and at the foot of inland navigation of the Great Lakes it seems certain to increase in importance still further. The large supply of electric power in the vicinity of Montreal will be an important feature in the development of that port.

It is not, however, with the shipping features of the port that this article will treat, but in regard to the terminal railway, which is now being electrically equipped under the direction of the commission. This railway comprises some 58 miles of track extending along the waterfront and connected with the piers, as well as with the steam railroads which enter Montreal. Regularly during the summer season the shunting on this harbor railway amounts to from 1,000 to 1,800 cars daily.

Decision to electrify this line was made in 1914, after the commission had determined that an electric locomotive could handle at least 25 per cent more traffic than a steam locomotive and that its operation was much more under control, but owing to financial conditions caused by the war construction was deferred. During the summer season of 1918 nine locomotives were in operation, and it was decided that if the service was to be maintained at its highest efficiency additional locomotives would be required. In July, 1919, plans and specifications were issued for the electrical equipment of the lines, and a start was made in September of last year. About half of the overhead lines are now electric.

In view of the climatic conditions and the very successful operation of the Canadian National Railway lines through the Montreal tunnel terminals, which have a 2,400-volt direct current overhead system in use, a similar system was adopted for the Montreal harbor terminal.

### OVERHEAD EQUIPMENT

The overhead equipment, which is illustrated in several accompanying views, consists of cross-span catenary construction. The main messenger is a  $\frac{7}{8}$ -in. extra-galvanized Siemens-Martin steel cable, anchored at half mile sections. The anchor poles are heavily guyed in all directions. The cross-spans are supported by wooden and steel poles at spacings of 150 ft. on tangent double track and 120 ft. or 105 ft., as conditions require, on curves and in yards. The cross-span wire is a  $\frac{1}{2}$ -in. high-strength galvanized steel cable, the tension on the messenger and span being maintained at approximately 2,300 lb. The working conductor is No. 0000 grooved hard-drawn copper wire, suspended by the loop hangers at a uniform height of 23 ft. above the top of the rail.

Wooden poles are being used where the development is not completed, these being western cedar timber, varying in length from 40 ft. to 65 ft. as conditions demand. The poles are butt treated with hot carbolineum as a preservative. Steel poles are being used when permanent conditions exist, the poles being set in concrete carried well above the ground level. Welded 7-in. No. 0000 bonds are used.

At present two electric locomotives, built originally for the Canadian Northern Railway, are being used to shunt cars on the finished portion of this line. A substation, built for an ultimate capacity of three 1,000-kw. motor-generator sets, is being erected.

## Take Your Choice

SENATOR Harding and Governor Cox have replied to a questionnaire presented to them by the American Association of Engineers. Governor Cox gives an unequivocal "yes" as his reply to each of the five questions presented. Senator Harding does not say no to any question and does say yes to some, but reserves his decision on one main "important and far-reaching" question until he has given it "the very fullest study."

The questions submitted were: (1) Do you favor a Department of Public Works, for the purpose of reducing and co-ordinating the present number of bureaus and commissions and reducing the useless expenditure of money incidental thereto? (2) Are you in favor of putting all engineering and construction enterprises (excepting purely military work) in such a department to obtain economy and efficiency? (3) Do you favor an engineer as member of the Interstate Commerce Commission? (4) Do you favor a progressive and constructive program of conservation and development of our natural resources? (5) Do you favor a budget system for appropriating public funds? (6) Do you favor the reclamation of waste lands and giving the settler the advantage of procuring such lands by a sound financial system such as is provided by a rotating fund?

Governor Cox replied:

"My reply to every one of the questions you ask is unequivocally 'Yes.'"

Senator Harding replied:

"I have had up the matter of the Department of Public Works. . . . I fear I should be unworthy of public confidence if I ventured to decide so important and far reaching a question without the very fullest study. It involves the reorganization of several departments. Undoubtedly, there is necessity for this, but I should be very reluctant to commit myself unalterably to it without the very fullest of understanding. . . . I have already sent for the congressional hearings on the particular question.

"I may say, in a general way, that I think very well of the appointment of an engineer on the Interstate Commerce Commission and I have always spoken heartily in favor of a progressive and constructive program of conservation. I am sure you know I favor the budget system and a very forward policy relating to reclamation and irrigation."

## Appeal to Encourage Research

ENGINEERING FOUNDATION, administered under the auspices of United Engineering Society and the four "founder societies," A. S. C. E., A. I. M. & M. E., A. S. M. E. and A. I. E. E., is supported only by voluntary endowment and now finds itself in need of approximately \$500,000 additional endowment immediately, to add to the present \$300,000 and the assured \$250,000 more. It appeals, in a bulletin issued Aug. 23 from its headquarters, 29 West Thirty-ninth Street, New York, to the engineering profession and industries based on engineering for the necessary endowment.

Engineering Foundation is organized to support researches in engineering and to aid in applying the results to engineering industries. It exists largely on account of the need of research, other than that carried on by the Government and large corporations, beyond

the means of industrial engineers, small companies and separate societies. Its method of operation is to support researches by individuals and organizations and to co-operate with, but not duplicate the work of, other research organizations which now exist and operate in limited or restricted fields. It also purposes eventually to establish a research institute and laboratory, the latter probably partly self-sustaining.

The bulletin records the past history and accomplishments of Engineering Foundation and indicates its usefulness to the industries dependent upon engineering and applied science. It shows the need of the foundation and the reasons why engineering industries should make an effort to add to its endowment.

## San Francisco Rail Jointing Methods

IN THE last ten years the United Railroads of San Francisco has made more than 11,000 rail joints on the tracks of its system, and although joints laid previous to 1910 have given some trouble, to date there have been no cases of loosening or cupping in track laid since the present installation methods were adopted. No welded joints have been put in and with the present record for joints that stand up under long service engineers of the company do not consider that welding is necessary under conditions in San Francisco.

The policy followed is to allow rail jointing to be done by only one crew and to keep the work of this crew up to a very strict high standard. This crew, which also does the bonding, consists of one foreman and two to four men. Two additional men are required for operating the planer when that is required. The crew is kept as nearly intact as labor conditions permit.

When a rail joint is to be made the track laying gang leaves it after simply putting the plates in place with two bolts to hold them together. When the bonding crew comes along the plates are removed and a very careful job of fitting and finishing all parts of the joint is done. The secret of the company's success with rail joints is believed to be a tight fit all around. Inspectors make sure that this is secured even if the crew has to come back to the joint several times; in fact, this is not an unusual occurrence.

An important part of the work is the filing off of the rail heads until both are exactly on the same level. This is done with a vixen file held in a two-man machine. The file is worked back and forth along the joint until both rail heads show bright for their full widths. The theory is that if the rail heads are exactly level and if the joint is tight cupping cannot occur. It has sometimes been noted that a rail joint on which no difference of level can be seen or felt with the fingers, nevertheless will, when the file is put on it, show that there is a slight difference in elevation. This is at once apparent after a few strokes of the file, as low places will not show bright. The elimination of this slight difference is believed to prevent the beginning of the destruction of the joint by preventing "cupping" from starting.

All the joints referred to above are on 106-lb. rail and use bridge type, two-ve-bolt hole, Loraine Steel Company plates. The custom is to buy plates and rails at the same time and to specify that the plates shall be of the same metal and of the same hardness as the rails. The engineers of this company believe that plates made of material softer than the rail itself are less likely to keep the joint permanently tight.

# Electrification of the Prussian Railways in Silesia\*

Single-Phase Power with 15,000 Volts on the Contact Line Is Used—Interconnected Water Power Plants with Steam Auxiliary Furnish Power—Several Types of Locomotive Are Required to Cover All Classes of Requirements

THE railroads of the Silesian mountains extend along the frontier of Bohemia between Görlitz and Glatz, as indicated in Fig. 1. They serve several industrial districts, of which Waldenberg is the most important. There is a very important traffic of both passengers and merchandise, especially coal, the development of which should be facilitated by the electrification of the railway lines.

This electrification was authorized by a law dated June 30, 1911. It is intended to include all the lines of the district of Breslau. In order to minimize the expense of installation and to profit from existing facilities, power will be purchased from a private company founded by the Allgemeine-Elektricitäts-Gesellschaft and the Siemens-Schuckert-Werke, which have undertaken the construction of the central stations and the high-tension transmission lines joining them, the administration of the system retaining to itself the title to the equipment of the lines. The company obligates itself to deliver 40,000,000 kw.-hr. per year at a price of 2.75 pfennigs, with a rebate of 1 pfennig per kilowatt-hour not used. The maintenance of the high-tension line and substations devolves upon the railroads.

Fig. 2 gives a simplified profile of the principal line, which extends from Lauban to Königszell. Heavy grades are encountered, and the train weights are up to 550 net tons for the expresses and 1,300 tons for the freight trains. With steam operation the use of two very heavy locomotives for each five cars was necessary. Aside from this the proximity of important hydraulic power permitted with electrification a large saving in coal. Hydraulic stations are located at Mauer with 5,500 kw., Marklissa with 2,600 kw. and Weistritz with 1,300 kw.

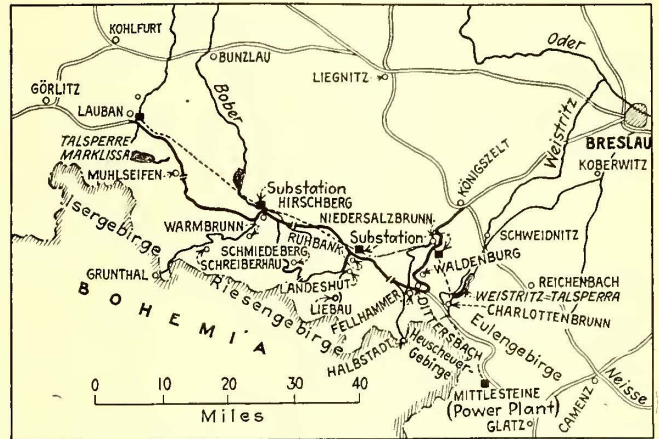


FIG. 1. MAP OF SILESIA MOUNTAIN ELECTRIFICATION

The complete system includes the following lines: Double-track line from Lauban to Königszell, 80 miles; single-track line from Nieder-Salzbrunn to Halbstadt, 21.8 miles; double-track line from Ruhbank to Landeshut, 3.7 miles, with branch line from Landeshut to Liebau, 16.8 miles; line from Hirschberg to Warmbrunn, Schreiberhau and Grünthal, 33 miles; line from Hirschberg to Schmiedeberg and Landeshut, 25 miles. These total a route mileage of 170, comprising 310 miles of single track. All of the other lines have profiles similar to that of the principal line. The maximum grade is 2 per cent between Freiburg and Nieder-Salzbrunn; the other grades are 1½ and 1 per cent, and the difference in elevation is 1,080 ft. On the double-track line from Hirschberg to Grünthal the difference in elevation is 1,800 ft., with a grade of 2½ per cent. The curves are likewise very numerous and their radius is sometimes as low as 620 ft.

Coal of a mediocre grade, peat and coal dust will

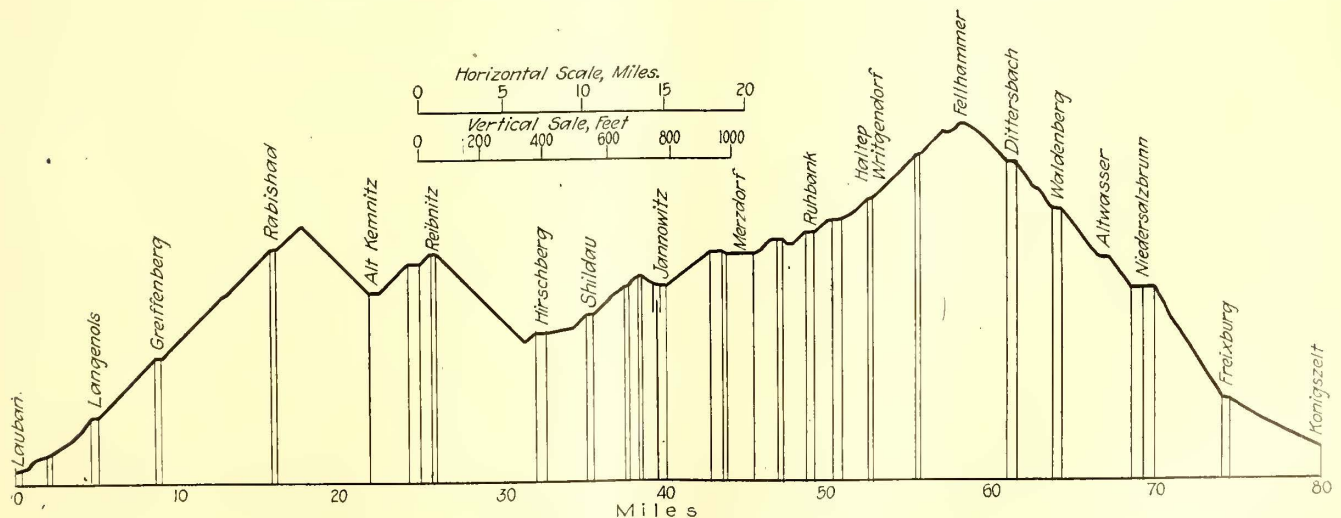


FIG. 2. PROFILE OF THE MAIN LINE

\*Based on article in *Revue Générale de l'Electricité*, Jan. 31, 1920. Original long article by E. C. Zehme appeared in *Elektrotechnische Zeitschrift*, July 17, 24 and 31, 1919.

be made to furnish the auxiliary power supply. Stations to utilize these will be constructed near the mines to save freight. A voltage of 15,000 was chosen for the contact line, using 16-cycle, single-phase current.

The principal steam plant has been constructed about 1.25 miles from the Mittlesteine station, 40.7 miles from Lauban. The price of coal at this point was 6.4 marks

overcompounded fields which provide constant potential at all substations. The 80,000-volt buses with their protective apparatus are immediately behind the transformers.

The boiler room is planned for fourteen boilers with inclined tubes having 4,900 sq.ft. heating surface, designed for a pressure of 230 lb. per sq.in. Of these ten have been installed. The large boiler capacity provides for large variations of load. The furnaces are automatically fired, the Plut stoker system being used with forced draft. Ash removal is accomplished by the use of 600-lb. carts, pushed by man-power. The boilers are equipped with superheaters and feed-water heaters.

The distances along the 80,000-volt transmission lines from the central station to the substations are respectively Nieder-Salzbrünn, 23.6 miles; Ruhbank, 35.5 miles; Hirschberg, 52.1 miles, and Lauban 77 miles. The substations are so located as to minimize line losses.

The voltage is transformed from 80,000 to 16,000 in the substations by means of air-cooled transformers. There are five of these at Nieder-Salzbrünn, four at Ruhbank, five at Hirschberg and three at Lauban, all rated at 1,600 kva. Fig. 3 gives the scheme of distribution. The high-tension line enters and leaves at the second floor level and the low-tension at the first floor.

The high-tension line, in duplicate, is composed of four wires suspended by string insulators containing five units each. The span varies from 330 to 660 ft. The line is of 185,000 circ.mil copper cables to Nieder-Salzbrünn, 130,000 circ.mil to Hirschberg, and 60,000 circ.mil to Lauban. The contact wire is of hard-drawn copper with "figure 8" section, 200,000 circ.mil area and with a tensile strength of 53,000 lb. per sq.in.

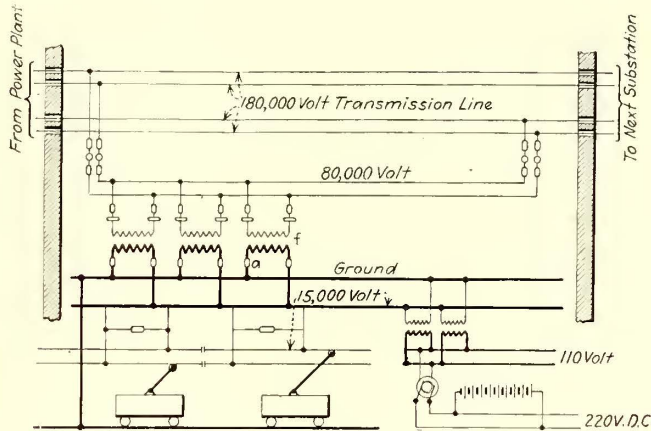


FIG. 3. CONNECTION DIAGRAM FOR NIEDER-SALZBRÜNN SUBSTATION

per ton before the war. Its calorific value was 11,000 B.t.u. per pound, on the average, with 17 to 20 per cent ash.

This station was designed for twenty-four trains, of which one-half, when climbing grades, would require 9,000 kw., the other half 3,000 kw. Four 5,000-kva. turbo-generators were installed operating at 1,000 r.p.m. and producing 3,500 volts at 16.6 cycles. The ultimate plan calls for six units. The station also contains three other turbo-generators of 2,500-kva. capacity each, operating at 3,000 r.p.m., 2,000 volts and 50 cycles. These will serve neighboring localities with power.

The single-phase voltage is raised from 3,500 to 80,000 by means of six 5,000-kva. transformers. The oil circuit breakers are of the remote-control type and the instruments and circuit breakers are on the low-tension side. To take care of sudden changes in load, the generators are furnished with Tirrill regulators and

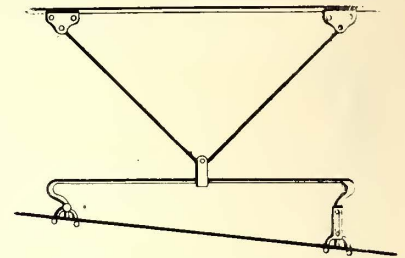


FIG. 4. CONTACT LINE SUPPORT PROVIDING FOR LONGITUDINAL MOVEMENT OF WIRE

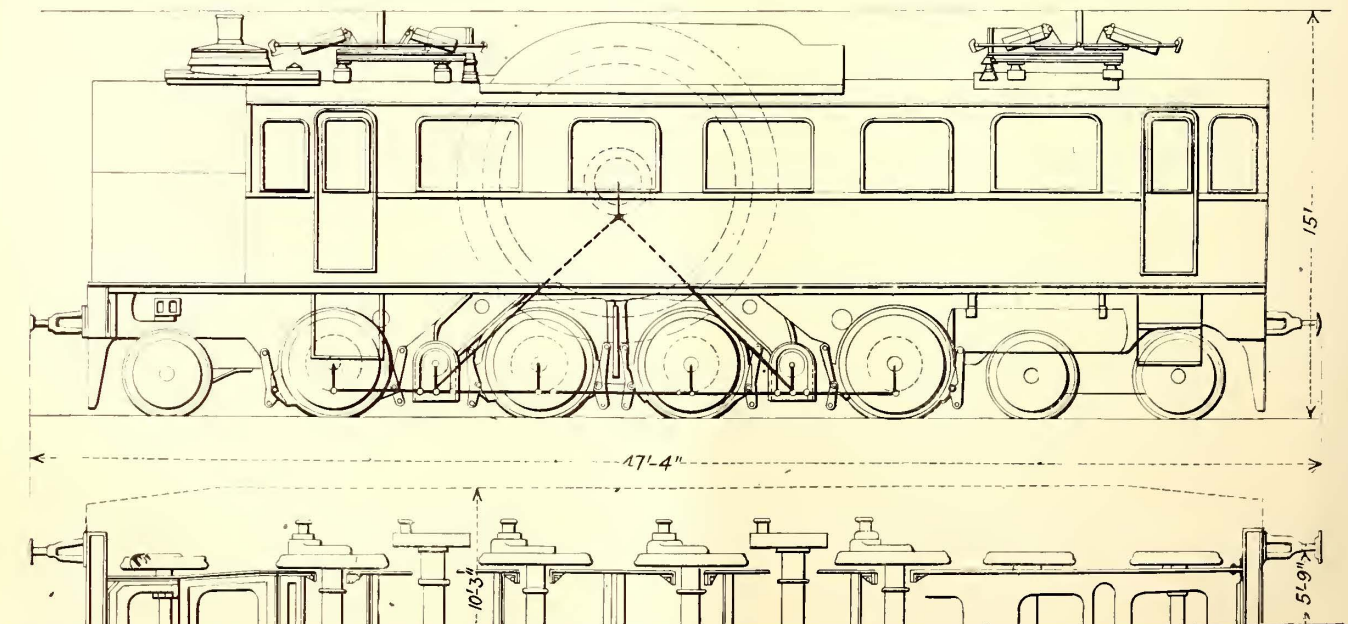


FIG. 5. DIAGRAM OF THE BERGMANN LOCOMOTIVE

The contact system is supported by catenary suspension. On part of it an auxiliary cable suspended from the messenger carries the contact wire, which alone is insulated. On another part two contact wires are suspended from the same cable. A special arrangement has been adopted to allow for longitudinal displacement of the contact wire as shown in Fig. 4.

The electric locomotives were required to comply with the following requirements: Haul 440-ton express

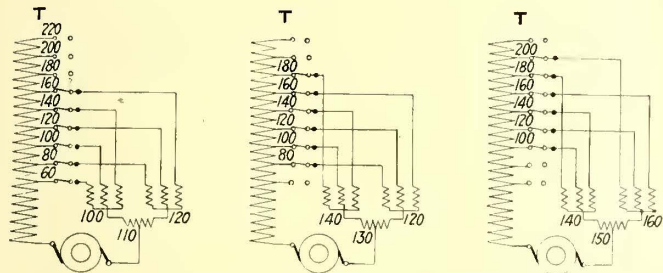


FIG. 6. CONNECTION DIAGRAM, BERGMANN LOCOMOTIVE

trains, 400-ton passenger trains or 485-ton freight trains on the 2 per cent grade with curves of 580 ft. radius, and 1,100-ton freight trains on grades of 1 per cent with curves of 2,500 ft. radius, with varying intermediate conditions. The equipment includes twenty locomotives for heavy express and passenger service, thirty-five locomotives for freight service, seven locomotives for light trains, thirteen locomotives for mixed trains and six motor cars. The war greatly delayed the delivery of the locomotives.

The side-rod locomotive built by the Bergmann-Electricitäts-Werke is shown in Fig. 5. There is one motor rated at 2,250 kw. It delivers its power by means of cranks set at 90 deg. and with intermediate jackshafts to which the wheels are coupled. The locomotive has a very regular torque.

The rear axle has no end play, but that of the center axles is 0.5 in. and that of the forward axle is 1 in. on each side. The pony axle under the boiler has over 2 in. play.

The torque corresponding to the rated power is 65,000 lb.-ft. at 240 r.p.m. The maximum speed is 380 r.p.m.

Provision has been made for shifting the brushes by which means 2,250 kw. can be developed at 380 r.p.m. For this reason commutating poles are not used, but the poles have been designed so that the induction will be

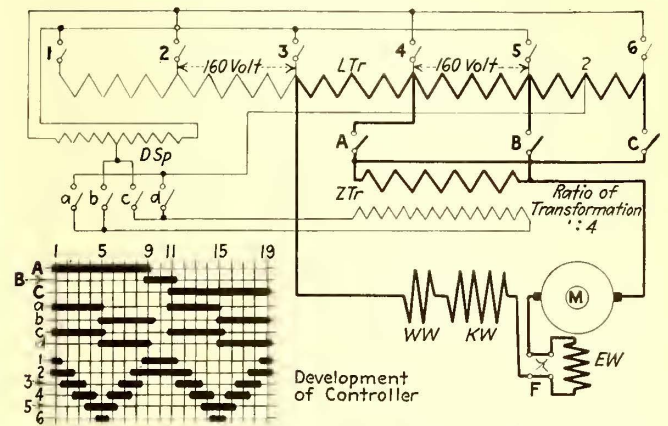


FIG. 7. CONNECTION DIAGRAM, MAFFEI-SCHWARZKOPF LOCOMOTIVE

sufficient in the zone of commutation, whatever be the position of the brushes.

The motor is cooled by a fan driven by a 23-kw. motor. A similar fan cools the transformer.

The driving wheels of the locomotive have been made as small as the speed of the motor would permit, the diameter being 4 ft. 1.2 in. At 380 r.p.m. this produces a speed of 56 m.p.h. The diameter of the frame of the motor is 11 ft. 5.8 in.; that of the rotor, 8 ft. 10.4 in., and that of the commutator 6 ft. 10 in. There are twenty-six poles and the total weight of the motor is about 24 tons. Regulation is accomplished by varying the electromotive force applied and by changing the brush position. The commutator for the transformer connections is operated by compressed air and operates as is shown diagrammatically in Fig. 6 here-with.

The operator controls the potential and the brush position by means of two controllers. On starting, the pantograph is raised by compressed air and the oil circuit breaker is closed. At this point the brushes are in their extreme position.

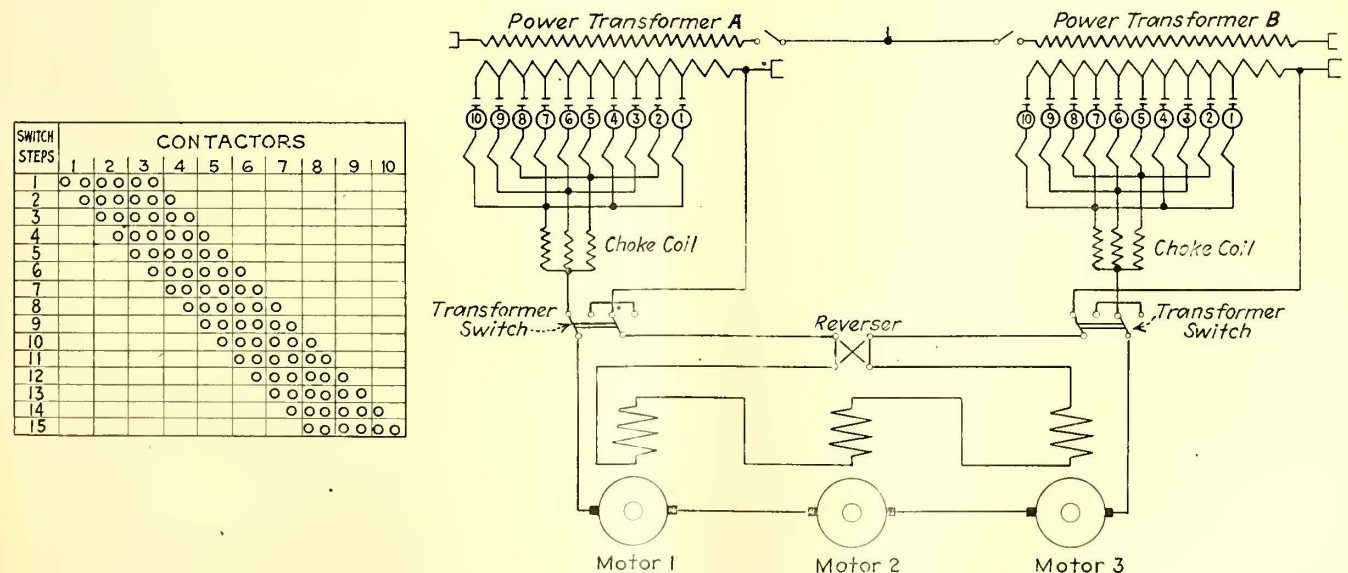


FIG. 8. CONNECTION DIAGRAM, SIEMENS-SCHUCKERT LOCOMOTIVE

In addition to the apparatus described above, mention should be made of the boiler, fired with coke burned under forced draft furnished by electrically driven fans, which is used to heat the trains.

The weight of the locomotive on the track is 119 tons, divided 18.2 tons on each driving axle and 15.4 tons on each idle axle.

A modification of the above locomotive was built with two 760-kw. motors each and a reduction of the speed by a single gear acted upon by each of the motors, the gear being on an intermediate axle placed between two driving motors. The motor speed is 900 r.p.m.

For the express trains a type of locomotive with a 900-kw. motor (1,300 kw. on the hourly rating) is used. These locomotives were built by the Maffei-Schwarzkopf-Werke and are for trains of 265 to 375 tons. They have three coupled axles spaced respectively 5 ft. 3.2 in. and 7 ft. 7.1 in. The mean speed is 28 m.p.h. and the maximum 56 m.p.h. The weight is 91.5 tons, of which 40.5 tons is for electrical equipment.

The motor is placed slightly above the axles and crank-connected through intermediate beams to the three driving axles. The motor is of the series compensating type without auxiliary resistance and without any special commutation devices. The voltage in the field coils and in the short circuit of the rotor is so low that it can be compensated with normal resistance of the commutating circuit. There are nineteen steps in the speed control, which is accomplished with the aid of an auxiliary transformer as indicated in Fig. 7. This transformer raises or lowers the secondary voltage furnished by the several windings of the main transformer.

The locomotives for freight trains carry three motors, each driving two axles by means of a counter-weighted crankshaft. The tractive effort is 35,400 lb. at 6.4 m.p.h., 16,500 lb. at 12.4 m.p.h. and 15,400 lb. at 18.7 m.p.h. The maximum speed is 31 m.p.h. These locomotives carry two pantographs and two transformers, of which the primaries are connected in parallel and the secondaries in series, insuring uniform distribution of the load.

The stators have a reversible winding to change the direction of rotation, a compensating winding and a commutating winding, the latter two being in series with the rotor. The two transformers have ten windings and the connections are so made as to obtain fifteen speed steps as indicated in Fig. 8. All of the control is electric. The ventilating and pump motors are 90-volt, the lighting is at 20 volts and the heating at 200 volts, the circuits being tapped in on the various windings of the transformers. The locomotive is operated from the extreme end, the center serving as a baggage compartment.

Motor cars have been provided for light traffic. The trains are composed of three cars. Each has a capacity of 150 persons and 3.3 tons of baggage, and can besides haul one 22-ton trailer. The motor car is placed between the two trailers; it carries one motor with two rotors, geared to an intermediate jackshaft which is crank-connected to two driving axles.

The St. Gothard Railway in Switzerland was on July 1 operated for the first time by power from the Lake Riton hydro-electric power plant.

## Emmet Mercury Boiler

### A Device Which Promises Increased Efficiency in Power Generation by Increasing the Working Temperature Range of Vapors Employed

THE war interrupted the development of the mercury boiler, but its inventor, W. L. R. Emmet, has obtained valuable data during the interim and it is understood that a commercial installation is to be made in the near future. Supplementing the article in the issue of this paper for March 14, 1914, page 575, the following will be of interest.

The efficiency of any heat engine can be increased by increasing the temperature range through which it works. The supply temperature can be raised or the exhaust temperature lowered to obtain the desired results. The supply temperature is limited by the combustion temperature and the heat properties of the element used in the boiler as well as by the materials from which the boiler is made. The exhaust temperature is limited by the properties of the element used and the vacuum that can be obtained.

Steam pressure becomes very great when high temperatures are obtained, so Mr. Emmet has taken mercury as his primary agent and steam as his secondary agent in a binary-vapor process. Mercury, at atmospheric pressure, boils at 677 deg. F. and condenses in a 28-in. vacuum at 455 deg. F., while corresponding temperatures of water are 212 and 101 deg. F. respectively.

In the Emmet process mercury is vaporized in a coal-fired boiler at 10-lb. pressure, the mercury vapor is passed to a single stage turbo-generator and then exhausted into a surface condenser at low vacuum and condensed by circulating water. The circulating water becomes steam in the condenser due to the high temperature of the exhaust mercury vapor and the steam is used to drive another turbo-generator, after which it is exhausted into a second surface condenser and condensed. The plant thus operates on a temperature range of from about 900 deg. F. to 101 deg. F. and uses two heat transferring agencies, mercury and water, in two separate turbo-generators.

The principle is sound and Mr. Emmet has devised practical apparatus for applying the principle. A newly designed boiler for the mercury had to be made to keep the mercury charge to minimum volume due to excessive cost of mercury. The temperatures were very high and fittings had to be obtained to withstand them. Mercury vapor is poisonous, has a bad habit of amalgamating and leaking through bearings so that materials and packing were important items. Mercury has a high density and low spouting velocity, so Mr. Emmet was forced to design a single stage turbine for the mercury vapor. The high density of mercury eliminates a feed pump for the mercury boiler as the condenser is fed by gravity to the boiler.

Inventive skill has overcome all difficulties and reports indicate an early commercial application of the process. A low pressure, highly efficient thermo-dynamic process will be very welcome in these days of high power costs. An attractive schematic layout of the Emmet plant, with the different portions shown in colors, can be found in the August 3 issue of *Power*.

The chief difficulties encountered in the commercial application of the process are connected with the selection of suitable materials to withstand the action of the mercury for long periods of time.



## Coal Storage\*

Factors Entering Into Spontaneous Combustion Are Numerous and Complex—A Preventive Formula Is Difficult to Find

By O. P. HOOD

Chief Mechanical Engineer U. S. Bureau of Mines

THE spontaneous combustion of coal lies at the bottom of the subject of storage. The main interest in the subject lies in the large piles needed for reserve by public service utilities and the industries. Every one desires to have a perfectly simple direction for storage which will insure against loss, but, unfortunately, the matter is too complicated for a simple solution. Many of the factors involved are difficult to determine, as we have no practical means of quantitative measurement. These factors involve chemistry, physics and engineering, and the man who is in close contact with the problem of stored coal is not always a good observer in these several lines.

The heating of coal is believed to be a surface phenomenon. If a ton of bituminous coal could be delivered in a single cube each dimension would be about 2.8 ft. If the coal heats, it is due to something that goes on with respect to the surface and not something that happens inside of the piece. If the size is reduced to something about 16-mesh screen, there is an acre of exposed coal surface. It is perfectly obvious from this why it is that trouble from spontaneous combustion originates in fine coal, because the great increase in extent of surface does not begin until we get below  $1\frac{1}{2}$  nut. If fine coal is kept out of the pile the heating surface is relatively so small as to remove the cause of spontaneous combustion.

A unit of area of this coal surface generates a certain amount of heat, provided it can find combining material. The amount of heat generated depends upon the temperature of the piece of coal. That is to say, coal put into storage at a temperature of 80 deg. will generate very much more heat per unit of surface than if put into storage at the temperature of 60 deg.

Another most important factor is the freshness of the broken surface. A freshly broken surface of coal has a rate of heat generation that is a function of the kind of coal. It is practically zero with anthracite and is largest with the younger coals. The quantity of oxygen contained in the coals seems to be the fairest measure of this rate, although by no means reliable. The high-oxygen coals of the Middle West and the sub-bituminous coals and lignites of the West show increasingly active rates of heating.

The coal surface apparently becomes satisfied in time and the heat produced falls to practically zero. This means that for the first few days or weeks a freshly broken surface is very much more active than after a few weeks or months. Fires rarely occur after surfaces have been exposed for three months.

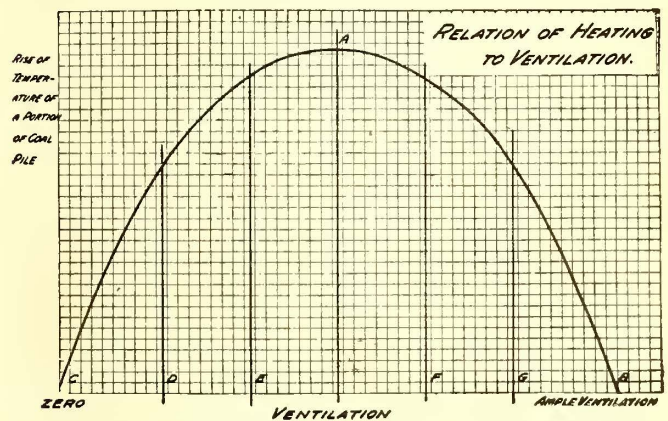
### A PROBLEM OF VENTILATION

Since the rate of heating increases with the temperature, it is evident that if the heat generated is not removed the process becomes a self-aggravating one, in which case the rate of heat generation, instead of falling, may rise with time. If the temperature of the pile reaches 140 deg. or 150 deg. and continues to rise there is a very considerable probability that

within a few days or a few weeks a destructive temperature will be reached and the coal must be moved. Immediately the question of getting rid of the heat is presented.

A coal pile is cooled by radiation and by movement of air through the pile. In many cases the natural changes or breathing of air is enough to carry away the heat generated. Some observers have stated that, in general, fires in large coal piles are found in the region from 5 to 8 ft. below the surface on the flanks of the pile.

We know that if coal can be sealed tight, as in a glass jar, the oxygen soon disappears and the coal cannot continue to heat because of lack of oxygen.



RELATION OF HEATING TO VENTILATION

In the accompanying graph horizontal distances represent the amount of ventilation of any portion of a coal pile and vertical distances represent rise in temperature. With no ventilation there will be no rise in temperature and the zero point will represent the condition of coal sealed from the air or so densely packed that air cannot circulate. If, on the other hand, there is sufficient ventilation, the heat is all carried away as fast as generated and some point, as at "B" on the zero line, must represent this condition, in the case of coarse coal. At some point, as at "A," between these two extremes there may be a condition of ventilation which will supply just oxygen enough to provide for a maximum rise in temperature. What sort of a curve represents all of the intermediate conditions between "C," "A" and "B" we do not know, but that the curve must first ascend and then descend is perfectly evident. This curve teaches that if we have a condition of ventilation, as at "D," an increase in the ventilation to "E" will produce a more favorable condition for a temperature rise. On the other hand, if the original condition is as "F" and we increase the ventilation to "G" we can expect a reduction of temperature. Since we have no means of knowing just what the ventilation is in any given portion of a pile, there is great hesitancy in advocating ventilating schemes for coal piles, as we are as likely to make trouble as to prevent it unless extreme and uniform ventilation is assured.

There are many more minor factors in dealing with coal storage. One of the troubles has been that undue attention has often been given to these minor factors, such as sulphur, height of pile, volatile matter, etc., while main factors, such as initial temperature, breakage in handling, freshness of coal and coal screening before storage, have been overlooked and minimized.

\*Abstract of a paper presented before the Pennsylvania Electric Association, Bedford Springs, Pa., Sept. 10, 1920.

## Engineers Commend Commission

### Western Society of Engineers Passes Resolutions to Controvert Agitation for Return to Local Control of Utilities

THERE is a great deal of agitation in Illinois at the present time which seeks to abolish the Public Utilities Commission in order that the control of utilities may be left to the communities in which they operate. The board of directors of the Western Society of Engineers at its meeting Aug. 25, 1920, drew up a set of resolutions commending the commission and urging its retention. The resolutions point out that the membership of the Western Society of Engineers is fitted both by training and experience to observe, study and form an intelligent opinion as to the relative merits of the present system of state regulation contrasted with the old and practically obsolete system of city control as an agent in discerning the non-functioning or the inadequacy of utility service.

#### SUBSTANCE OF THE RESOLUTIONS

A brief abstract of the resolutions with the main points outlined is given as follows: (1) The old method of securing the service and establishing the rates of a utility in a city was the natural but primitive one of forcing the utility to make the best bargain it could with the City Council, the bargain being expressed in the form of a franchise or contract ordinance; (2) the old system, like any commercial bargain not based on costs, resulted in poor service where rates were too low, extravagance and corruption where they were too high, and the worst kind of local politics and practices; (3) the citizens elected the City Council to represent them in the bargain. The owners of the utility company similarly elected directors and officers to represent them. This method was obviously unfair, since a square deal required a third party as judge to whom each side could present its argument for an impartial decision; (4) the old system has proved a failure after long trial, not only for reasons suggested above but also because it left the service-using public helpless against either poor, inadequate service or unjust rates during the contract period; (5) the new system of state regulation of service and rates by a commission is a natural and logical outgrowth of the attempt to remedy the obvious and unvariable faults of the old system; (6) home rule, so called, as now proposed is but a proposition to popularize the old system by giving it a good name; (7) in our opinion the only thing which has saved any semblance of adequate utility service in Chicago under present cost conditions is the fact that the contract ordinances, established by the City Council under the old system, and still fought for by the city administration, could easily be broken and overruled by the action of the state commission under the working of the new system; (8) the public might benefit under the old system except for two important facts; first, good service is more important than a low fixed rate in any city; second, no utility company can be forced to do the impossible, that is, to give good service, or service at all adequate, after its receipts cease to meet its expenses; (9) opposition to control of utilities through a state commission seldom, if ever, takes the form of objection to any feature of the regulatory law under which the commission acts. There is opposition to having a commission at all and opposi-

sition to its personnel, but no acts performed by the commission under the law and under its oath of office are pointed out as against public interest or as being unfair and unjust. The public is safeguarded from illegal or unjust acts of the commission by the fact that such acts are always subject to court review; (10) there are forty-two state commissions in the United States and five commissions in Canada and they have found it necessary and to the public interest to raise utility rates since the war. It is not a local issue, nor can the Illinois commission be pointed at as a special offender in this regard, as some are trying to make it appear. The old rates are now as impossible with the utilities as with other necessities; (11) the basis of old-time rates has changed with the tremendous changes in wages and other costs. This fact seems to us self-evident and to dispose of most of the argument to restore so-called home rule in order to get back the old 5-cent fare. It cannot be done under the old system any sooner than under the new. Service, the really important factor to the people, will be jeopardized by such a reactionary change; (12) the commission has performed its proper duty in increasing rates to meet present conditions and will be an equally effective agent in decreasing them should conditions warrant reductions in the future; (13) any attempt to impair the usefulness of the commission, to abridge its powers, and especially to go back to the old era of political control of utilities, in vogue prior to the time when commission regulation became the law, would be a distinct step backward and would constitute a grave menace to the industries of the state and to its people.

## Flowability of Concrete

### Apparatus Has Been Devised for Determining Important Characteristics by Means of a Simple Test

IN A recent issue of *Concrete*, G. M. Williams, associate engineer United States Bureau of Standards, gives the result of some investigations made in its concrete laboratory. These showed that the consistency or "flowability" which should characterize the concrete for any particular case is dependent upon the nature of the work, upon the type and arrangement of the forms and the reinforcing steel. For any given condition there is a minimum flowability which must be attained to result in good workmanship and in economy and also to cause the proper progress in the process of concreting.

For measuring the consistency of concrete a flow table has been developed. This consists of a metal-covered table top, which can be raised and dropped by means of a cam working at the end of a vertical post to which the top is attached. The height of drop can be adjusted by means of a bolt at the lower end of the shaft.

A mass of concrete or mortar is molded at the center of the table in a sheet-metal mold which has the shape of a hollow frustrum of a cone. For aggregates up to 2 in. maximum size, this cone has a height of 6 in. and upper and lower diameters respectively of 8 in. and 12 in. For smaller aggregates, when made up in small quantities, a cone having a height of 3 in. and upper and lower diameters of 4 in. and

6 in. is used. The mass of concrete is tamped just sufficiently to fill the form completely. The form is withdrawn and the table top is dropped fifteen times through a distance of  $\frac{1}{2}$  in. Two diameters, at right angles to each other, are measured—the long and the short if difference is apparent—by means of a self-reading caliper, which is so graduated that the sum of the two readings is the value for flowability. This may also be calculated by dividing the new diameter by the old and multiplying by one hundred.

Although this flow table was first employed as a means of measuring consistency of concrete, it may also be of value in the control and measurement of segregation, the time of set and the normal consistency and also in the selection of concretes to be used for steel.

Knowing in advance the type of construction, experience will permit the minimum usable flowability to be estimated, and for any required strength value the necessary ratios of cement to aggregate may be selected. The selections may be checked by the results of field tests of concrete and a few trials will indicate strength variations, which may result for the degree of thoroughness of field inspection employed, and permit a proper allowance for unavoidable variations in cement, aggregate and curing conditions.

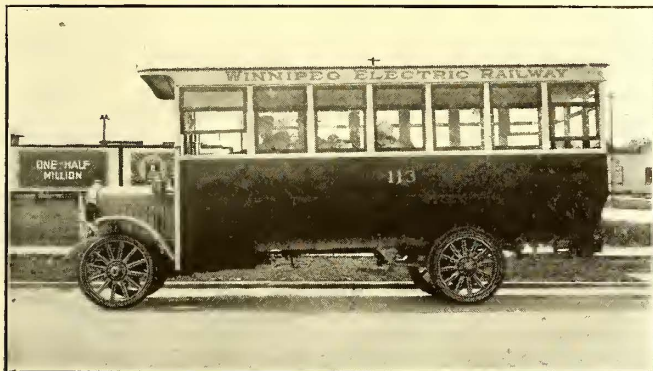
### Winnipeg Railway Uses One-Man Buses

**T**HE Winnipeg Electric Railway uses a number of buses on two routes. A type of bus has been developed by the company's engineers which seems well adapted to the local conditions, and the buses have been built by the Sterling Body & Carriage Company of Winnipeg. The general features of the bus are clearly indicated in the accompanying illustrations.

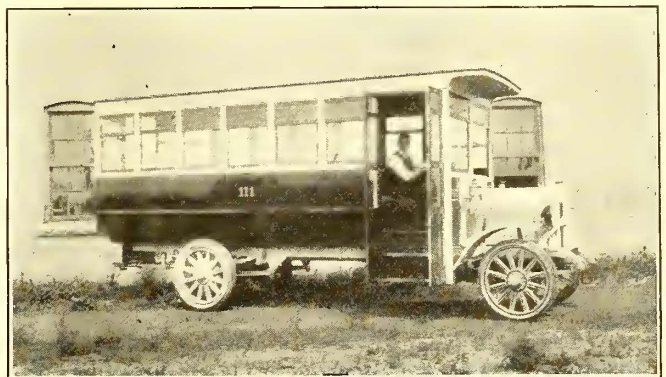
The chassis is a  $1\frac{1}{2}$ -ton Sterling truck and the body has a capacity of twenty seated and fifteen standing passengers, a total of thirty-five. The bus is operated by one man, who controls the entrance and exit doors, located at his right.

A novel feature of the design is the auxiliary rear exit, which is for use only in emergencies. The door is interlocked with a step which slides in and out on tubular guides. The door is opened and the step pushed outward by means of a strong spring which is released by a trigger at the driver's left hand. The manual closing of the door automatically returns the step to its normal place under the body. Not only is this device installed on the new buses that have recently been completed but the older ones have been equipped with it also.

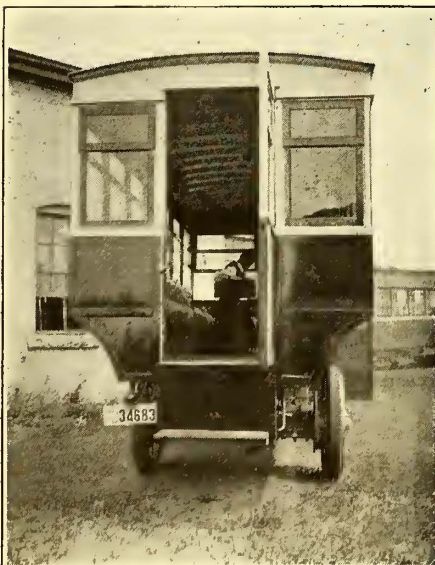
This bus is heated by means of the exhaust gases from the engine.



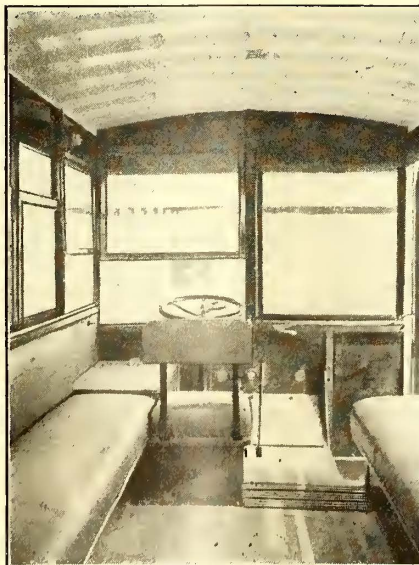
THIS BUS SUPPLEMENTS THE RAILWAY SERVICE IN WINNIPEG



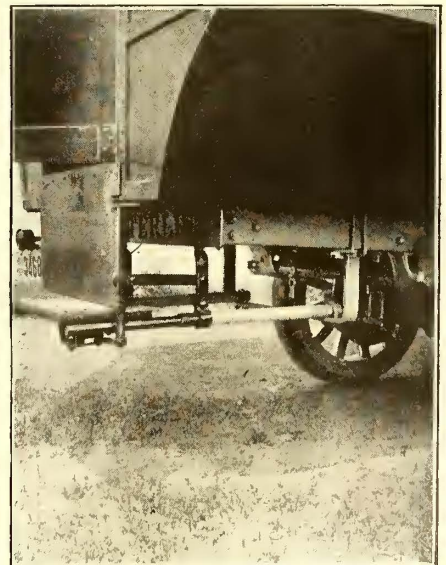
THESE DOORS FURNISH INGRESS AND EGRESS EXCEPT IN EMERGENCY



THE REAR DOOR IS FOR EMERGENCY USE ONLY. IT IS CLOSED BY HAND



VIEW LOOKING FORWARD IN THE WINNIPEG BUS, SHOWING OPERATOR'S SEAT



STRONG SPRING OPENS DOOR AND PUSHES OUT STEP WHEN RELEASED BY TRIGGER

## Overhead Contact System Records

A RECENT paper of Sir Philip Dawson before the Institution of Electrical Engineers gives some concrete results of operation in connection with the overhead contact system of the London, Brighton & South Coast Railway, one of the oldest electrifications in England. The Brighton electrification employs single cate-

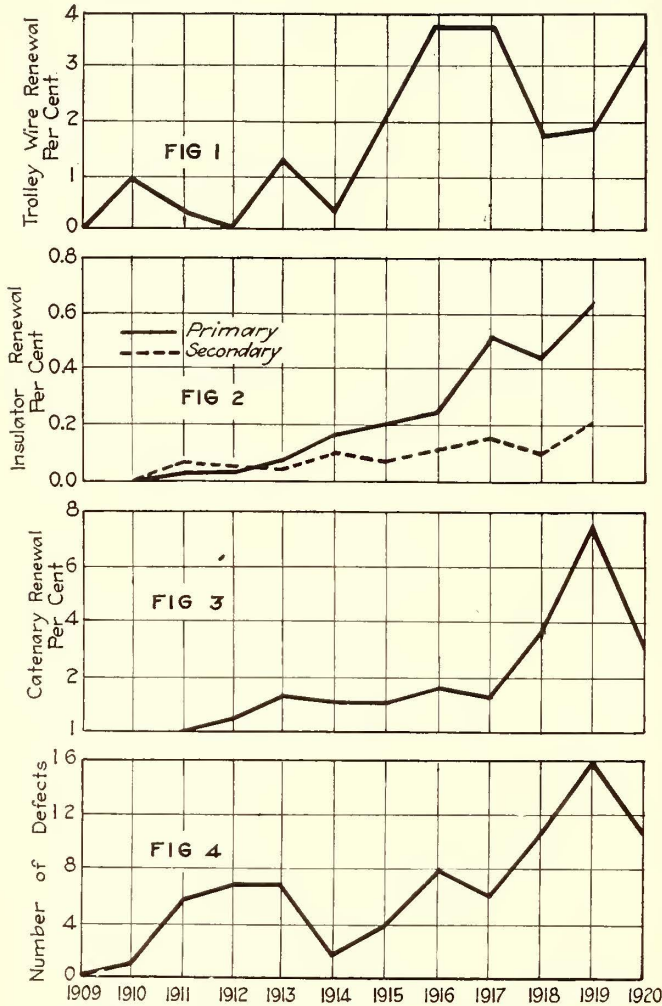


FIG. 1.—CONTACT WIRE RENEWAL, IN PER CENT PER ANNUM. FIG. 2.—INSULATOR RENEWALS. FIG. 3.—CATENARY (MESSENGER) WIRE RENEWALS. FIG. 4.—OVERHEAD DEFECTS CAUSING MORE THAN THREE MINUTES' DELAY TO TRAFFIC.

nary construction with 6,700-volt single-phase trolley. Mr. Dawson says that the principles adopted in laying out the overhead system in 1907 were: That the conductor wire should be flexible with no hard spots, that double insulation was essential, that the mechanical and electrical factors of safety in insulators and overhead must be ample, that insulators should be placed in such a position as to get minimum moisture and smoke, that lines should be sectionalized, that insulators should be used only under compression and that elastic substances should always be placed between the insulator and its support and between the insulator and the wire it supported. The system was installed with great care as it was an original attempt at electrification. The "overhead" has proved to be durable and has not been changed since 1908.

A decided difference in overhead maintenance is noticeable on the section that uses only electric trains as compared to the sections using both steam and electric. The hot gases and smoke from the steam engines

cause a much heavier maintenance expense on the divisions having the dual traffic. Not a single primary or secondary insulator, out of 7,000 primary and 14,000 secondary, has been renewed on the divisions using electric trains only. The accompanying graphs show the insulator renewals and traffic delays due to overhead defects since the system was installed.

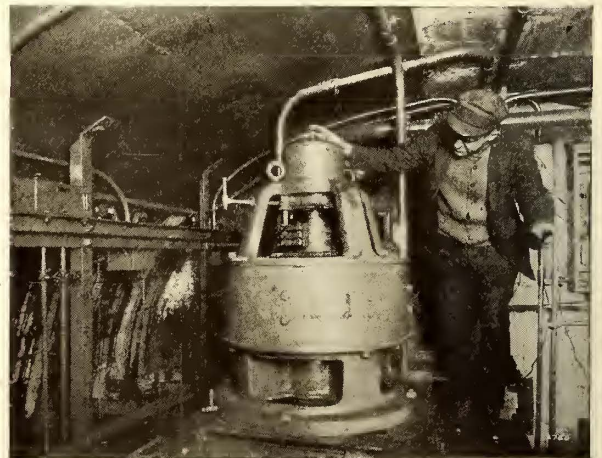
The wear of the trolley wire was found to be proportional to the current collected by the bow collectors and was inappreciable for light currents. The system uses about 120 amp. per collector-bow strip at starting and 35 or 40 amp. at full speed. The renewals in trolley and catenary wires were very much greater on the steam-electric divisions than on the electric only, where not a single catenary wire in 150 miles has been renewed. The increased percentage in renewals on the system are shown on the charts for 1916-1917, when wartime traffic caused an increased use of steam locomotives.

The author, in conclusion, states that the Brighton experience has shown that much cheaper and simpler overhead construction can be used with satisfactory results.

## Keeping the Subway Dry

ONE of the problems of subway construction is to get rid of the water that invariably drains into underground structures. In the deep tunnels of the New York Municipal Railway, operated by the Brooklyn Rapid Transit Company, which run from Brooklyn through Manhattan and into Queensborough, this problem is particularly serious. An accompanying illustration shows a pumping installation that is typical of the twenty-five stations draining this system. It is located 70 ft. underground and is designed for emergency work in connection with the tunnel under the East River.

There are two pumps, one a 4-in. x 6-in. Gould Triplex plunger type, with capacity of 50 gal. per minute, driven by a 2-hp. direct-current Westinghouse motor, and the other a Morris centrifugal, with a capacity of 1,000 gal. per minute driven by a vertical 100-hp. direct-current motor of the same make. Under normal conditions, the small pump has ample capacity to take care of the



VERTICAL MOTOR DRIVING CENTRIFUGAL PUMP IN SUBWAY. FLOAT SWITCHES AND SUMP AT LEFT

seepage, but in case of emergency the large pump can be used.

Both pumps are arranged for automatic control. The water collects in a sump in which there are two float switches, one for each motor. When the water level rises to a predetermined point the float switch of the

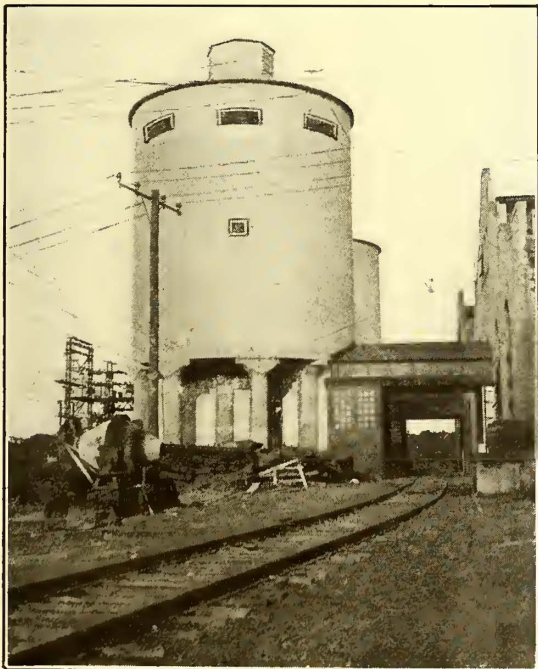
smaller motor closes. This energizes an automatic contactor which starts the pump. When the water in the sump is brought down to the proper level the float switch opens and stops the pump. Should the smaller pump be unable to handle the flow and the water continue to rise the large pump is automatically started by the second float. A noteworthy feature of the installation is that all equipment occupies a floor space of only 12 x 15 ft.

### Industrial Conference Board Moves

THE National Industrial Conference Board, whose headquarters heretofore have been in Boston, has moved its main office to 10 East Thirty-ninth Street, New York. A great deal of attention has been given to a study of industrial-economic problems and many data on these subjects are constantly being collected and analyzed. The board invites business executives, economists and others interested to visit these headquarters and utilize the information which it has. Among recent publications of the board is a small eight-page folder which explains the principal features of the Constitution of the United States. It is issued primarily for the use of employers and others who wish copies for distribution on Sept. 17, the anniversary of the completion by the Federal Convention in 1787 of the draft of the present Constitution.

### Coal Heats in Silo Bunkers

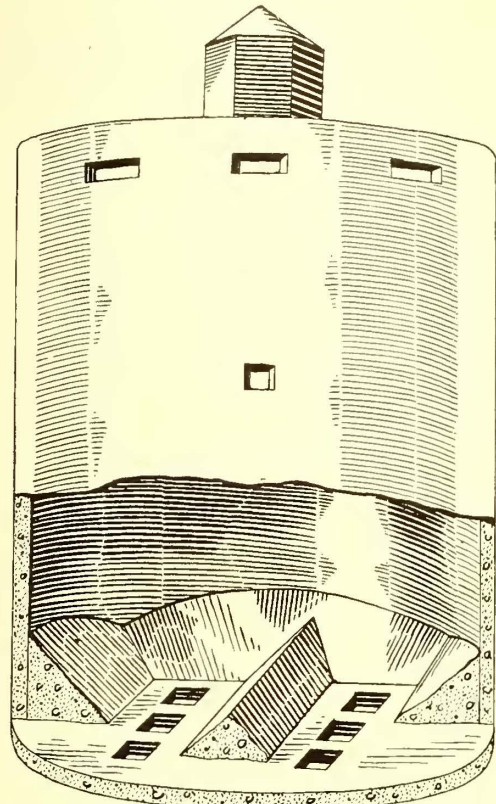
A NEW type of concrete bunker for the Cos Cob station of the New York, New Haven & Hartford Railroad was described in the *ELECTRIC RAILWAY JOURNAL* for Jan. 17, 1920. Two of them were installed and have proven successful with the exception



BUNKER WITH VENTILATING OPENINGS

that trouble has occurred due to heating caused by the coal packing in the bunker. The bunkers have bottom gates, through which the coal drops to the conveying apparatus. Experience has shown that coal gets pocketed in certain parts of the bunker, and this

pocketed coal heats to such an extent as to render conditions dangerous, due to a possibility of the explosion of the generated gases. This heating and packing of



SKETCH TO SHOW CHANGES MADE IN BUNKER

the coal (Pennsylvania mine run) is accentuated if it is wet or damp when placed in the bunker.

These bunkers are cylindrical, 40 ft. in diameter and 46 ft. high, and hold 1,000 tons of coal each.

To try to eliminate the trouble large ventilating windows, 18 x 36 in., have been cut at intervals around the top of each bunker, through which gases may escape and air circulate. Also, about 20 ft. from the bottom, an 18 x 18 in. poke hole has been made, by which, from a platform, not shown in the photograph, an operator can dislodge the packed coal in the bunker at certain intervals. Another remedy was a reshaping of the concrete around the sides at the bottom of the bunkers to form a 45-deg. slope and the erection of a concrete prism in the center with sloping sides so as to facilitate the flow of the coal to the exit doors and to prevent any space for coal to pack.

These concrete deflector walls have not been entirely successful and plans are formed to use 60-deg. deflecting walls, made from metal. It is expected that the changes, when complete, will entirely eliminate the difficulties which have been encountered.

A survey of the power situation in New England by the power section of the War Industries Board indicated that by 1924 the annual energy production by central stations would reach 5,000,000,000 kw.-hr., about one-half of the total. An increase of 1,400,000 kw. in generating capacity between 1919 and 1924 was estimated. The 1920 output for electric railways' steam plants was estimated at 630,000,000 kw.-hr. and for railroads 77,000,000 kw.-hr. The figure for electric railway hydro plants was 12,000,000; none for the railroads.

# More Opinions from the Industry

## Intrinsic Value of Federal Electric Railways Commission Report Is Recognized, Although Authorities Differ on Details

**I**N THE ISSUE of this paper for Sept. 4, page 461, the opinions of a number of railway men and public utility commissioners regarding the recently issued report of the Federal Electric Railways Commission were given. A supplementary group is printed this week.

These comments should be of great value to the railways which will have occasion to cite the findings of the report and readers are invited to contribute further to the discussion.

### John H. Pardee

President American Electric Railway Association  
President the J. G. White Management Corporation,  
New York, N. Y.

The report of the Federal Electric Railways Commission, considering the various interests represented by the personnel of the commission, is remarkable in that it is unanimous and in so many of its recommendations meets and pronounces the views and principles of those engaged in the industry.

The points which are so essential and which stand out pre-eminently are:

1. The electric railway "is an *essential public utility*." This has previously been questioned in some quarters.
2. There is nothing in the experience thus far obtained that indicates that municipal ownership "will result in better or cheaper service than privately operated utilities could afford if properly regulated."
3. "That private ownership and operation must as a general rule be continued for an extended period."
4. "Public control must be flexible enough to enable" electric railways "to secure sufficient revenues to pay the entire cost of the service rendered, including the necessary cost of both *capital and labor*."
5. "The electric railway industry as it now exists is without financial credit."
6. "Restoration of credit involves a readjustment of relations which will remove public antagonism, provide public co-operation and insure to the investor the *integrity* of his investment and a fair rate of return thereon."

I believe the report will have great influence in promoting action, and proper action, in the solution of our problems by regulatory bodies except in localities where petty politics prevent.

### R. T. Higgins

Chairman Connecticut Public Utilities Commission,  
Hartford, Conn.

The report of the Federal Electric Railways Commission is exceedingly commendable for its plain and concise statement pertaining to a large, intricate problem involving so many special and local conditions and considerations. Its brevity in a thorough analysis of street railway problems warrants its careful perusal by all students of, and all persons interested in, the street railway industry.

While there can be no arbitrary enforcement of the reforms suggested by the commission, I believe the thorough investigation and report of the Federal commission will have a beneficial effect on the street railway industry as a whole.

The service-at-cost theory suggested by the commission is, theoretically, the principle upon which all utility companies are operated, under public regulation, but when

put into actual practice under contract, involving the payment of a specified dividend as one of the fixed charges, I fear that the immediate translation of a near bankrupt or a non-dividend-paying company into a 6 or 8 per cent dividend-paying company will be liable to cause a violent shock to the industry itself.

The revenues of a street railway company are collected in comparatively small amounts, in cash, by a large number of unbonded and frequently short term employees, upon whose accuracy and honesty the company must depend. Whether justified or otherwise, the traveling public feels that there is not collected for the company's needs the full amount of revenue that the actual travel would indicate. I regret that the commission did not discuss or suggest reforms in the collection system pertaining to the street railway industry.

### Joseph K. Choate

Vice-president the J. G. White Management Corporation,  
New York, N. Y.

The report of this commission in my opinion clearly states the pertinent condition of the electric railways of the United States frankly and fairly. I agree with the general recommendations of the commission with the exception that I never have been a believer in the service-at-cost plan of operation of utilities. The service-at-cost plan is simply a modification of municipal ownership.

I am still a believer that private ownership and operation will prove the most satisfactory to all concerned, provided the public and the officers of municipalities are willing to concede that the company should earn a fair return upon a fair valuation; if, however, such a condition cannot be brought about municipal ownership is the only solution left for electric railways.

### Clarence M. Clark

President the E. W. Clark Management Corporation,  
Philadelphia

There can be no question as to the value of the enormous amount of work done by the members of the Federal Electric Railways Commission. Whether or not we agree with all of the conclusions, we must recognize the assistance which this report will be to the state commissions, municipalities and railway corporations in the solution of the railway problem. It is not to be expected that satisfactory results will follow in all cases throughout the country, but this report points the way and makes many valuable suggestions. If I were inclined to be critical, which I am not, I would call attention to the fact that the railways of this country, like the steam railroads and the industries of the country, have been built up and developed by the opportunities offered to investors to make money. Under the stimulus of that incentive the best and most extensive service has been given to the people by the electric railway industry. In recent years there has been no such incentive and the service has declined, and it will be impossible to secure the same quality of service and progress in the art by any other incentive than that of making money. This feature of the case is not adequately covered by the report of the commission. It is, of course, not impossible to work out a service-at-cost plan which will give the owners and investors in the property an opportunity to make more than a mere fair return upon a fair value of their property, but the necessity therefor has not been properly recognized or covered, and the tendency is the other way.

# Letters to the Editors

## Accident Reduction by Safety Car Operation

TERRE HAUTE, INDIANAPOLIS & EASTERN  
TRACTION COMPANY  
TERRE HAUTE, IND., Sept. 7, 1920.

To the Editors:

The article on the lessening of accidents by safety cars by W. H. Burke, which appeared in the issue of the *ELECTRIC RAILWAY JOURNAL* for Sept. 4, page 457, is very timely. Our experience in Terre Haute confirms the results cited by him. We have compiled the following data which will be of interest by way of comparison with those given by Mr. Burke:

COMPARATIVE ACCIDENT RECORDS OF SAFETY AND TWO-MAN CARS, DEC. 1, 1918, TO AUG. 31, 1920, 21 MONTHS.

	Safety Cars	Two-man Cars
Total accidents reported prior to August, 1920.....	639	270
Accidents reported during August.....	47	0
<b>Total accidents reported.....</b>	<b>686</b>	<b>270</b>
Deduct accidents causing no damage to persons or property.....	496	111
Accidents involving expense.....	190	159
<b>Total cost of accidents.....</b>	<b>\$27,135</b>	<b>\$22,181</b>
Average cost per accident (of all accidents reported).....	\$39 55	\$82 15
Average cost per accident (of the accidents involving expense).....	\$142 81	\$139 49
Total car-miles operated, thousands.....	3,236	1,405
Accidents of all kinds per 100,000 car-miles.....	21 1	19 2
Accidents involving expense per 100,000 car-miles.....	5 87	11 31
Car-miles per accident involving expense.....	17,305	8,841
Accident cost per 100,000 car-miles.....	\$8 38	\$15 78
Average number of cars operated at beginning of period.....	15	16
Average number of cars operated at end of period.....	48	3

The rapid increase in the number of automobiles in use in the city is reflected in the number of accidents occurring monthly, but it is a noticeable fact that the percentage of those causing expense is proportionately much greater with the two-man cars than with the safety cars. It is noticeable also that in spite of the much greater average number of safety cars in service the total number of accidents of any degree of seriousness is only slightly greater. But after all the significant thing is the accident record reduced to unit terms, which shows that while the total reported accidents number about the same per 100,000 car-miles, the accidents involving expense are but slightly more than one-half for the safety cars. If it were possible to allow for the effect of increasing automobile traffic density the showing for the safety cars would be even better.

E. M. WALKER,  
General Manager Terre Haute Division.

## More Rides May Occur with Fewer Car-Miles

NEW YORK, Sept. 6, 1920.

To the Editors:

Your editorial of Sept. 4 entitled "Fare Is Not the Only Factor Which Affects Riding" is very much to the point in setting forth that there are at least a dozen factors that alter the riding, be it in rides taken by a stationary population or by a growing population within the same transport area. However, the whole problem is so diversified that it is not safe to assume that traffic will show no large increase despite failure to increase trackage and service. The British tram-

ways are certainly a conspicuous example of increased traffic and even of increased riding habit in the face of decreased mileage. Without going into detail figures, it is a fact that for the greater part of the World War and for months following the Armistice the street railways of the United Kingdom gave less car-miles than just before the war. This did not in any way prevent an increase in patronage and riding habit. The traffic density figures show as much as a 50 per cent increase in passengers per car-mile over a four- or five-year period, this being the joint result of more riders and fewer car-miles.

There is no space in a communication like this to go into the reasons for this increase in traffic, but one curious difference with America may be pointed out: In this country the enlistment of men for the army, with a consequent increase in female workers, was given as a cause for decreases in traffic. In Great Britain, where the proportion of men enlisted in war and of women enlisted in industry far exceeded the drain in the United States, the advent of women workers was given as one reason for increases in traffic! Without wishing to dogmatize too much, I feel that the upsets in our unit fare system did much more to discourage traffic than the earlier increases in Great Britain, for these being on the zone system caused much less disturbance of fare-paying habits. The much heavier increases which are being made today as the result of a 200 per cent (not 100 per cent) increase in operating expenses are cutting into British traffic for the first time since 1914.

WALTER JACKSON.

## Manual Versus Automatic Block Signals

NACHOD SIGNAL COMPANY, INC.

LOUISVILLE, KY., Sept. 3, 1920.

To the Editors:

In your issue of Aug. 14, page 321, C. A. Elliott of the Pacific Electric Railway describes a manual system of so-called "dual control signals" as evolved and used on the Pacific Electric. As manufacturers of automatic signals, we cannot indorse this system as heartily as does Mr. Elliott, who describes it as a satisfactory substitute for the complete automatic block signal for light traffic. It is a hand or manual system, operated by a conscious act of the motorman or conductor, both to set and to clear the signals. It is a matter of fact, which the writer regrets to observe, that the usual electric railway hand signals will be operated or not, at the fancy of the car crews, in spite of all rules to the contrary. He has seen such signals deliberately left untouched by the car crews and on questioning them was told there was no car coming the other way against which the signals were designed to afford protection. How did they know this? The very object of the signal is to give warning against a possible and unknown opposing movement. It is human nature for the motorman, who sets and clears the signals so many times, needlessly (?) to fail to do eventually what looks like unnecessary work. This is the very time, however, the unexpected may occur, and if the motorman of an opposing car should be in the same frame of mind, conditions would be highly favorable for a collision.

In other words, no hand signal, no matter how perfect, is a check on all other safeguards. An automatic signal, on the other hand, which is operated regardless of any special act on the part of the motorman more

than driving his car, will show the presence of his car in the block at all times, whether there be an opposing car to observe this indication or not.

The system of indications described by Mr. Elliott is not a consistent one, since the same end of the block may show red and green at the same time; also the motorman must observe the signals on one side of the right-of-way for proceeding and on the other side of the right-of-way for stopping, another illogical arrangement. I note, moreover, that the manual switch was made from a relay by stripping its coils, all of which seems to prove to us that the designer went considerably out of his way to avoid simple automatic signals of the trolley contact, non-counting type, which would have real advantages of safety. Such signals cost but little more than these hand signals, have perfectly logical indications and could have an auxiliary control incorporated where steam trains occasionally traverse the same territory.

The writer has seen hand signals similar to these described in use on the York (Pa.) Railways.

CARL P. NACHOD, President.

## Comments on Wilcox Statement

### Secretary Edward F. Sweet Explains the Publication of the Federal Commission Report

IN AN interview published in the *Washington Times* of Sept. 3 Edward F. Sweet, Assistant Secretary of Commerce and vice-chairman of the Federal Electric Railways Commission, comments on the statement recently issued by Dr. Wilcox in regard to the Federal commission report, particularly his remark that "funds for printing the testimony and the commission's own report are being supplied by the American Electric Railway Association." Mr. Sweet is quoted, in part:

If Dr. Delos F. Wilcox, the municipal ownership advocate, seeks to imply that the Federal Electric Railways Commission, which recently reported to the President, was in any way influenced or dominated by the electric railway companies his inference is insulting.

The proceedings of the commission are being published through the executive secretary, the commission having ceased to exist after submitting its report. The work is being done by the Government Printing Office. It is true, I learn on inquiry, that the superintendent of documents has received orders for a sufficient number of copies of these proceedings to pay for the entire cost of publishing it. This, however, is something the commission had nothing to do with and it had nothing to do with our decision to have the testimony printed.

In employing Dr. Wilcox to analyze the testimony for our convenience, we did not enter into any engagement to adopt his conclusions, which his testimony showed to be enthusiastically inclined toward municipal ownership. We intended to have an eminent traction expert also to make an analysis and use the two for our guidance, but were forced to depend entirely upon Dr. Wilcox's analysis. Eight men looking at the question from different angles formed the commission, and the report which they did make was unanimously approved by them.

Dr. Wilcox's conclusions are all contained in his testimony, which will be published in the proceedings and made available to any one who is interested.

Personally, I am in favor of municipal ownership of some public utilities, such as public water works, and possibly lighting plants, but when it comes to an enterprise with as many employees as an electric railway there are other questions to be considered. Mayor Ole Hanson of Seattle told us he had favored municipal ownership to keep railways out of politics, but later found that it simply placed them in.

We were in no way bound to accept Dr. Wilcox's recommendation. If he seeks to discredit the commission by leaving the public to infer that an association of interested corporations had any part in the report to the public he goes far afield.

## Association News

ATLANTIC CITY CONVENTION, OCT. 11 TO 15

### Convention Program Progressing

DETAILS of the American Association convention program are rapidly taking form. George M. Graham, vice-president Pierce-Arrow Motor Car Company, will speak on the topic "The Motor Truck—Competitor or Ally?" The place of the motor bus as a feeder and supplement to the electric railway will be made the subject of a comprehensive discussion also.

On the problems of fuel supply, Eugene McAuliffe, president Union Colliery Company, St. Louis, Mo., and formerly manager of the fuel conservation section United States Railroad Administration, will speak.

The names of other speakers are not yet available, but negotiations are under way with men of national reputation to discuss the following topics: Freight and express traffic, labor, training of electric railway personnel, an outside view of the electric railway industry. Reports of the committees on valuation, fare systems, publicity and national relations will also be made the basis of special discussion.

### Committee Meets on Yacht

THE American Association committee on company membership held a meeting on Aug. 31 on board the 120-ft. steam yacht *Tilicum*, loaned by E. H. Close, a real estate operator of Toledo, Ohio. The yacht left Toledo at 10 a.m. and cruised on Lake Erie, Lake St. Clair and connecting waters until midnight. The members of the committee in attendance were: Frank R. Coates, Toledo, chairman; E. M. Walker, Terre Haute, Ind.; L. E. Gould, Chicago, Ill.; E. F. Wickwire, Mansfield, Ohio, and H. H. Norris, *ELECTRIC RAILWAY JOURNAL*. A number of officials of the Toledo Railways & Light Company accompanied the committee.

The committee went over reports received from representatives in several states as to the results of a canvass of non-members and prepared a revised list of prospects. A report from Secretary E. B. Burritt indicated an encouraging number of accessions to the membership this year, both railways and manufacturers, with good prospects of additional ones in the near future. The committee outlined its report, which will be completed at once and filed for publication in advance of the convention.

### Association Can Supply Copies of F. E. R. C. Report

COPIES of the report of the Federal Electric Railways Commission, which was printed in full in the issue of the *ELECTRIC RAILWAY JOURNAL* for Aug. 28, can be had on application to the office of the American Electric Railway Association, 8 West Fortieth Street, New York City. The association's office has notified the *ELECTRIC RAILWAY JOURNAL* that Chairman Elmquist of the commission and other members are being overrun with requests for copies of the report, hence the attention of persons desiring copies should be directed to the above-mentioned source of supply.



# News of the Electric Railways

FINANCIAL AND CORPORATE • TRAFFIC AND TRANSPORTATION

PERSONAL MENTION

## Toledo Plans Take Shape

Both Sides Preparing for Referendum on Traction Measures—Women Voters to Be Heard From

With the vote on Toledo's two plans of electric railway settlement only six weeks away and with the enfranchisement of nearly 75,000 women voters who have never before expressed their opinion at the polls on municipal questions, the campaign for "enlightenment" of the public has barely got under way.

### CITY EXPLAINS MEASURES

The Toledo *City Journal*, which is the mouthpiece of the city administration, has explained the two measures and printed the complete text of both plans—the cost-of-service ordinance and the twin bond issues appropriating \$7,000,000 for Council to provide a city-owned "transportation system." The newspaper says the choice is between "city ownership and city regulation."

City officials declare that it is too early to start an active campaign for the cost-of-service franchise ordinance. They are counting on the four weeks previous to the actual day of election to suffice for "instruction" of voters.

The labor unions which have united in favor of the municipal-ownership ordinances have had difficulty in obtaining members of a committee to head their campaign against the cost-of-service plan and in favor of the public-ownership plan.

The organized platform workers and electrical men employed by the Toledo Railways & Light Company worked for the defeat of the twin ordinances before and they are determined to do so again. The service-at-cost measure has apparently satisfied them that labor will receive fair treatment under its provisions.

### POLITICS TO BE ELIMINATED

The elimination of "politics" from Toledo street railway matters is considered the big question in the settlement which will come before the people on Nov. 2.

The city-ownership plan for bonding the city and handing the \$7,000,000 over to the council for expenditure is considered a return to the political football tactics of the last twenty-five years in Toledo traction history. On the other hand the service-at-cost measure has been safe-guarded to eliminate politics for good.

Under the latter plan a board of street railway control to consist of three persons would be appointed by the Mayor, one for a term of two years,

one for four years and one for six years. This is designed to take the control of the appointment out of any one administration. The members of the board shall serve without compensation so that the offices shall not become political "plums." The members shall not be charged with any other part of the government of the city, shall not be in the employ of any interested parties, shall not be shareholders or bondholders of the traction company, and shall not be members of the General Assembly of Ohio.

The board is to recommend the nomination of a Street Railway Commissioner who shall be appointed by the Mayor. This commissioner will have the active charge of all the transportation questions, check all books, and look after the city's interest in the economical operation of the street railway system.

It is believed that the effect of these politics-proof provisions and the bringing in of big improvements to the system will have a vote-getting power in the coming election. The results of the last vote on the twin municipal-ownership bond ordinances indicated that the people of Toledo for the first time in street railway history had begun to think in figures. This is the most hopeful sign for the cost-of-service ordinance, officials of the Rail-Light believe.

## Wage Settlement Basis Reached.

The Kentucky Traction & Terminal Company, Lexington, Ky., and its union employees, who are demanding an increase of 20 cents an hour, have reached "a practical basis of agreement," according to the union's representative. A federal conciliator who interceded in the case has gone to Washington to procure statistics on the increase in the cost of living and when the data are sent to Lexington the company and its men will try to reach an agreement.

## City Plans Equipment Purchase

The Board of Estimate of New York at a special meeting on Aug. 31 unanimously authorized the issuance of revenue bonds in the amount of \$300,000 from the sale of which electric railway cars and equipment are to be purchased. The cars are to be used in sections where cessation of transportation service has been caused by either strikes or lockouts. While no definite statement has been made, it is presumed that the city has in mind using some of the equipment on the Staten Island Midland Railway, service over which has been suspended for several months.

## Denver Men Clamorous

No Members of New Working Force to Be Replaced by Strikers— Few Men Needed

Failure greeted the efforts of Governor Oliver H. Shoup of Colorado to effect a settlement of the Denver Tramway controversy with company and labor leaders on Sept. 3. F. W. Hild, general manager of the company, refused to negotiate further with the striking trainmen, flatly rejected the proposal of the men that they be taken back in a body and with full seniority rights as of July 31 and declined to discharge any members of the new working force which has been hired to replace former employees.

### MR. HILD REJECTS OVERTURES

After the conference in his office Mr. Hild said:

As far as we are concerned the strike is over absolutely. We informed union representatives that the new proposal of the men was entirely out of the question; they requested that we meet with a committee from the union in another conference and we refused the request. We told them we had held the door open for the former employees as long as we possibly could.

One of the points which was taken up at the conference was the ten new sections of a working agreement which the Amalgamated officials, in meetings with the company held prior to the calling of the strike, had endeavored to have included. President J. C. Bulger of the Colorado State Federation of Labor professed ignorance of these ten sections and asserted that three of the sections were contrary to union principles.

In a mass meeting held on Sept. 5 the strikers voted to have no more dealings with Mr. Hild. No new plan was formulated for presentation to the company although the discussion lasted three hours. This action is considered to be in retaliation for Mr. Hild's refusal to meet with the union committee.

On Sept. 8 martial law was declared ended and 250 troops returned to Camp Funston. The remaining 300 men will be held until the new state constabulary is firmly established.

Following charges of misappropriation of funds contributed by union labor to the relief of the striking carmen, the president of the Trades & Labor Assembly appointed a committee to audit the accounts of Amalgamated Local 746. Sensational charges have been made to the effect that needy strikers were not given relief and that money remained unaccounted for.

On Sept. 9, 709 trainmen and 51 students were on the cars. Only 125 to 150 more men are needed to give the company its full quota.

## Brooklyn Organization Being Rebuilt

### Service Gradually Being Restored by Management, Hard at Work Replacing Strikers with Permanent Employees

Service on the lines of the Brooklyn Rapid Transit System is being restored to normal just as fast as possible under existing conditions. An entirely new train service organization is being built up. The energies of Mr. Garrison as receiver have been bent, first, to giving the maximum service on the rapid transit and elevated lines, and second, to the surface railways. Mid-day service on the rapid transit and elevated lines had been normal for several days previous to last Thursday, but the rush-hour service up to that time had not been fully restored. The motormen on the rapid transit lines are affiliated with the Brotherhood of Locomotive Engineers. They have a separate contract with the company and did not go out. So far as the surface lines are concerned fifty-one out of sixty-seven lines were in operation on Thursday during the day time and it was anticipated that service at night would be resumed very shortly. To the company the strike is a thing of the past except so far as the officials are called upon to rebuild their operating organization depleted by failure of the strikers to return. The time limit for old employees to return to work expired on Wednesday.

**A**S REGARDS the strike settlement the final word for the company appears to have been said by Judge Mayer on Sept. 2, when he issued a statement giving five terms upon which the strike might be ended. In this statement the court did reply to the men in regard to the wage question by offering an 8 per cent advance. The terms were:

1. That the men shall return to work.
2. That on their return to work their seniority and other privileges shall be restored to them.
3. That the pay increase sought—10 per cent over that of August, 1919, or 8 per cent over the current wage—shall immediately apply.
4. That the employees shall have the right to collective bargaining fully assured to them.
5. That the employees shall be assured of free and full opportunity to select representatives of their own choice to deal directly with the management.

These conditions were stated in a letter to Mayor Hylan in which the court said:

I would be recreant to my obvious duty to the people of this community if I should again place their vital interests, involved, as they are in this transportation system, at the mercy of an association that has proved itself faithless to its obligations and irresponsible in its conduct. I cannot, therefore, consistently with my firm conviction of my duty, permit negotiations or agreements, directly or indirectly, now or hereafter, with this association; and, of course, I cannot bargain with this association as to terms upon which the strike may be ended.

A meeting of the men was called to consider the matter. Mr. Fridiger, counsel for the union, after reading the court's letter said:

This proposition will never be put before you for a vote, unless it is put to you as members of the Amalgamated Association. I read this because I wanted the news to go out to the world that we had read the proposition, but refused to put it to you.

An emphatic "No!" was the answer to Mr. Fridiger's inquiry as to whether those at the meeting wanted to hear any proposal from Judge Mayer unless it was addressed to the Amalgamated.

In spite of the very plain statement made by the court, William D. Mahon, international president of the Amalgamated, who arrived in New York on Sept. 5, continued his effort through an appeal to public officials to seek a settlement. In a strict sense the strike was not an outlaw strike, because the Amalgamated, through Mr. Mahon, cast its lot with the men, although he did rebuke those on his side who had injured their own cause by criticising the court.

In many respects Mr. Mahon's statement is very unusual. It follows substantially in full:

My coming to New York at this time is to see if it not possible to bring together the contending forces and secure a settlement of the strike now in force upon the Brooklyn Rapid Transit lines. It was impossible for me to reach this situation sooner on account of the meeting of the general executive board of our association and the work it placed in my hands.

This I sincerely regret, as it is most difficult for one to assume charge of a matter of this kind, especially after much bitterness has been engendered by actions and words spoken by those who do not understand the circumstances or represent the policies of our association. But the creation of this unpleasant condition was not with my consent or of my making.

Therefore it is my hope that after the matter has been fully gone over we may be able to reach an honorable and satisfactory adjustment.

I am advised that the railway company is represented by Judge Julius M. Mayer and Receiver Lindley M. Garrison. They are both broadminded and men of large affairs.

Then I am advised that Governor Smith and Mayor Hylan have been working hard to bring out an honorable adjustment. It seems to me that with all these big public spirited men we ought to be able to gain a speedy settlement of this unpleasant affair. So far as the Amalgamated Association is concerned we only want justice and a fair deal.

We are not here to vilify Judge Mayer or to abuse the receiver, the authorities or the newspapers. I fully appreciate Judge Mayer's position. He represents the court, which always has my respect. My years of experience with electric railway affairs have taught me to know of the many difficulties and trying positions that both the court and the receiver must face in handling roads under such circumstances.

The court necessarily must represent all parties and you can rest assured that those who have criticised the court in this case were not speaking for me or the Amalgamated Association.

In such negotiations, if any, that will take place I shall personally represent the Amalgamated Association and its policy.

This is no time to permit anything foreign to the issue at stake to interfere with a just and speedy settlement, and I take this means of appealing to the court, the receiver, the press and the public to unite in bringing the interested parties together and establishing permanent peace.

It is my intention to call tomorrow on Mayor Hylan and take up the work through him with the hope of bringing about a settlement as above suggested.

So far as the matter of wages of the men who struck is concerned they compare very favorably with those paid for similar work elsewhere. Under the demands made by the men the company would have been called upon to pay out in wages more than its gross receipts. It was because of the peculiar relationship which existed under the receivership that the court insisted it should retain the right to review the arbitration findings with respect to

wages. Taking the classes of employees which struck, namely the trainmen on the subway, elevated and surface, excepting the motormen on the subway and elevated, the company has pointed out the facts as follows:

The minimum pay of a guard on the elevated and subway is \$1,450 a year, and his maximum, obtained after eighteen months of service, is \$1,560 per annum. Similar figures for the conductors on the elevated and subway are \$1,750 minimum and \$1,840 maximum.

The conductors and motormen on the surface are paid a minimum of \$1,650 a year and after three years a maximum of \$1,950 per annum.

All of these, of course, are for men working full time, which means six days a week.

It is the identical wage paid to the following number of men in similar lines of employment by the following companies:

4558 by the Interborough Rapid Transit.

1494 by the New York Railways.

2044 by the Third Avenue Railway.

The other surface railroad companies in the greater city either pay their numerous employees similar wages or less.

Taking other lines of employment and without emphasizing the greater physical and mental requirements thereof, we find that the wages paid by us contrast very favorably therewith.

The 12,467 hard working and faithful letter-carriers and post office clerks in Manhattan, Brooklyn and the Bronx receive a minimum of \$1,400 a year, and after five years a maximum of \$1,800 a year.

The 3,758 firemen of our exceptionally fine fire department receive a minimum of \$1,769 per year and after three years a maximum of \$2,280, and our unexcelled police department pays its 9,229 patrolmen a minimum of \$1,769 per annum, and after five years a maximum of \$2,280.

Hundreds of thousands of men and women doing clerical or physical work receive no more and in very many cases less than are paid by us as above set forth.

The attitude of the company with respect to the strike was made plain in a statement made by Mr. Garrison on Sept. 9. Except for the comparison of wages which it included this statement follows in full:

The first phase of the strike is over. It ended with the final position taken by Mr. Mahon, international president of the Amalgamated Association. This association has a great stake in this situation. If its spokesmen are accurate, it had 12,000 members in the Brooklyn locals paying dues to the association of \$1 a month each, making a total of \$144,000 a year income to the association.

If upon his arrival from the headquarters of this organization in Detroit, Mr. Mahon had thrust aside the radical leadership, repudiated the unwarranted breach of contract, disciplined the locals for violating the essential laws of their organization and ordered the men—who never should have left their work—to return to their work, he would have gone a long way toward showing that it was a body fit to be trusted.

Instead of pursuing such a course, he contented himself with rebuking those of his subordinates who had injured their own cause in public esteem by general vilification and abuse—expressing regret at what he termed the "impatience" of these radical leaders and then casting his lot with them, making their cause his and that of his organization, and thereupon advising the former employees to refuse to return to work. With the disappearance of Mr. Mahon as a possible factor for good the first phase came to an end.

The second phase is now being entered. It is the slow and laborious process of obtaining and training new men as a permanent force, for the proper and efficient operation of the system. This calls for much hard work on behalf of the management and much patience on behalf of the public.

The work of obtaining the new men will be difficult, but the outlook is very hopeful. Despite whatever has been said upon the subject this employment is by no means ill paid, and considering the ratio of income to outgo is very well paid. And it must be borne in mind that the base of income is strictly limited by law while the necessary expenses are not.

The court and the receiver have no personal or private interests to serve and therefore have every reason to be perfectly fair, reasonable and frank in all their dealings with the employees, and have always been fair and square with them and intend so to continue.

## Maine's Municipal Marvel

Town of Turner Runs One-Car Line for Benefit of Summer Folks  
—Freight Handled

"Good service—clean cars," is the slogan of a little town in Maine, which has the distinction of being the first municipal owner and operator of an electric railway in the entire State and the second in all New England. Turner, a town of 2,000 people, won't be relegated to the woods, but wants to be in direct communication with Auburn and Lewiston and so enjoy the benefits of modern utilities.

The history of the Turner railway route though very brief is interesting in so far as it reflects the life of a townspeople who want to know and be known. The electric line in this section has been a "goat-getter" for years because of the inability to make it a paying investment. The old Auburn-Turner line was abandoned by an operating company and A. L. Kavanaugh of Lewiston as receiver, operated it for a while with a fairly successful showing. Later it was sold to the A. L. & W., now defunct, and up to last October, "intermittent" service was maintained. Then for the second time operation was abandoned, but even this failure didn't bring discouragement. In other words, you couldn't turn-er down. Generally speaking, "nothing succeeds like success," but in Turner's case nothing succeeded like failure. With courage and determination the townspeople applied to the Legislature in November, 1919, and through their representative permission was granted to Turner to own and operate its own railway.

And now for several months Turner has been railroading—and enjoying the profits (profits, they really are, according to the manager). The only cloud to mar the happiness of the sturdy New Englanders is the thought of next winter when nature in the role of "Frankenstein," sends a monster who with ice and snow plays havoc and brings destruction to railway properties. Then the solitary car may get snowed under. Meanwhile, the tune is "In the Good Old Summer Time."

## Right to Dismiss Union Men Upheld

A decision which is expected to have a far-reaching effect has been handed down by the Supreme Court of the District of Columbia in denying an injunction to members of the Brotherhood of Railroad Trainmen against the Washington & Old Dominion Inter-urban Railway. The injunction sought to prevent the discharge of employees who affiliated with the union. An extract from the opinion is as follows:

Strikes that are conducted in an orderly manner and do not involve a violation of property rights or the production of public disorder are but the exercise of a right to work.

The right to labor is a personal right which inheres in the individual and, as a corollary to that, the right not to work must be equally recognized. But with the recognition of these rights, there is another

right which belongs to the employer and that right is one to impose conditions upon those who seek employment from a given employer, be that employer an individual or a corporation.

It may be asked what becomes of the right of the employees to organize if, as a consequence of doing so, the employer may exercise his right as recognized by the United States Supreme Court. The answer may not be as easy to formulate, but this court is not called upon to answer the question. Its duty is to give effect to the authoritative opinions and decisions of the supreme tribunal, which give the company the right to dismiss its employees if they join a labor union.

## Ontario Board Approves One-Man Cars

Discussing the one-man cars for electric railways, Vice Chairman A. B. Ingram, of the Ontario Railway Board at Toronto, Ont., on Aug. 13, stated that the cars had the unqualified approval of the board as an efficient means of eliminating expense in connection with railway operations. He is quoted as follows:

They have been found very satisfactory and in several small places have gone far in cutting operating deficits. One-man cars of the approved type are now running in St. Thomas, Cornwall, Guelph, Port Arthur and Calgary. They are giving much more frequent service and in addition to the lessened cost of operating, they are much easier on the rail.

The board approves of the one-man cars for the Toronto civic line and believes that they will be a success. If they were forced to cross railway tracks precautionary measures against accidents would have to be taken.

Almost every one of the lines in the smaller cities is operated at a deficit. The Guelph line, which is municipally owned, had a deficit of something like \$12,000. The one-man car in such places cuts the operating expenses almost in half.

## Nashville Strike Broken

For the purpose of discussing the differences between striking trainmen and officials of the Nashville Railway & Light Company, Nashville, Tenn., union leaders and workmen conferred on Aug. 27 with Governor Roberts and Mayor William Gupton. No officials of the company attended the meeting.

The conference was held at the request of Fred L. Feick, of Washington, D. C., who is said to have represented himself as being from the Department of Labor. During the conference the strikers submitted their proposed contract as a basis for negotiations with the railway officials. Later during the afternoon B. C. Edgar, vice-president of the Nashville Railway & Light Company, consulted with the Governor.

Mr. Edgar stated that the strike had been called by the employees without notice to the company and without previous effort to arbitrate their differences. He further told the Governor that the company had the situation well in hand, that the men were returning to work, and that the company was satisfied with conditions. He said:

Many of the striking employees have already come back to the company, and many of them have been reemployed at their old rates of pay. The company will continue to reemploy the good men who apply at their old rates of wages until 6 p.m. Sept. 2, after which all men employed will be employed as new men at the rate of wages applying to new men.

For the first time since the strike began, cars were operated in Nashville after 6 p.m., on Aug. 30.

## Governor May Act

Buffalo Labor Situation Appears Deadlocked Over Retroactive Pay Features

Governor Alfred E. Smith probably will have to act personally if he hopes to establish a basis for arbitration of the wage question which is in dispute between the International Railway, Buffalo, N. Y., and its employees. This became evident on Sept. 4 when Herbert G. Tulley, president of the railway, failed to submit the proposition which Lieutenant Governor Harry C. Walker said had been agreed upon after a long conference on Sept. 3.

Lieutenant Governor Walker is chairman of the Governor's labor board which made a searching inquiry into the finances of the company and the grievances between the employees and the company. Concessions were made at the conference by the company's employees as represented by the Amalgamated and President Tulley on behalf of the company made concessions and it was believed an agreement would be reached.

The proposition in question involves the solution of the problem as to when a wage award granted by arbitration should become effective. Lieutenant Governor Walker worked out a plan which, he said, should meet with the satisfaction of both factions. Failure on the part of President Tulley to continue his part in the negotiations is characterized by the Governor's representative as "dodging the issue."

In a letter to Mr. Walker, President Tulley says the company agrees to let the Governor name the third arbitrator, but with the expressed condition that any further increase in wages can only be effective when a further increase in fares is granted. President Tulley says the men are receiving the same scale of wages as in Rochester and Syracuse where living conditions are comparable. Henry W. Killeen, of counsel for the International, says no further wage increases will be granted until after the state utilities board acts favorably upon a higher fare for the Buffalo traction lines.

## Kansas City Railway's Champions

Looked at from the standpoint of promoting good fellowship among the employees and a spirit of co-operation the new ball park of the Kansas City (Mo.) Railways at Thirty-first and Askew Streets has already paid for itself twice over. The games are played Tuesdays, Thursdays and Saturdays in the Railways League, made up of six teams from the employees. On Sundays the "Tramways," the railway team in the Inter-City League, has challenged all comers with great success, leading the league now with six games won and one lost. E. B. Sanders of the company said:

The majority of our employees are young men and much interested in baseball and the results have been wonderful for the company. The crowds on Sundays run between 500 and 1,000. The receipts go

to the league. In addition to this the Employees' Brotherhood publishes a weekly newspaper known as the *Railway Athletic*, which gives the news of all the games as well as the standings of teams and batting averages. We feel that the very great success that has attended the undertaking more than compensates for the amount of money expended to put it on its feet and makes it a practical investment, paying weekly dividends in increased efficiency and interest.

The "Yankees," composed of employees from the Ninth and Brighton roundhouse, are leading the Railways League at present. There is a shop team and a power plant team in the league. The entrance of men from these fields engenders a considerable amount of healthy competition.

## D. U. R. Denied Injunction

Railway Company May Carry Appeal Against City to the Supreme Court

Two suits brought by the Detroit (Mich.) United Railway to determine to what extent the city can legally use taxpayers' money in the construction of street railway lines have been dismissed by Judge Mandell in the Circuit Court. The Judge declined to issue injunctions asked by the D. U. R. restraining the city from using the Sinking Fund Commission's funds for purchasing municipal railway bonds, and restraining John A. Mercier, contractor for the Charlevoix Avenue line foundations, from building with the money obtained from the sale of the bonds thus sold.

In dismissing the suits Judge Mandell upheld the city's actions and sustained the opinion of Corporation Counsel Wilcox that it was not only the Sinking Fund Commission's right but its duty to buy such bonds, adding that if it had not been the proper course to follow, such action relative to the buying of Water Board bonds for the past fourteen years would have been stopped long ago. It is reported that the company will appeal the case to the higher courts.

The company contends that the Sinking Fund and the unexpended balances have not been the only funds used by the city to pay the bills of the municipal ownership project. It is stated that back in 1919 there was an appropriation of \$100,000 out of the taxes for the use of the Street Railway Commission, then engaged in investigating the local traction problem, making appraisals of the company's property, studying subway possibilities, etc. On the witness stand the Comptroller testified that more than \$8,000 of this appropriation collected in the July, 1919, taxes, was available for the present plans of the commission.

Corporation Counsel Wilcox has furnished the commission with an opinion that the City Council or the commission cannot change the routings of the municipal system from those voted on when the \$15,000,000 bond issue was passed. At the same time he declared that the commission could build the Elizabeth-Witheral loop on the theory that it would be a turnout for the Woodward line also mentioned in the bonding proposition although the loop itself is not specified.

## Mr. McCulloch Exonerated

Charges Against United Railways Head Growing Out of Loss of Referendum Petitions Dismissed

Richard McCulloch, president of the United Railways of St. Louis and first vice-president of the American Electric Railway Association, has been exonerated of all charges growing out of the loss more than two years ago of referendum petitions on a city ordinance affecting the United Railways. The case of Bruce Cameron, formerly superintendent of transportation of the company, has not yet been called, but it is understood that the Circuit Attorney will ask that it be dismissed.

### HISTORY OF CASE

The case against Mr. McCulloch was sent to Springfield, Mo., for trial. On Aug. 30 it was called and, a severance being taken, the Circuit Attorney elected to try Mr. McCulloch first. The State put in all its evidence, and on Sept. 7 the Judge sustained a demurrer and ordered the jury to bring in a verdict for the defendant. All the better element of the city of St. Louis has been with Mr. McCulloch in what they considered persecution by corporation baiters, and since his vindication he has been in receipt of hundreds of letters, telegrams and messages of congratulation.

In June, 1918, referendum petitions on an ordinance affecting the United Railways were stolen from a safe in the Cigarmakers' Union, where they were temporarily stored before being filed. The theft was traced to a former employee of the company by the name of Jackson, who had worked as special agent under the superintendent of transportation. After about two weeks, Jackson returned to St. Louis, gave himself up, and offered to turn State's evidence on a promise of immunity from prosecution. He stated that he had been instructed to steal the referendum petitions by Mr. Cameron, under whom he had formerly worked, and on his testimony and that of another special agent by the name of Brady, and under strong pressure from newspapers hostile to the company, Mr. Cameron was indicted for burglary in July, 1918.

### MR. CAMERON'S CASE STILL PENDING

It was thought at the time that the theft of the petitions was due to overzealousness on the part of Jackson in his capacity as special agent, but it has since been pretty thoroughly proved that the theft was a scheme of Jackson and others to extort money from the officials of the railway. Conditions were further accentuated by the fact that the Mayor and the Board of Aldermen who had passed the ordinance were Republican in politics, while the Circuit Attorney was a Democrat and was backed by two newspapers which had bitterly opposed the passage of the new franchise ordinance.

Mr. Cameron's case was sent out of the city on a change of venue and was still pending when the United Railways went into the hands of a receiver on April 11, 1919. In testimony before the Special Master in the receivership case in June, 1919, one of the attorneys used Jackson and Brady as witnesses to prove mismanagement, and this time a year after their former statements, Jackson and Brady testified that Mr. McCulloch, as well as Mr. Cameron, had told them to get the petitions at any cost. This testimony created great public excitement and although it was well known that the testimony of Jackson and Brady differed from that given a year previous, the Circuit Attorney, with the help of hostile newspapers, was able to procure an indictment for burglary against Mr. McCulloch. He also took advantage of the opportunity to re-indict Mr. Cameron.

In order not to embarrass the receiver, Mr. McCulloch immediately resigned as manager for the receiver, but has continued to serve as president of the company, as the board of directors refused to accept his resignation.

## Place of Bus Recognized

Public Service Commissioner Returning from Abroad Believes Buses May Replace Some Railways

Lewis Nixon, Public Service Commissioner for the First District of New York, is convinced that buses are a good thing, but that they should not be run on highways already occupied by electric railways. Mr. Nixon has recently returned from abroad where he went to inquire into the question of bus transportation and to acquire first hand information relative to the advisability of such service in New York City.

### BUSES A GOOD THING

His ideas with respect to buses were expressed to the *ELECTRIC RAILWAY JOURNAL* through confirmation by him of general statements made by the daily newspapers on Mr. Nixon's return. He said:

One of the strongest impressions I got abroad is that hit or miss legislation must be avoided. I am convinced that buses are a good thing, but they should not be run on highways already occupied by street railways. In many ways buses can do good work. But if they are to be permitted to enter seriously as a factor of transportation, it should be under the most definite regulations and not under a guerilla system as they are running now. The bus drivers in this city are doing about as they please.

Recently there was a report on traffic made in the House of Commons. I read it carefully and noted that the very flexibility which permits omnibuses to run out from stopping places out of their proper order and to meander and move sideways on the roads and to be driven two abreast, is in many cases a material element in road congestion. Flexibility implies taking advantage of chances of passing other vehicles, and though it may be an advantage for speed as against other competitors it is not without its element of danger.

However, I am not and never have been against buses, and I believe they may eventually take the places of some street railways. But we cannot scrap a street railway line because some one considers a bus service superior.

# Financial and Corporate

## Rhode Island Securities Sold

New Haven Railroad's Investment of \$24,000,000 Brought \$2,200 Under the Hammer

Stock of the Rhode Island Company, Providence, R. I., and the stock and bonds of the Sea View Railroad were sold at public auction on Sept. 3 under orders of the Federal receivers by authority of a decree of the United States District Court for the Southern District of New York. Harry Parsons Cross bought all the stock of the Rhode Island Company, 96,855 shares, for \$2,200. Mr. Cross also bid in for \$200 the 7,000 shares of stock of the Sea View Railroad. Nathaniel Terry Bacon of Peace Dale, president of the Narragansett Pier Railroad, bought the \$600,000 gold bonds of the Sea View for \$1,400. It is understood that after the auction Mr. Bacon purchased from Mr. Cross the Sea View stock he had bid in for \$200.

### MR. SHERMAN A PURCHASER

Duff F. Sherman bought the Providence & Danielson Railway at private sale for \$100,000. By agreement, the receivers will operate the road until Oct. 2, Mr. Sherman guaranteeing any deficit.

The 96,855 shares of Rhode Island Company stock which Mr. Cross bought for \$2,200 represent an original investment by the New York, New Haven & Hartford Railroad of \$19,000,000, which was further increased to \$24,000,000. In addition the New Haven loaned \$4,000,000 to the Rhode Island Company for improvements and other requirements, against which it took notes of the Rhode Island Company. These notes are still held by the New Haven Company.

### RHODE ISLAND ASSETS STATED

Among the assets of the Rhode Island Company are the Woonsocket and Burrillville roads, which with other property holdings are in the hands of receivers. Another asset is over \$2,000,000 stock of the United Traction Company, which stock was pledged by the Rhode Island Company to secure bank loans. There are also parcels of real estate, cars and other items, the value of all its physical assets being estimated at about \$5,000,000. Against all assets are claims said to aggregate \$10,000,000, which accounts for the nominal price brought at the sale of the stock.

No information as to the outlook of the Sea View, the Danielson and the Chepachet lines could be obtained from the successful bidders, except that Mr. Sherman expects to run his properties until Oct. 2 by agreement with the receivers, a guarantee covering deficits

being given. As to the Sea View, the purchasers have nothing whatever to say.

The properties sold are subject to liens, which are in some instances problematical and must be adjudicated by the courts.

The stock and bonds of the roads involved were sold, and not the physical properties. The sale in no way affects the several lines leased by the Rhode Island Company, including the Rhode Island Suburban, Union Railroad lines in this city, Pawtucket, East Providence, Buttonwoods, East Greenwich, Pawtucket Valley, Cumberland Hill and lines to Attleboro.

## Philadelphia Appraisal to Continue

An order to continue the appraisal of the property of the Philadelphia Rapid Transit Company has been made by the Public Service Commission meeting in special executive session at the City Hall. The commission allowed the withdrawal of the no-transfer higher fare tariff presented by the company on June 1 and in doing so reaffirmed its order of July 26, that there could be no fare increase until the company had completed the valuation of its property and presented it to the city and commission.

Evidence produced at hearings in July failed to convince the commission that the proposed increase was warranted and the order declared imperative until a valuation had been submitted by the company. Recently the company asked the commission for permission to withdraw the no-transfer tariff. The city, while assenting to the withdrawal plan, asked the commission to order the valuation proceedings continued. An appropriation of \$50,000 was voted by Council for the employment of experts by the city, to check up the appraisal when it should be presented to the commission.

The text of the order drawn by James S. Benn, Philadelphia member of the commission, follows:

The petition of the Philadelphia Rapid Transit Company to withdraw Tariff P. S. C. Pa. No. 68, and the petition of the city of Philadelphia waiving objection to the withdrawal of said tariff are hereby granted. This permission is without prejudice to the pending complaints of the Cliveden Improvement Association et al. against the rates and service of the respondent company, which were in part merged with the complaint against said tariff schedule, and the same are hereby restored to their former status on the docket of the commission.

The order of the commission of July 26, 1920, in so far as it relates to the preparation and submission of an inventory and appraisal of the respondent is hereby affirmed, a copy of said inventory and appraisal to be furnished to the city of Philadelphia and every opportunity given it to check up the same and present such evidence in relation thereto as it may deem proper.

## Another Buffalo Committee

Appeal to Security Holders to Oppose Plan of Committee Headed by McDougal Interests

Bondholders of the International Traction Company, Buffalo, N. Y., have organized a new committee in opposition to the proposed plan of reorganization of the Buffalo traction system submitted last month by Elliott C. McDougal, chairman of the bondholders' protective committee. The protesting bondholders charge the arrangement is not equitable. Before the objections to the adoption of the reorganization agreement can become effective, proxies or co-operation of persons owning 30 per cent or about \$17,000,000 in securities must be obtained. To date the committee represents \$1,534,000 in deposited bonds.

### PHILADELPHIANS ON COMMITTEE

Three Philadelphia men who organized the committee are George K. Reilly, a banker; J. M. Johnston and R. M. Stinson, dealers in investment bonds. One of the reasons enumerated why holders of the certificates of deposit for collateral 4 per cent trust bonds of the International Railway should object to the plan promulgated by Mr. McDougal is that the voting trust proposed would perpetuate for its term of five years "the management which declined to put in operation a fare increase from 5 to 7 cents for five months after it was granted to the company." It also is claimed that the company has \$1,500,000 in its treasury and that the protective committee has \$400,000 on hand. The objecting bondholders say:

The \$1,800,000 cash planned to be raised by forcing you to purchase 9½ shares of voting trust certificates to provide for capital expenditures over 1921 is extremely drastic and premature.

It also is charged that the International Railway is not at present on the verge of bankruptcy, "but we are advised," the committee says, "the company will earn during 1920 over and above all fixed charges at the rate of \$400,000 a year, and such figures are arrived at after setting aside \$2,700,000 for maintenance and accident claims."

The Guaranty Trust Company, New York, N. Y., is the depository for the bonds of the protesting committee.

### REASONS FOR OBJECTIONS SUMMARIZED

The committee, of which George K. Reilly, of Reilly, Brock & Company, Philadelphia, is a member, in addressing the security holders, has summarized its reasons why holders should object to the plan of Aug. 17 as follows:

1. The company has \$1,500,000 cash in its treasury. The protective committee has \$400,000 cash on hand.
2. The bonds of the International Railway bought in for you have an estimated value of nearly \$2,700,000.
3. You are asked to give up title and rights in \$640,500 of underlying bonds, and \$200,000 of 7 per cent notes (including the values mentioned in paragraph 2).
4. The International Railway common stock is your property.
5. The 7-cent fare put in operation

April-May, 1920, should continue to yield additional revenues.

6. The \$1,800,000 cash planned to be raised by forcing you to purchase 9½ shares of voting trust certificates to provide for capital expenditures over 1921 is extremely drastic and premature.

7. A voting trust such as is proposed would perpetuate for its term the management which declined to put in operation a fare increase from 5 cents to 7 cents for five months after it was granted the company.

8. The plan is unjust to bondholders who are unable or unwilling to subscribe, since they lose their entire investment.

### Experts Criticise P. R. T. Depreciation Plan

Lybrand, Ross Brothers & Montgomery, public accountants, have reported for 1919 to the city of Philadelphia on the finances of the Philadelphia Rapid Transit Company under the terms of the operating agreement of 1907. Unofficial summaries of the report indicate that the company on Jan. 1, 1919, abandoned its practice of deducting annually from its gross revenues 15 per cent for renewals and upkeep.

As of Jan. 1, 1920, the renewal reserve appears to have dwindled to \$574,470. Out of the surplus in the reserve renewal fund of \$1,127,320, the company applied \$552,200 for maintenance of way and structures and for equipment and cars. In commenting on the report the Philadelphia *Record* says that "had proper deductions been made from gross earnings by the Rapid Transit Company for renewals during 1919, the company would not have been able to show a net profit sufficient to pay the annual dividend of 5 per cent or \$1,500,000 on its \$30,000,000 capital. Not until June of this year did the company pass up a dividend, and that was for the first six months of 1920."

The report comments as follows:

Previous to Jan. 1, 1919, the accounting officers of the company maintained that the charge against operation of 15 per cent of the gross revenues was sufficient to cover current maintenance and to provide a reserve from which replacements, necessitated by depreciation and obsolescence, could be made. The officers now state that the company has entered upon an era of operation, by which the property is maintained at a high standard of efficiency, which makes unnecessary, in a cycle of years, any provisions for depreciation or obsolescence.

It is our opinion that the cost of renewals, which are inevitable, should be provided for from the operations of the years during which the property is in use, and not be borne by the years subsequent to its retirement or replacement. Furthermore, the policy adopted by the company is liable to abuse and is only defensible if the principle of keeping the road up to its greatest efficiency is rigidly adhered to.

### Washington Lines Go Behind

It is reported that the rate of 8 cents for cash fares or four tickets for 30 cents which was put into effect last May on the lines of the Washington Railway & Electric Company, Washington, D. C., is not providing a fair return on the valuation of the company. Indications are now that on the current year the revenues of the company will fall short by \$450,000 of the amount necessary to allow a 6 per cent return on the property. The higher rate was authorized by the Public Utilities Commission of the District of Columbia.

## Glasgow Has First Deficit

### Previous Years of Profit, Which Allowed \$997,238 to Be Paid to the Common Good, Now Changed to Deficit

After having completed the repayment of its capital in 1917, thereby eliminating interest and sinking fund charges, the accounts of the Glasgow Corporation Tramway for the year ended May 31, 1920, show a deficit—the first in the history of the tramway under municipal control. The working expenses have been continually rising and this year overtook the receipts, leaving a deficit of £108,531. One of the reasons for this decrease in the last two years has been the increase in 1919 from £400 to £700 per mile of single track in the rate of depreciation of the permanent way. This railway is noted for its ability to allow such a large percentage of its passengers to travel for the equivalent of 1 cent.

THE results for the year show that the ordinary income amounted to £1,721,578 and the working expenses, including payments to dependents of employees serving with his Majesty's forces, to £1,558,161, thus leaving a net revenue of £163,417. The ordinary income of the previous year was £1,531,320 and the working expenses £1,249,989, leaving a net revenue

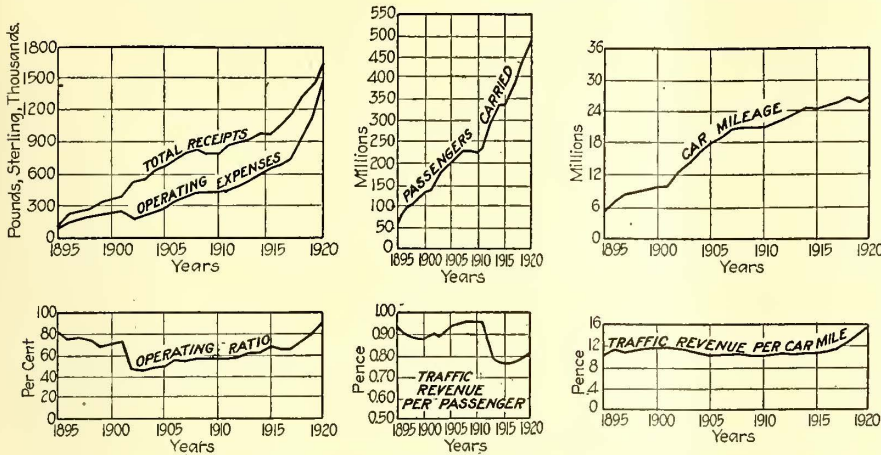
of £281,331. The decrease of 1920 over 1919 was £117,914, or 42 per cent. After paying the Paisley District Tramways Company, Ltd., income tax, parliamentary expenses, interest and sinking fund, and carrying a definite amount to the depreciation and permanent way renewals fund, there was a deficit for the year of £108,531. It will be noticed from the income statement that the gross

#### INCOME STATEMENT—GLASGOW CORPORATION TRAMWAYS

Year ended May 31:	1920	1919	Percentage Change
Revenue from transportation	£1,716,490	£1,527,487	+12.4
Revenue from other railway operations	5,087	3,832	+32.8
Total railway revenue	£1,721,577	£1,531,319	+12.4
Traffic expenses	856,111	674,167	+26.0
General expenses	225,872	175,005	+29.1
General repairs and maintenance	317,521	219,509	+44.7
Power expenses	152,742	106,686	+43.2
Clydebank bridges	2,314	1,752	+32.1
Total railway expenses (excluding depreciation)	£1,554,560	£1,177,119	+32.0
Net operating revenue	£167,017	£354,200	-52.8
Payment to dependents of employees serving with his Majesty's forces	3,601	72,869	-95.0
Balance carried to net revenue account	£163,416	£281,331	-42.0
Non-operating income	13,345	10,565	+26.3
Gross income	£176,761	£291,896	-39.5
Deductions from gross income:			
Proportion of traffic receipts due Paisley District Tramways Company, Ltd.	110,092	9,755	+13.7
Interest on capital	3,892		
Sinking fund	1,715		
Property and income tax	81,296	83,702	-2.9
Parliamentary expenses	1,056	123	
Depreciation fund	48,943	46,149	+6.1
Permanent way renewals fund	137,299	137,394	
Total deductions from gross income	£285,293	£277,123	+3.0
Net income transferred to profit and loss	*£108,531	£14,772	-835.0
* Deficit.			

#### STATISTICAL INFORMATION—GLASGOW CORPORATION TRAMWAYS

Year ended May 31:	1920	1919	Percentage Change
Miles of single track	198.12	198.25	.....
Total revenue car-miles	26,459,015	25,581,547	+3.4
Total revenue car-hours	3,528,207	3,413,371	+3.4
Ratio C.M. to C.H. (speed m.p.h.)	7.47	7.49	.....
Revenue passengers, total	509,339,886	464,246,677	+9.7
Traffic revenue	£1,716,491	£1,527,488	+12.4
Average fare paid per passenger (pence)	0.809	0.790	+1.4
Traffic revenue per mile of single track	£8,664	£7,704	+12.5
Kw.-hr. (traction load and car lighting)	42,942,868	39,984,597	+7.4
Estimated population served (city and suburbs)	1,338,811	1,150,000	+16.4
Population served per mile of single track	6,757	5,800	+16.5
Average distance paid for per passenger (miles)	1.839	1.795	+2.5
Average traffic revenue per passenger (pence)	0.81	0.79	+2.5
Statistics per car-mile:			
Average traffic revenue (pence)	15.57	14.33	+8.7
Average total working expenses (pence)	15.71	11.40	+37.8
Average number of passengers	19.25	18.15	+6.1
Kw.-hr. (traction and car-lighting)	1.62	1.56	+3.8
Car-miles per revenue passenger	0.052	0.055	-5.4
Car-miles per mile of single track	133,547	129,030	+3.5
Statistics per car-hour:			
Average traffic revenue (shillings)	9.72	8.96	+8.5
Average total working expenses	8.82	6.90	+27.8
Average number of passengers	144.0	136.0	+5.9
Operating ratio—per cent.	90.3	76.8	+13.5
Rolling stock:			
Top covered cars	865	828	+4.5
Standard cars	30	30	.....
Converted horse cars	1	7	-86.0
Training car	1	1	.....
Total cars in stock	897	866	+3.6
Average number of cars in use per day	741.53	667.98	+11.0



SIX CHARTS SHOWING STATISTICAL INFORMATION OF SEVEN ITEMS BETWEEN YEARS 1895 TO 1920 INCLUSIVE

	Passengers Carried		Traffic Receipts	
	Number	Per Cent	Amount	Per Cent
1 d.	304,865,756	59.86	£635,137	37.00
1 1/2 d.	142,076,326	27.89	591,985	34.49
2 d.	37,989,011	7.46	237,431	13.83
2 1/2 d.	12,394,898	2.43	103,291	6.02
3 d. & upwards	5,596,692	1.10	58,299	3.40
Sundries	6,417,203	1.26	90,047	5.24
Totals	509,339,886	100.00	£1,716,491	100.00

revenue for the year shows an increase of £193,038 compared with 1919, and that the average traffic revenue per car-mile increased from 14.33 pence to 15.57 pence. This is very high considering that about 60 per cent of the total passengers carried pay only 1 cent per ride. The working expenses, excluding expenditure incurred on account of the war, showed an increase of £377,441, or 32 per cent.

TRAMWAY DEBT PAID

The total tramway debt of the company was paid off in 1917. Since that date new capital expenditure amounting to £45,143 has been incurred. The amount at the credit of the depreciation and permanent way renewals fund on May 31, 1919, was £449,006. A sum of £163,663 was deducted during the year to be expended on track renewal, etc. The amount added to the fund was £186,242, leaving the balance standing at £471,585.

Rates of depreciation and permanent way renewal as they now stand are: Permanent way allowed £700 per mile of single track, or £137,299; power station and substations plant, 3 per cent; cars, 5 per cent; electric equipment of cars, 5 per cent; other rolling stock, 15 per cent; Clydebank bridge, 5 per cent.

The total rolling stock for 1920 was 897 cars, as compared with 866 in 1919. Of this number, 429 are now fitted with vestibules. The work of building new cars is being pushed. During the year thirty-seven new cars were put into service.

LARGE PERCENTAGE PAY ONE CENT

As noted before, the company charges about 1/3 penny (1 cent) as the fare of about 60 per cent of the passengers. The accompanying table gives the number of passengers carried during the

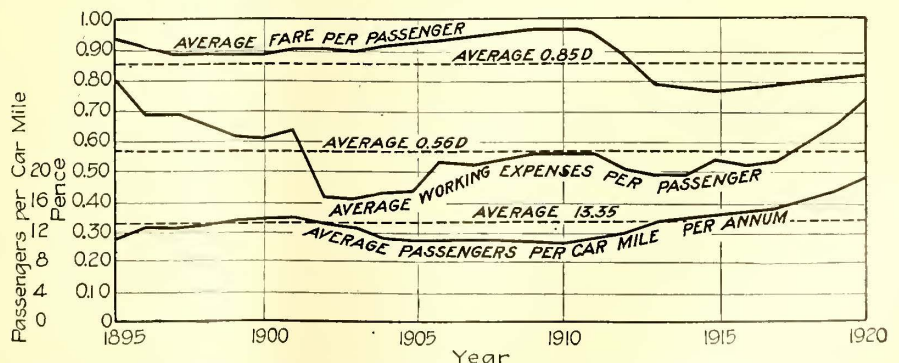
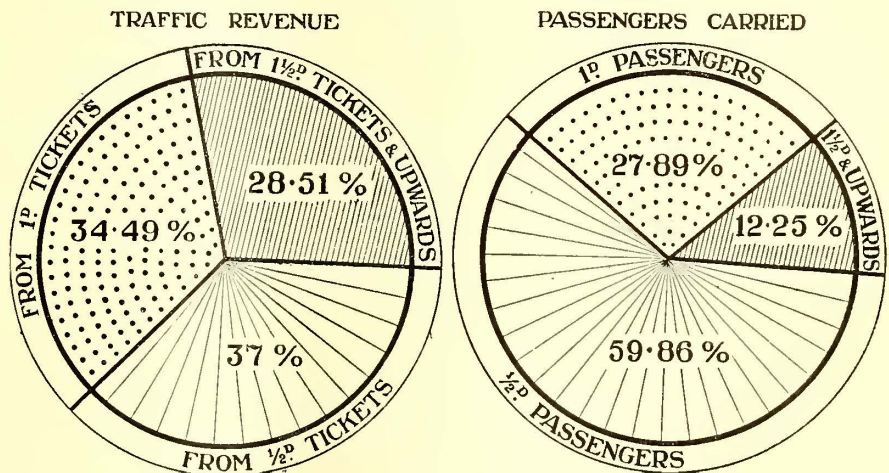
year at each fare and the revenue from each fare, with percentages in each case. There were 304,865,756 passengers paying only 1/3 penny and the traffic receipts from this group amounted to 37 per cent of the total receipts.

On an eighth of a mile less of track and with a thirteen-hour day instead of fourteen hours both the car-miles and the car-hours increased 3.4 per cent.

The company has to pay taxes the

same as a private corporation and gives its profits to the common good. The total number of employees was 7,195 in 1920, an increase over 1919 of 540. Of this total for 1920, there were 1,784 motormen, 1,464 conductors and 467 conductresses. The change back from women to men operators may be noted by the fact that the conductors in 1919 were 800, while the conductresses were 1,087. The total payroll for the year 1920 was £1,129,909.

In the accompanying charts everything seems to be advancing at a tremendous pace. The operating expenses are nearly overtaking the total receipts, as seen by the fact that the operating ratio is now more than 90 per cent. But at the same time the passengers carried have increased, as has the traffic revenue per passenger. Car mileage, although decreased in 1919 by 679,684 over the previous year, shows an increase in 1920 over 1918 of 197,784, making the total car-miles 26,459,015 for the year. Traffic revenue per car-mile has increased uniformly since 1917. The average passengers per car-mile since 1895 were 13.35, but the last few years the number has been higher, reaching 19.25 in 1920. The average fare per passenger had a drop between 1911 and 1915, but is gradually gaining again. The maximum average on this curve was in 1910 with .96 pence and the minimum was in 1915 with .76 pence. For 1920 the average was .81 pence. At the same time the average working expenses per passenger are increasing at a more rapid rate. For 1920, the average working expenses per passenger was .73 pence.



AVERAGES OF THREE ITEMS FOR TWENTY-FIVE-YEAR PERIOD, 1895-1920

## Ocean Shore Ceases Operation

The Ocean Shore Railroad, San Francisco, Cal., has ceased to operate. The road was never completed, there being a gap in the middle almost as long as the completed part of the road. Construction of the road was very expensive. The traffic was never sufficient to make the road pay, and recently the automobile and motor truck have cut into the road's revenues. Finally the 100 employees made demands for an increase in wages. At this point the officials threw up their hands in despair and discontinued operation.

Ten million dollars was spent in the effort to build and operate the road. After the stockholders had been wiped out a committee of bondholders struggled unavailingly for nine years to make the road pay. Yet the situation is not entirely without hope. The San Francisco terminals of the company are electrically operated. Rapid general development of the territory through which the road runs and the extension of electric propulsion to the entire line may possibly afford a way out.

## Financial Plan Declared Operative

The protective committee representing the holders of the 4-6 per cent bonds of the National Properties Company, Philadelphia, Pa., of which Evan Randolph is chairman, has declared the amended plan operative. The time for the deposit of bonds, which expired on Aug. 16, has been extended to Sept. 20.

A second protective committee with V. Gilpin Robinson as chairman has taken this position:

1. That full information as to all operations of the American Railways and the National Properties Company since Jan. 1, 1916, shall be given to all bondholders.
2. That the present condition of their property as to resources and earning power shall be made clear.
3. That the provisions in the deed of trust securing the bondholders shall faithfully be carried out.
4. That all claims that may be justly found to lie against the National Properties Company, any other company, or any individuals shall be prosecuted to the full extent of the law for the benefit of the National Properties-American Railways bondholders.
5. That the plan which is finally presented to the bondholders be a plan that gives those bondholders who pay any assessment that may be necessary, the best possible security for their money, and a plan whereby those bondholders who cannot pay an assessment get a square deal.

Bondholders are requested to deposit their bonds with the Provident Life & Trust Company, Philadelphia, on or before Sept. 8. If deposited with the original protective committee, holders are asked, if they so wish, to withdraw their bonds and redeposit them.

The plan as originally proposed was intended to supply the company with additional cash and to take care of obligations which are in default. It was devised principally because it had become impossible satisfactorily to market the securities of the subsidiaries owing to the changed money conditions, especially as to interest rates. The details were referred to in the *ELECTRIC RAILWAY JOURNAL* for July 17, page 147, and Aug. 14, page 334.

## City Opposes Renewal Fund Use

The special traction counsel for the city of Chicago, Chester E. Cleveland, has notified the Board of Supervising Engineers that it should not approve any certificates of expenditure for new equipment, which are to be covered by surplus money in the 1907 contract ordinance renewal fund. The use of such money for buying new cars was authorized by the Illinois Public Utilities Commission as explained in full in *ELECTRIC RAILWAY JOURNAL* of Aug. 14, page 337, and commented on editorially in the issue of Aug. 21, page 348. The city, in its notice, reminds the board members that they are bound by a contract between the traction companies and the city and that the use of the renewal fund money for buying new cars would be contrary to the provision of that contract. There is also an intimation that the city will resort to court action if the fund should be used in this manner.

## Financial News Notes

**Receiver's Certificates Retired.**—Judge Faris in the United States District Court has issued an order permitting Rolla Wells, receiver of the United Railways, St. Louis, Mo., to pay out \$2,300,000 of the company's general funds to retire \$2,300,000 of 6 per cent receiver's certificates which fell due on Sept. 2, 1920. The order disclosed that the receiver had been unable to sell any of the \$4,200,000 of receiver's certificates authorized by the court about six weeks ago, because the bids were too low.

**Car Trust Certificates Offered.**—Hambledon & Company and the Fidelity Trust Company of Baltimore, Md., recently offered at prices to yield 8 per cent \$280,000 of 8 per cent car trust gold certificates, Series of 1920, of the Dallas (Tex.) Railway. The certificates are dated Sept. 1, 1920, and are due serially March 1, 1921, to Sept. 1, 1923. They are in the denomination of \$1,000. Interest is payable May and September at the office of the Fidelity Trust Company, trustee. The certificates are redeemable as a whole on thirty days' notice at 101½ and interest. They are secured by fifty specially equipped new Birney safety cars built by the J. G. Erill Company, upon which the company will make an initial payment of about 20 per cent of the total cost.

**Vote on Reorganization on Oct. 18.**—With a view to consummating the amended plan of reorganization of the United Railroads, San Francisco, the stockholders of the Market Street Railway will vote on Oct. 18 on authorizing the new stock and bonds called for by

the plan, thus increasing the total capital stock to \$32,150,000 and the authorized debt to \$22,700,000. The capital stock will be advanced from \$18,750,000, all common, to \$32,150,000, consisting of \$11,750,000 of prior preference stock; \$5,000,000 of preferred stock; \$4,700,000 of second preferred stock and \$10,700,000 of common stock. The stockholders will also vote on increasing the authorized bonded debt from \$17,500,000 to \$22,700,000 by authorizing the issuance of \$5,200,000 of five year 6 per cent notes to be secured among other ways, by pledge of \$5,200,000 of the present authorized bonds. The meeting will also act on increasing the number of directors of the corporation from five to eleven.

**Dallas Still Far Behind.**—The Dallas (Texas) Railway carried fewer passengers during July under the 6-cent fare than during May under the 5-cent fare, according to statistics given out recently by Richard Meriwether, vice-president and general manager of the company. During May 5,682,705 passengers were carried while during July only 4,976,398 passengers rode on the cars, a decrease of 706,307. The company, even with the 6-cent fare, is not earning the return authorized under the terms of the franchise granted on April 3, 1917. The shortage for the month of July amounted to \$19,566. Mr. Meriwether's report shows a total valuation of \$8,863,005 on which a return of 7 per cent is authorized by the franchise, thus giving a net return of \$51,700. The gross income from all sources for July was \$275,391, and the operating expenses \$243,257, leaving net earnings of \$32,134. This gives an accumulated shortage for the thirty-four months' operation under this franchise amounting to \$566,790.

**Receiver Named for Hamburg Railway.**—John F. Burke, Buffalo, N. Y., was named receiver on Aug. 31 by Justice Alonzo Hinkley in Supreme Court for the Hamburg Railway Company, Buffalo, under \$10,000 bond. The receivership order requires that the Public Service Commission be asked to determine what sum the company will be required to pay for power to operate its cars to the Buffalo & Lake Erie Traction Company's terminal at Bay View, N. Y., and what sum the Buffalo & Lake Erie Traction Company shall be required to pay for the use of 2 miles of the Hamburg line's tracks. Mr. Burke was the choice of the majority bondholders for receiver. He is a large bondholder. With the appointment of a receiver for the Hamburg Railway, which has been operated as part of the Buffalo & Lake Erie Traction Company system, the Buffalo & Lake Erie Traction Company was compelled on Sept. 1 to suspend local service over the Hamburg line. The receiver for the Hamburg line prohibits the Buffalo & Lake Erie Traction Company from making local stops between Buffalo and Bay View. The Buffalo & Lake Erie Traction Company operates between Buffalo and Erie, Pa.



# Traffic and Transportation

## Iowa Lines Raise Fares

### Cedar Rapids and Mason City Companies Raise Rates Under Terms of Supreme Court Decision

Acting under the terms of a recent decision of the Iowa Supreme Court, two electric railways operating within the State have raised their fares. They are the Cedar Rapids & Marion City Railway, Cedar Rapids, whose rates are now 8 cents, and the Mason City & Clear Lake Railroad, Mason City, which is also charging an 8-cent cash fare.

The opinion of the Supreme Court was rendered in the case of the appeal of the Ottumwa Railway & Light Company, Ottumwa, from a ruling of the lower court which denied the company an injunction restraining the City of Ottumwa from reducing the fare from 6 cents to 5 cents. The higher court ruled that a contract between a city and a railway which fixes a permanent fare has never been sanctioned by the Legislature of Iowa, and that, therefore, rates fixed in such a contract may be changed. The court further held that it is against public policy to contract for unchanging rates and that there must be no such contract because its enforcement might fasten an exorbitant charge on the patrons, or on the other hand a rate that will confiscate the property of the utility.

#### COMPANIES QUICK TO ACT

This ruling of the court has been interpreted by the managements of several Iowa properties to mean that inasmuch as the rate of fare specified in a franchise is not binding, the companies have the right to put in force a rate of fare which is not unreasonably high. The order is further interpreted to mean that the rate of fare need not be one which just misses being confiscatory, but one which is reasonable, taking into account the cost of money to utilities. The decision is therefore regarded as of considerable importance to the electric railways of the State, since it apparently means that the companies will be able to maintain their properties and render adequate service.

The rate increases at Cedar Rapids and Mason City were made upon the companies' own initiative. It is reported that the higher fare went into effect in both cities without any friction or complaint from the public. The Cedar Rapids company announced that the wages of its 200 employees would immediately be advanced. The Iowa Railway & Light Company, which operates a few cars in local service in Cedar Rapids, also increased the fare to 8 cents.

A feature of the new Mason City rate is the sale by the company of a monthly ticket by the use of which it is possible

to make each ride at a cost of as low as 6 cents. The tickets, or passes, are sold for \$1 each and each is good for one month only. The plan is designed to take care of the steady rider. Each time the holder of a pass boards a car he shows the card and gives the conductor a nickel. At forty rides a month his fare is 7½ cents; at fifty rides, 7 cents; at sixty rides, 6¾ cents; at seventy rides, 6.4 cents; at eighty rides, 6.2 cents; at ninety rides, 6.1 cents, and at 100 rides, 6 cents. The cards are issued to individuals and are not transferable. They are not issued to companies. Each card is stamped with the date of issuance and the holder's name.

## Seven Cents in Oklahoma City

A 7-cent fare with four tickets for 25 cents took effect on the local lines of the Oklahoma Railway, Oklahoma City, Okla., on Sept. 10. The fare was formerly 5 cents. The new rates were authorized by the State Corporation Commission.

Some four or five months ago the officers of the Oklahoma (Okla.) Railway took up with the Mayor and City Commission of Oklahoma City in an informal way the matter of increased fares on the city lines. The situation was explained fully and about the middle of June a formal petition was presented to the commission asking for a 7-cent fare, four tickets for 25 cents.

The Mayor suggested that a committee of five men be appointed and an independent auditor be retained at the expense of the railway to investigate the finances of the company and report to the commission. This plan was agreed to by the railway and the committee and the auditor were appointed by the Mayor. The auditor went into the affairs of the railway very thoroughly and submitted a report early in August to the committee to the effect that the company was unable to function properly under the 5-cent fare with the universal transfers in effect since the company was organized.

After a thorough study of the report the committee voted to recommend the increase which had been requested. On the committee was a representative of the labor unions. This member voted under instructions from the labor council and was the only member of the committee to go on record against the increase. The Mayor and the City Commission, after going over the report, passed an ordinance permitting the provisions of the franchise which requires a 5-cent fare to be waived for three years and decided in favor of an increase in fares in accordance with the recommendations of the committee subject to the approval of the State Corporation Commission.

## Losing \$2,772 Daily

### Kansas City Railways Tells Municipal Authorities It Must Have More Revenue—Asks Higher Rate

Service is being furnished by the Kansas City (Mo.) Railways at a daily loss of \$2,772. This fact is brought out by the company in a letter which it has addressed to Mayor Cowgill and other municipal officials as well as to the Chamber of Commerce and the daily newspapers. In this communication the railway management outlines the reasons for its recent application to the State Public Service Commission for authority to raise its fare.

#### FLEXIBLE FARE PROPOSED

To meet the present situation the company proposes to install a flexible-fare system under which the rate, based on present prices, would advance from 8 cents to 9 cents, with six tickets for 50 cents. This would mean a rate of approximately 8.5 cents a passenger. The average fare is now 7.42 cents, while the cost of furnishing service is 8.23 cents for each revenue passenger.

Increases in wages and in the cost of fuel have been largely responsible for its present predicament, says the company. During the past year wages have risen by approximately \$1,000,000, while the price of coal has advanced from \$3.43 to \$4.46 a ton. The company points out that for the period of March, April and May it operated at a loss of \$255,056.

The company's letter follows in part:

The street railway business is bottomed upon the theory that it will have a monopoly of the community's transportation. Upon this theory it is regulated and controlled by law, both as to its operation and its earnings. Upon this theory it is required to operate development service upon lines and in districts where present traffic does not pay the actual cost of operation. It is required to operate owl cars which are non-paying; to maintain certain service standards regardless of whether they pay.

#### JITNEYS ADD TO COST

We, of course, feel that the best interests of the Kansas Cities are not served by permitting the operation of jitneys. We do feel that the transportation of a city covering eighty-nine square miles, with a population of 450,000, and now served by 315 miles of street railway, can never be adequately furnished by this form of transportation. In the first place, if automobile transportation should attempt to furnish the service now given by the Kansas City Railways it would be an economic impossibility.

#### DIVIDENDS NOT ASKED

In view of the facts as above set forth, and which are established by exhibits, or which can readily be ascertained from the city's representative on the Board of Control, we are asking for a fare that will make possible the present high grade of service; to pay adequate wages to our employees; and to pay a legal rate of return to those whose money is invested in Kansas City's street railway facilities. We are not asking for profits or dividends, nor do we expect them.

We regret the necessity for this step and would welcome any condition that would make possible a reduction in car fares. We submit for your consideration the fact that the removal of jitney competition and the reestablishment of the transportation business of Kansas City upon the proper basis would make possible a reduction under what will otherwise have to be charged. We do not believe that it is just or for the best interests of Kansas City that the 350,000 people who daily avail themselves of our service should be required to pay a penalty of approximately 1 cent a car ride in order to supply jitney service to a small minority.

## Bridgeport Cars to Run Again

Connecticut Company Plans to Restore Service on Its Lines There on Sept. 20, Following Council's Action in Restricting Buses

Bridgeport's electric cars are "coming back." Service will be restored by the Connecticut Company on its Bridgeport city division on Sept. 20. Announcement to this effect was made by Lucius S. Storrs, president of the railway, on Sept. 8 following the action of the Bridgeport Common Council the evening before in passing a new ordinance ruling motor buses off the principal streets served by the railway. The resumption of trolley operation will end a "vacation" lasting nearly two months, during which Bridgeporters have been dependent for transportation upon jitneys or private automobiles.

**T**HE measure passed by the Council on Sept. 7 restricts jitney operation to certain designated streets and to districts for the most part entirely without electric railway facilities. Bus competition with the railway is halted through the elimination of the "jits" from the central section of the city. There is, however, no attempt to do away with the buses entirely. In the future the jitneys are to furnish a service complementary to the railway.

### ENDS EIGHT WEEKS TIUEP

The resumption of trolley service in Bridgeport will come just eight weeks after the cars were taken off the streets because of the Council's failure to regulate the buses. A previous ordinance, which would have meant the elimination of all jitney operation, was declared invalid by Judge Banks on July 22 because it delegated the Council's power to fix routes to the board of police commissioners. The Council took no action to enact a new ordinance along the lines indicated by Judge Banks. The company therefore ceased operation on Aug. 2.

Under the provisions of the new law five routes are specified which the buses will be required to follow. Several of these routes traverse the city from east to west, largely through streets not having trolley tracks. A penalty of \$100 is provided for each violation of the ordinance. Those sections of the measure with "teeth" follow:

Section 2: No person, firm or corporation shall operate a public service motor vehicle along any other streets than those established and fixed in this ordinance as traffic routes.

Section 3: Any person, firm or corporation violating any of the provisions of this ordinance shall pay a fine of not more than \$100 for each offense.

This ordinance shall take effect September 20, 1920.

### PRESIDENT STORRS SATISFIED

After studying the ordinance as passed, President Storrs announced that it was satisfactory to the company and that the company would resume operation in Bridgeport on Sept. 20, the day on which the new statute will take effect. In a letter to Mayor Wilson of Bridgeport on Sept. 8 Mr. Storrs outlined the railway's position as follows:

I have before me a copy of an ordinance passed by the Common Council last night regulating the jitneys within the city of Bridgeport, under which the operation of the buses is confined to certain specific streets. The most important of these routes are limited to areas within the city not supplied with any other means of public transportation and in two cases along streets where we have been unable to com-

ply with the desires of the city for an extension of tracks due to our inability to obtain the necessary funds. Other routes have been defined operating from the city line on the west to the city line on the east, largely through streets not having railway tracks. \* \* \*

Now that the city of Bridgeport has expressed its preference for the electric railway operation with buses mainly regulated to a complementary service, we will be prepared to resume service on Sept. 20, and will give the people of Bridgeport the best service that can be produced with the facilities which the company controls. We feel confident that we will be able to satisfy the public in this regard and trust that in the future the relations between the city and the company may always be upon a co-operative basis.

Mayor Wilson, speaking in behalf of the Bridgeport public, expressed satisfaction with the Council's action. The Mayor issued a statement on Sept. 7, prior to the passage of the measure, in which he said:

The conclusion reached by the Ordinance Committee of the Common Council, in their consideration of the problems of bus and trolley traffic, and which have been embodied in the ordinance reported to the Council this evening, will, in my opinion, receive the cordial endorsement of the public as they are based upon a full knowledge of the situation.

Throughout the hearings and conferences with both the bus and trolley interests there has at all times been evident the utmost harmony, and it is gratifying to note that in the final outcome the interests involved have gracefully concurred with the Ordinance Committee in their efforts to provide transportation facilities which will meet the requirements of the community as a whole.

The bus routes have been planned with a view of providing adequate service of that nature without undue interference or competition with the operation of cars over the established routes while, at the same time, providing free choice and opportunity for the use of either or both by the riding public, and at the same time to provide transportation facilities to many sections of the city not now enjoying the same.

The jitney drivers, while dissatisfied with the regulations, are prepared to continue operation over the designated routes pending a thorough trial of the new plan. A formal statement issued on Sept. 8 in behalf of the jitney-men's association said in part:

Jitney officials feel that the ordinance passed last night by the Board of Aldermen will prove wholly unsatisfactory to the public. With this particular factor in view we could not reasonably agree with the ordinance as indicated. The report of the Mayor's commission met with our approval, but for some reason or other which has not yet been explained to us, this same committee, after working for weeks to complete the work assigned to it, over night seems to evince a complete change of attitude. Those on the committee who might possibly have taken our view of the situation were wholly eliminated from the joint discussions.

An ordinance similar to that approved in Bridgeport has been recommended to the Board of Aldermen of New Haven and probably will be passed at the meeting of the board next Monday night. New Haven had been notified

that trolley service probably would be suspended there as in Bridgeport if ruinous jitney competition was not restricted.

## Indiana Lines Urge Raise

Charles L. Henry and R. I. Todd Appear in Interests of Inter-urban Railways

Declaring that Indiana must take steps to prevent confiscation of coal by railroads in times of emergency, Charles L. Henry, president of the Indianapolis & Cincinnati Traction Company, appeared before the Public Service Commission on Aug. 31 in behalf of that company's petition for increases in freight and passenger rates.

Mr. Henry stated to the commission that during the recent serious coal shortage, when the company was daily facing curtailment of service through lack of fuel, the railroads held several carloads of coal, bought in the open market at a high price, and gave the traction company no information as to the whereabouts of the coal until the crisis had passed. This coal, he said, was valued at \$15,899, bought at a price of from \$8.75 to \$10.75 a ton.

### SLIGHT RISE IN REVENUE

Mr. Henry presented figures to the commission showing that for the first twenty-six days in August of the present year, revenue from passenger service increased 6.96 per cent over the corresponding period in 1919. Passenger business increased 1.3 per cent in a corresponding period, he said, making an average increase of 38½ passengers hauled a day. The business of the company in July of this year increased 17.5 per cent over July, 1919, his figures showed.

Mr. Henry said the company is now facing the necessity of paying about \$4.85 a ton for contract coal, as against the price of \$3.20 under its last contract. The company was unable to lay in a reserve supply of coal, and was forced to buy most of its coal on the open market.

A hearing on the petitions of the Union Traction Company of Indiana and the Gary & Southern Railway were to be held in the afternoon.

Requesting that if the Public Service Commission sees fit to deny an increase of rates for the Terre Haute, Indianapolis & Eastern Traction Company, the order be held in abeyance pending the granting of increased rates to steam roads, representatives of that company presented a petition to the commission to increase rates to 3.6 cents a mile for passenger service and a 40 per cent increase for freight rates. R. I. Todd, president of the company, testified that at present the company is merely meeting operating expenses, but a deficit appears when the interest on borrowed money is paid. Based on a 3.6-cent fare and a 40 per cent increase in freight rates to cover the increased cost of coal and other items, the net

income for the ensuing twelve months would amount to \$872,000, or approximately 6.77 per cent on the original investment, on a valuation basis of \$32,000 a mile for the road.

## Mail Pay Advanced

### I. C. C. Hands Down Long-Expected Finding, Defining "Fair and Reasonable" Rates and Conditions

The Interstate Commerce Commission has announced its decision in the electric railway mail pay case. The commission has approved the space-basis system as fair and reasonable and has stipulated that the Post Office Department shall assume side, terminal and transfer service or pay for such service on ascertainment of its cost. The findings are to become effective on or before Dec. 6, 1920.

The commission set a rate for transportation of closed-pouch mail on a car constructed and run primarily for passenger service, with no separate compartment for mail, baggage and express, at 4 cents per mile of authorized car run, for ten pouches, sacks or parcels, or less. Where more than this number are regularly tendered at least 60 cu.ft. of space is to be authorized and the rate for the first 60 cu.ft. is to be 5 cents per mile run. For each additional 30 cu.ft. or fraction 1 cent per mile is to be allowed.

The rate for space in baggage or express cars or in baggage and express compartments of passenger cars is to be 3 cents per mile for the first 30 cu.ft. and 1 cent per mile for each additional 30 cu.ft. or fraction.

#### RATES FOR INDEPENDENT CARS

The rate for independent cars devoted to the transportation of the mails, on which railroad employees handle the mails, is to be 1½ cent per linear foot per mile for cars 20 ft. or less in length, inside measurement, and for larger cars 1½ cent per foot for the first 20 ft. and ¾ cent per foot for the additional length. When the postal employees handle the mail in railway post office cars the respective rates are 1¼ cent, and 1¼ and ¾ cent.

The minimum annual rate on any electric railway mail route is to be \$175.

When the railway companies are required by the Department to perform side, terminal or transfer service they are to be separately compensated on the basis of cost plus 3 per cent, whether the service is furnished by contracting or by the railways' employees. Cost in the latter case will include value of employees' time.

At least once in two years the Postmaster-General is to conduct tests to determine the number of pouches, sacks and outside packages that will fill 30 cu.ft. of space in a car or compartment thereof.

All of the existing postal regulation provisions with respect to the carriage of mails by electric railways are to continue in force, except as modified by the present ruling.

## Nine-Cent Fare in Davenport

### Court Permits This Rate to Take Effect After Proof That Seven-Cent Fare Was Inadequate—Settles Long Controversy

Inability of the Tri-City Railway, Davenport, Iowa, to secure relief from the socialist city administration led the traction lines to apply to the court and to the raising of fare in Davenport from 7 cents to 9 cents. With the 9-cent fare is a provision for three tickets for a quarter. This has been well accepted by the public. The 9-cent fare was put into effect on Aug. 28 by order of Judge A. J. House in the District Court when the traction lines introduced a sworn statement of earnings showing the 7-cent fare to be confiscatory.

**T**HE 7-cent fare was also collected on a temporary injunction issued by the same judge. This order was secured on May 28 on the petition of a score of leading Davenport merchants. By it the city was enjoined from enforcing the old franchise rate of 5 cents. But this 7-cent fare proved inadequate and the company petitioned on Aug. 19 for a modification of the existing injunction. Basing its plea on the charge that the 7-cent fare was "unreasonable, unjust and confiscatory," and supporting this charge with a statement that the existing deficit on the company's books was \$119,371, the company asked for a 10-cent fare.

#### BIG INCREASE IN WAGES

Increased labor cost was also cited by the company. When the 7-cent fare became effective the wage scale had a 60-cent maximum. Shortly afterward the trainmen's demands were settled by a board of arbitration with an advance of the maximum scale to 70 cents an hour.

With this advanced wage the net loss in June and July of 1920 was \$11,412. This, if continued for a year, would amount to \$68,816. It was estimated that even a 10-cent fare, with an approximate return of \$159,098 annually, would fall \$96,901 short of an 8 per cent return on the investment.

The company was able to cite the recent notable decision of the Iowa Supreme Court in the Ottumwa case in which it was held in substance that a franchise rate was not binding if it could be shown that the franchise rate was confiscatory.

#### CITY'S ARGUMENTS WEAK

Against this legal argument, backed with operating figures, the socialist city administration was able to offer but a weak opposition. The city had no contradicting facts to offer. An attempt was made to prove that the Iowa Supreme Court decision did not apply to the Tri-City Railway because it operated in other incorporated towns in Iowa and was therefore an interurban road. Another argument of the opposition was that the company's valuation figures were wrong because they did not coincide with assessed valuation figures on the tax books. The city's representatives also made other charges, mostly of a general nature, which they were unable to substantiate.

Judge House, after hearing both arguments, granted a temporary modification in his previous temporary in-

junction and raised the rate from 7 cents to the following schedule:

Adult cash fares, 9 cents.  
Adult ticket fares, 8½ cents.  
Children, 7-12 years, 5 cents.  
Tri-city commutation tickets, 16 cents.

On the latter ticket a continuous ride is given from any Davenport, Ia., to any Rock Island or Moline, Ill., line. Bridge line tickets, taking a passenger from Davenport across the river to Rock Island, are 8 cents.

#### TICKET RATE POPULAR

The three tickets for a quarter provision has made the advanced rate popular. These tickets have been placed on sale at banks, department stores, cigar stands and many other stores and have enjoyed a heavy sale. With each three tickets a serial numbered receipt is attached. On cash fares a separate receipt is given. Both receipts entitle the holder to a refund if the present rate is not upheld by a permanent injunction.

Under the increased fare riding has fallen off but to what an extent the Tri-City Railway is not ready to make an official statement. Weather has been exceptionally fine, and traffic on short haul lines has been lighter than expected. While the percentage of decrease is greater than the company estimated, President B. J. Denman expects it to return near to normal as weather conditions become less favorable to walking.

#### WANTS MORE IN ILLINOIS

Within a week the company will take steps for an increase in Illinois, where the present fare, set by the Public Utility Commission, is 8 cents. Ten cents has already been asked and a hearing is expected in September. The commission has not yet set a date for this hearing.

Although the trainmen received a 10-cent increase through the board of arbitration last June, they have presented demands for a still further increase. Their present demand is time and a half pay for overtime. They now receive straight time, or 70 cents an hour maximum, for overtime. This demand has been referred to the old arbitration board and consideration of it or refusal to take up the matter is expected soon.

The action of Judge House in allowing the higher rate to take effect marks the end of a long struggle on the part of the company to secure financial relief. The city may appeal the case to the higher courts.

## Jitney Law Valid

### Court Upholds Regulatory Measure Passed by Waterbury Aldermen—Operators Denied Injunction

Judge George E. Hinman of the Superior Court has found that the action of the Aldermen of Waterbury in adopting the jitney regulatory ordinance was not so unreasonable as to render the measure invalid or to open its validity to such extent that its enforcement should now be enjoined. The court says that the suspension of the enforcement of the ordinance pending final hearing and the determination of the action are not warranted by the situation presented. The application for a temporary injunction was therefore denied. The ordinance sought to be enjoined designates as traffic routes for public service motor vehicles all except certain streets and portions of streets mentioned in the ordinance. Counsel for the jitney men claimed the ordinance to be void on the ground of unreasonableness.

#### JITNEYS UNDER CONTROL

Thomas F. Moore, secretary of the Chamber of Commerce of Waterbury, Conn., recently proposed that the city rely solely upon the trolley. That body, though its transportation committee, filed an elaborate survey of the local situation with the Board of Aldermen, who adopted the recommendations and passed an ordinance restricting the jitanes from operating on streets now served by the electric railway. In concluding his report Mr. Moore said:

The solution of the present problem must be through regulation of the motor vehicle and establishment of a fair basis of competition. It is impossible to define without an actual traffic survey just what combination of trolley and jitney will be ideal. It must be learned by experiment and experience. The number of trolleys operating in Waterbury varies from thirty-three in the slow hours to eighty-two in the rush hours of the day. During the month of June, a daily average of 46,852 passengers carried shows the seriousness of the problem.

A study has been made of the number of cars in service, their capacity, their schedule, routes, etc., and it is only after such investigation that the immensity of the passenger transportation situation can be grasped. According to public service operators, there are approximately 100 motor vehicles in public service use, including about thirty-eight large buses, and about forty smaller cars operating on the Naugatuck-Waterbury route. It is evident that large numbers of people are served by both vehicles and that to continue this service, careful action must be taken. The following procedure would seem to offer a possibility of ideal solution:

1. The trolley must for a period of experiment at least, be given the exclusive privilege of accepting and discharging passengers on the streets now occupied by their tracks.

2. The traffic division of the Police Department, or some especially appointed party, should make a survey, and check upon the service rendered.

3. Motor vehicles in the meantime should be permitted to operate on lines not served by the trolley and should, during this period, endeavor to supply that new service which will win them the sanction of public opinion.

4. If under such regulation it is evident that the trolley cannot or does not provide adequate service at reasonable rates, either to certain sections or at certain hours of the day, provision should be made to allow a supplementary use of motor vehicles under regulation in those sections or at these hours.

The above suggestions offer a careful test and should prevent extreme measures which may work to the detriment of the public service. At the same time they permit of

the proper development of motor bus service and provide for its reinstatement along all lines in so far as trolley service is inadequate. This solution recognizes the indispensability of the trolley, and also the merits of the motor vehicle through which it may hope to win the approval of public opinion. It may cause temporary inconvenience of some degree, but those so inconvenienced should see the problem in its entirety and judge accordingly.

#### GENERAL REGULATION IMPERATIVE

Regulation of motor bus transportation—Regardless of the regulation as to routes of public service motor vehicles, there must be ultimately a general regulation either by state or municipal legislation which will safeguard the interest of the public. Such regulation should include:

1. Licensing of public service motor vehicles.
2. Establishment of a standard, assuring competence of operators.
3. Establishment of routes, schedules, and tariffs.
4. Limitation of passengers to trade capacity of cars.
5. Requirement of certain safety appliances and certified condition of vehicle.
6. Such miscellaneous conditions, as no collection of fares while in motion, no smoking in cars, the report of accidents to police, the display of tariff rates, inspection of vehicles, and the method of acceptance and discharge of passengers.

Distinction must be made between the regular public service and the service performed by so-called taxis which are now governed by sufficient municipal regulations.

CONCLUSION.—This report has been made by a committee whose sole purpose is to set forth that solution of a serious problem, which will work to the best interest of the public of Waterbury. The problem must be solved as soon as possible before it assumes proportions which will threaten the welfare of every resident of Waterbury and which will make solution all the more difficult and disastrous.

## Louisville Request Provokes Comment

The Allied Public Service League of Louisville, Ky., has decided that the Louisville Railway had failed to show justification of 7-cent fares and has condemned the action of the Round Table in favoring that fare under a service-at-cost plan.

The chief objections to the Round Table's solution of the railway problem were the service-at-cost feature and the proposed change in the company's perpetual franchise. The local Trades Union Assembly has also declared against the fare increase, but this may be discounted in view of the failure of the strike of the trainmen last year.

The Advertising Club has come out in favor of 7 cents and two of the daily newspapers, long suspicious, have declared themselves convinced that the company needs the fare. All four of the daily papers are urging city officials to take immediate action one way or the other and questions the motives of the city authorities for their inaction.

## May Raise Youngstown Fares

Indications point to an increase in the rate of fare at Youngstown, Ohio, from 9 to 10 cents, with 1 cent for each transfer. It is reported that the stabilizing fund of the Youngstown Municipal Railway has fallen below \$50,000, which is the minimum limit. The report of operations for July had not reached Street Railway Commissioner W. L. Sause on Aug. 25. This report may change the status of the fund to some extent, but possibly not suffi-

ciently to retain the present rate of 9 cents, with a penny for transfers.

No provision for a higher rate than the present one was made in the franchise of the Youngstown Municipal Railway, but the City Council is empowered to establish a higher rate, when next to the highest rate has been reached. When this rate, known as rate No. 1 became effective, the company filed a communication with Council, asking that a 10-cent rate be authorized in accordance with the franchise, but Council has so far failed to take action on the request.

During the past few weeks there has been a decrease in the revenue of the company, due to some extent to the high rates. Many persons have walked to save money, it is reported. Another factor is the curtailment of iron and steel mill operations, which has reduced the number of riders.

## Merchandising Transportation Stressed by Commercial Body

The secretary of the Chamber of Commerce of Springfield, Mass., has written to the secretary of the Chamber of Commerce of Bridgeport, Conn., giving its views of local transportation. Some of the outstanding features of the statement of the Springfield body are:

That automotive transportation is yet in its infancy and for several years to come cannot be a reliable means of public transportation.

That industrial expansion is impossible without adequate transportation.

That transportation service must be a monopoly.

The letter says further:

The sentiment in Springfield is that automotive transportation is yet in its infancy and for a number of years to come cannot be a reliable means of public transportation. On the other hand, there must be a satisfactory re-creation of public confidence in electric railway operation. We are convinced that the average city electric railway has omitted a very fundamental operation in its organization, namely, merchandizing its service, and I think that articles like those by Walter Jackson, street transportation engineer, are splendid for their suggestive value for the railways adequately to merchandize their service to their community.

## Interurban Rise Attacked

Steps have been taken by the Kentucky Railroad Commission to proceed in the courts against the Louisville & Interurban Railroad, Louisville, as the result of an increase in the rate of fare charged by the company from a basis of 2½ cents a mile to one of 3 cents a mile. The new rate became effective on Sept. 1, the company acting in the matter without first consulting the commission. The 2½-cent rate was set by the commission on Aug. 1, 1919, to stand until the commission saw fit to authorize a change. The commission has ordered Attorney General Dawson to institute injunction proceedings to restrain the railway from collecting the new rate. This is the first occasion on which the commission has attempted to indict an electric railway and is the first step taken to determine what power is lodged in the utilities board.

## Transportation News Notes

**Eight Cents in Dixon.**—Cash fares on the city lines of the Sterling, Dixon & Eastern Electric Railway, Dixon, Ill., were raised on Aug. 13 to 8 cents. The fare between Dixon and Sterling was raised to 25 cents. The increase was authorized by the State Public Utilities Commission.

**Appeals to Court in Fare Case.**—The Jersey Central Traction Company, Keyport, N. J., has appealed to the State Supreme Court from a recent ruling of the State Board of Public Utility Commissioners refusing it permission to increase its fares. The company had applied for an advance from 7 cents to 10 cents in each zone.

**Tokens in Toledo.**—The metal tokens adopted for use in the fare boxes of the Toledo Railway & Light Company, Toledo, Ohio, were put in service on Sept. 1. The coins are smaller than a penny and are made of white metal. They have the Doherty emblem on one side and the legend "One Fare—T. R. & L. Co.—F. R. Coates, Pres't." on the other. A triangular hole is cut in the center. The tokens are sold at the rate of three for 20 cents.

**Trailers Soon on Baltimore Lines.**—One hundred new trailer cars will shortly be operating on the lines of the United Railways & Electric Company, Baltimore, Md. The cars have already been ordered and the first four arrived in Baltimore on Sept. 1. Two-car trains have been in use in Baltimore for a number of years and the present cars will be used in the same manner as the company is now operating two-car trains to Sparrows Point.

**May Raise Pine Bluff Rate.**—An ordinance has been introduced in the City Council of Pine Bluff, Ark., which, if passed, will permit the Pine Bluff Company, operating the electric railway system in that city, to raise its fare from 6 cents to 7 cents. The proposed measure authorizes the company to sell four tickets for 25 cents. It also provides for an increase in power rates of 1 cent a kilowatt. The company recently raised the pay of the carmen in its employ.

**Chicago & West Towns Gets Increase.**—Effective on Aug. 4 the Chicago & West Towns Railway, Chicago, Ill., was granted an increase which abolished all ticket rates and established a minimum fare of 10 cents. The fare from Chicago to LaGrange, Ill., remains at 15 cents, though the fare within LaGrange, as in other towns served, is 10 cents. This abolishes the former rate of 7 cents cash with four tickets for 25 cents within towns and a 10-cent-

cash fare or 8-cent ticket between towns.

**Jersey Line in Need.**—The Burlington County Transit Company, Hainesport, N. J., has applied to the State Board of Public Utility Commissioners for permission to increase its fare to 7 cents where 5 cents is now charged. The company is now charging at the rate of about 2 cents a mile, and the proposed increase will make the rate about 3 cents. The road has never been a financial success. The company is one of the last in the State to apply for an increase in fares and the last to operate on a 5-cent schedule.

**Seven Cents in Bellingham.**—The Washington Public Service Commission on Aug. 26 permitted the filing of a 7-cent fare schedule by the Puget Sound Traction, Light & Power Company for its lines in Bellingham. The commission fixed Sept. 1 as the date for the new fare to become effective. The City Council of Bellingham approved the 7-cent fare, on condition that the carmen be given wage increases. The individual fare increase is from 6 to 7 cents, with the number of commutation tickets purchasable for \$1 reduced from seventeen to fifteen.

**Six Cents in St. Paul.**—A 6-cent fare will go into effect in St. Paul, Minn., on Sept. 13, making the rate the same as in Minneapolis. At present there is a neutral zone into which Minneapolis patrons ride for one fare, about two miles within St. Paul territory. Business organizations have asked for retention of this zone. The St. Paul City Council will amend its ordinance so that control of this zone fare is retained by the Council. The increase in fare was granted to the Twin City Rapid Transit Company to enable it to meet the demands of its carmen for an increase in wages. The St. Paul carmen had threatened to strike unless their pay were raised.

**Hull Pensioners Carried Free.**—Old age pensioners of the city of Hull, England, of whom there are 5,000, may hereafter ride in the trains of the tramways company without payment of fare. Heretofore this privilege has extended to the blind and to men who lost a leg in the war. The decision of the tramways committee was not put into effect without opposition, however. The tramways manager estimated that it would cost the company £10,000 a year. Also it was insisted that the Government should increase the old age pensions. All these objections were finally voted down, and hereafter old age pensioners may ride free on Hull tramcars.

**Will Raise Interurban Rates.**—Notice has been filed with the State Public Service Commission by the Puget Sound Traction, Light & Power Company, Seattle, Wash., that passenger fares on the company's interurban lines will be increased an average of 11 per cent effective Oct. 1. Tariffs embodying freight rate increases on the same lines, ranging from 20 to 25 per cent, to correspond with increases granted to

steam roads, are being prepared for filing, and will take effect not later than Oct. 1. The new passenger fares are based on a mileage basis, with minimum charges fixed in the new rates, both on a single trip to any point, on school tickets, commutation tickets and general tickets for children taking half fare.

**New Vote on Duluth Fares.**—Voters of Duluth, Minn., will decide on Oct. 4 whether the Duluth Street Railway shall be allowed to charge a 6-cent fare on its local lines. An ordinance granting the company an increase from 5 cents to 6 cents was turned down at a referendum election on June 21. Following the rejection of the measure the car men asked for a pay increase. This demand the company refused on the ground that the payment of higher wages was impossible under the nickel fare. On July 20 the men walked out, but returned to work after a one-day strike with the understanding that their wages should be increased and that a new fare ordinance should be submitted to the voters.

**P. R. T. Petition Withdrawn.**—Permission has been granted to the Philadelphia (Pa.) Rapid Transit Company by the State Public Service Commission to withdraw the rate schedule under which the company proposed to increase its fare through the elimination of free transfers and the charging of 3 cents for exchange tickets. The schedule was filed by the company on June 1 last, but was never put into effect because of opposition from the city authorities. Thomas E. Mitten, president of the P. R. T., recently applied to the commission for authority to withdraw the schedule. Such a course was opposed by the municipal authorities on the ground that it would jeopardize the appraisal of the company's property, now under way. In allowing the company to withdraw the 3-cent rate, the commission directed that the appraisal be continued.

**Tokens Cost More at Pittsburgh.**—Pittsburgh car riders began paying an increased rate for tokens on Sept. 1, the Pittsburgh Railways advanced the token rate from 7½ cents to 8½ cents. The cash fare remains at 10 cents. Three tokens are now sold for 25 cents. To avoid unnecessary expense the company decided not to change the style of tokens in use, relying upon the honesty of its patrons not to stock up on the metal disks in anticipation for the rate advance. Hardly had this announcement been made when a mad rush to buy tokens began. The buying continued uninterrupted for several days. Then the company had to do something or run out of the metal disks. It therefore restricted the sale to two tokens to each rider instead of the customary four for 30 cents. Some of the conductors estimated that 80 per cent of their passengers were buying checks at every opportunity. A few passengers who did a great deal of riding in the days immediately preceding the increase are said to have purchased from fifty to 100 checks each.

## Personal Mention

Charles A. Kolstad, secretary-treasurer of the Elmira Water, Light & Railroad Company, Elmira, N. Y., has resigned to enter the garage business in Seattle, Wash. Mr. Kolstad joined the Elmira system in 1910. Prior to that time he was traveling auditor for the United Gas & Electric Company.

C. I. Kephart, formerly electrical and valuation engineer of the Oregon Public Service Commission, has removed to Washington, D. C., where he has taken up his new duties as an examiner with the Interstate Commerce Commission. Mr. Kephart has been connected with the Oregon Commission for several years.

Arthur F. Brooks has been appointed superintendent of lines of the Brockton

### D. J. Strouse, Comptroller

Auditor of the Twin City Rapid Transit Company Has Been Promoted—  
Mr. Macdonald Also Advanced

To facilitate the handling of the financial affairs of the Twin City Rapid Transit Company, Minneapolis, Minn., the office of comptroller has been re-established. Daniel J. Strouse, for several years auditor of the company, has been appointed to the new position. S. Macdonald has been given the title of assistant comptroller. The office of auditor has been abolished. Mr. Strouse and Mr. Macdonald will co-operate with E. A. Crosby, treasurer of the company, in directing the financial aspects of the operation of the traction system of Minneapolis and St. Paul.

Mr. Strouse was born on Nov. 6, 1879, at Charles City, Iowa. He attended the public schools there and for a short time was a student at Nora Springs, Iowa. He was then employed by an abstract firm for three years and later represented Fleener & Carnahan, an Indianapolis firm of tax experts, for three years, checking up tax matters for the State and for various counties. In 1903 Mr. Strouse removed to Minneapolis, where he became general bookkeeper for the local traction system. Four years later Mr. Strouse was promoted to auditor.

Mr. Macdonald is thirty-six years old. He is a native of Duluth, Minn., where he made his home until five years ago. He received a common school education and in 1900 entered the service of the Duluth Street Railway as an office boy. After working in various capacities he was transferred to the accounting department, and, in 1912, he was made auditor of the company. Three years later he resigned to become assistant to the auditor of the Twin City Rapid Transit Company, continuing in that capacity until his recent promotion to be assistant comptroller.

Roy Connell, a signal inspector of the Brooklyn, (N.Y.) Rapid Transit System, has been appointed sales engineer of the General Railway Signal Company with headquarters in New York City. Mr. Connell entered railway work in 1895 as a signal helper with the Chicago & Northwestern Railway. After serving with that road and several manufacturing companies, he became designing engineer of electric interlocking apparatus for the Hall Switch & Signal Company. A year ago he resigned to join the B. R. T.

Franklin T. Griffith, president of the Portland Railway, Light & Power Company, Portland, Ore., has been reappointed chairman of the Water Power Development Committee of the National

Electric Light Association. Mr. Griffith's reappointment to this position comes as a recognition of the splendid work which he has performed during the past year in behalf of the committee. In connection with his duties as chairman of the committee, Mr. Griffith has been spending some time in Washington, D. C., attending a conference of the Federal Power Commission.

George V. Hansler has been appointed assistant superintendent of signals of the Brooklyn (N. Y.) Rapid Transit Company. Mr. Hansler was born in Washington, N. J., on March 9, 1890. In 1901 he went to work in the signal department of the New York Central Railroad. He was later employed in the capacities of signalman, wireman and foreman, at various times, by the Hudson & Manhattan Railroad, the New York, New Haven & Hartford Railroad, the Long Island Railroad, the Erie Railroad and the General Railway Signal Company. He entered the service of the B. R. T. in June, 1914, and was assigned to the signal division as

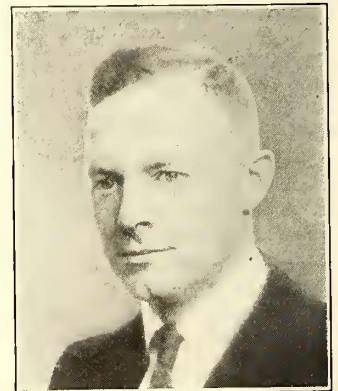


D. J. STROUSE

division of the Eastern Massachusetts Street Railway, Boston, Mass. Mr. Brooks will have charge of both office and construction work for the division. He has been connected with the company and its predecessor, the Bay State Street Railway, for the past fourteen years.

Walter E. Miller has resigned from the staff of the Wisconsin Railroad Commission to engage in private practice as a consulting engineer. Mr. Miller has opened offices in Madison, Wis. He has been connected with the commission for the past fourteen years. His practice will include investigations and studies of steam railroads and electric railways.

R. A. Wilson, general superintendent of the Washington Water Power Company, Spokane, Wash., left Spokane recently for a tour of the Pacific Coast and Middle West States. Mr. Wilson will be gone from his desk for about six weeks. He will inspect the large amusement parks in various cities to obtain new ideas for use at Natatorium Park, operated by his company.



S. MACDONALD

a signal maintainer. In May, 1919, he was appointed assistant supervisor of maintainers. He was later promoted to supervisor of maintainers.

George S. Williams, whose appointment as general manager of the Androscoggin Electric Company, Lewiston, Maine, was announced in a recent issue, has been connected with the Central Maine Power Company for a number of years. While devoting most of his attention to his new duties at Lewiston, Mr. Williams will continue his connection with the Central Maine organization as general superintendent. Mr. Williams was born in Augusta, Maine, Sept. 9, 1882. In 1903, after studying for three years at the University of Maine, he became connected with the old Kennebec Light & Heat Company, which later became a part of the Central Maine Power Company. From June, 1903, to May, 1904, Mr. Williams worked in Augusta. He was then sent to Gardiner, where he worked for two years as lineman and inside wireman. Three years ago he became general superintendent of the company.

A. V. Kipp, general passenger and freight agent at Butte, Mont., for the Oregon Short Line, has been appointed to a similar position with the Salt Lake & Utah Railroad, Salt Lake City, Utah. Mr. Kipp began his railroading experience twenty years ago as traveling freight agent of the Union Pacific.

R. N. Ward has been appointed claim agent of the Southern Public Utilities Company, Charlotte, N. C. Mr. Ward succeeds the late Luther Guy. For the past fifteen years Mr. Ward has been connected with the Southern Railway as claim agent, chief clerk to the division superintendent, and in other positions. His headquarters will be at Greenville, S. C.

Dr. S. W. Stratton, director of the National Bureau of Standards, has sailed for Europe to attend a meeting of the International Bureau of Weights and Measures in September. Dr. Stratton will be the principal American representative to discuss proposed changes in function and scope of the bureau to include custody of other standards than weights and measures.

Wigginton E. Creed has been elected to succeed Frank E. Drum as president of the Pacific Gas & Electric Company, Sacramento, Cal. The company owns about 40 miles of electric railway line in addition to operating large central station installations. Mr. Creed is president of the Hooper Lumber Company and is interested in the East Bay Water Company, Oakland, Cal. Mr. Creed was the guest of honor at a recent banquet at the Palace Hotel, San Francisco, given by John A. Britton, vice-president and general manager of the Pacific Gas & Electric Company, to the board of directors, heads of departments and district managers of the company. Mr. Drum was president of the company for several years. He resigned to give his attention to other enterprises.

Lyndon Clapp has returned to the service of the Boston (Mass.) Elevated Railway after an absence of two years, during which he has held the position of assistant superintendent of the Water Department of Waltham, Mass. Mr. Clapp will resume his work in the engineering department of the Elevated. He was born in Boston in 1874. Removing to Waltham at an early age, he was educated in the public schools of that city, graduating from the Waltham High School in 1894. After serving for a number of years as rodman and timekeeper on various construction projects he went to the city of Newton as transitman. Later he was employed by the firm of Pierce & Barnes on the laying out and rebuilding of several lines of the Bay State Street Railway, now the Eastern Massachusetts Street Railway. In 1906 he entered the employ of the Boston Elevated Railway, his work consisting of the making of surveys and track building. Two years ago he resigned to become assistant superintendent of the Waltham Water Department.

## R. B. Palmer Advances

Chief Engineer Succeeds H. E. Allen as General Superintendent of the Saginaw-Bay City Railway

Horace E. Allen, general superintendent of the Saginaw-Bay City Railway, Saginaw, Mich., has resigned. Mr. Allen is succeeded by Russell B. Palmer, who has been serving as chief engineer of the company. In addition to directing the traction properties of Bay City and Saginaw and the inter-urban lines operating between these two cities, Mr. Palmer will have the duties of general superintendent of the North-eastern Division of the Michigan Railroad, the Consumers' Power Company and the Michigan Light Company.

Mr. Palmer joined the Saginaw-Bay City Railway in 1905. He was born in Saginaw in 1887. Two years after entering the company's employ he went to Ann Arbor, where he studied at the University of Michigan, from which he was graduated as a civil engineer in 1911. Following his graduation he rejoined the company, serving in the en-

way in Sept. 1916. In the following year he resigned to become assistant general manager of the Springfield Consolidated Railway. A year ago he returned to the Michigan properties as general superintendent.

## Obituary

Dr. Samuel Sheldon, professor of electrical engineering at the Brooklyn (N. Y.) Polytechnic Institute, died in Middlebury, Vt., on Sept. 5. Professor Sheldon was the author of a number of engineering works and was the joint author of "Electric Traction and Transmission Engineering." He was fifty-eight years old.

Arthur Diekmann, secretary-treasurer of the St. Louis Car Company, died recently after a serious operation. Mr. Diekmann was thirty-eight years old. He had been employed continuously by the company since his graduation from high school at the age of eighteen years. He began as a time-keeper and won his way to a responsible position, at the same time making a host of friends.

Dennis Dwyer, president of the Dayton, Covington & Piqua Traction Company, West Milton, Ohio, died at his home in Dayton, Ohio, on Aug. 27. Mr. Dwyer was ninety years of age. He had been a leading lawyer, business man and traction promoter in Dayton for many years. He was born in Ireland and came to this country when a boy. He secured an education by studying at odd moments and finally completed a law course. For several years he served as a Judge on the Common Pleas bench.

Prof. John Perry, F. R. S., who was closely identified with tramway developments in England and France, died at his home in London on Aug. 4. Professor Perry was well known in the United States, as well as in Great Britain for his work in electrical research. He was born in Garvagh, Ireland, in 1850. Graduating from Queen's College, Belfast, he became an instructor of physics at Clifton. In 1874 he became honorary assistant to Sir William Thomson (Lord Kelvin) at Glasgow. In the following year he went to Japan as Joint Professor of Engineering in the Imperial College of Engineering, where he remained until 1879. In association with the late Professor Ayrton he did much electrical work while in Japan, and on their return in 1879, Professor Perry organized the works of Messrs. Latimer Clark & Muirhead. Jointly with Professor Ayrton, he carried on much electric lighting and traction work. Among his numerous inventions was the multipolar dynamo in 1882. In 1885 he was elected a Fellow of the Royal Society. He retired from the Royal College of Science about six years ago.



R. B. PALMER

gineering department. He has been chief engineer of the railway for a number of years.

Mr. Allen became general superintendent of the property about a year ago. He was formerly assistant general manager of the Springfield (Ill.) Consolidated Railway. He is a graduate of the Massachusetts Institute of Technology. After completing his electrical engineering course there, he accepted a position with the Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa. In 1910 he became connected with the Toledo Railways & Light Company, Toledo, Ohio, under J. F. Collins, then assistant general manager. When Mr. Collins, now vice-president and general manager of the Michigan United Railways and the Michigan Railroad, resigned his position at Toledo, Mr. Allen was placed in charge of the Toledo, Ottawa Beach & Northern Railway and the Maumee Valley Railway & Light Company. He assumed the position of assistant general superintendent of the Michigan Rail-

# Manufactures and the Markets

DISCUSSIONS OF MARKET AND TRADE CONDITIONS FOR THE MANUFACTURER,

SALESMAN AND PURCHASING AGENT

ROLLING STOCK PURCHASES

BUSINESS ANNOUNCEMENTS

## Loom Prices Firm Despite Lower Cotton

**Demand Less and Stocks Are Better, but Raw Material Was Bought at Spring Prices**

Continued firm prices, slight building up of stocks and some decrease in demand mark the non-metallic flexible conduit situation. No immediate price reductions are to be expected, according to manufacturers, notwithstanding the recent declines in the cotton market. These makers claim that they were obliged to buy cotton in advance in order to cover themselves on the large volume of orders which they accepted last spring. As a consequence loom is priced according to the spring price of cotton. In the New York markets current quotations are about \$32.50 and \$35 for  $\frac{3}{8}$ -in. and  $\frac{1}{2}$ -in. loom respectively.

Stocks are beginning to build up and some jobbers and manufacturers can ship immediately. Other manufacturers say that they have orders on hand for the next three months' production. Deliveries have been hampered by railroad trouble, but this trouble is diminishing. Labor conditions are satisfactory and production is reported to be normal.

As a general condition demand is falling off to some extent, though it is still fairly strong. Collections are on the whole very good.

## Sales of Westinghouse and G. E. Growing Fast

**Improvement in Transportation Is Reflected in Recent Increase in Billing of Companies**

In the first six months of 1920 General Electric Company booked total sales of \$190,000,000, or at an annual rate of \$380,000,000. The best figure recorded previously was about \$230,000,000 of gross sales in 1919. No longer ago than in 1916 the company was transacting business at an annual rate of only \$134,000,000. During the first half of this year orders were shipped at a rate of \$260,000,000 per year, but an improvement in transportation facilities is evident from the recent increase in billings which were going forward at an annual rate of approximately \$275,000,000 the latter half of July. Bookings, however, have slightly dropped off, for in the same period orders were received at a rate which would only amount to \$375,000,000 for the year's total. The summer trade slackness is held accountable for this decrease.

The Westinghouse Electric & Manufacturing Company, it is reported, booked orders for April, May and June, the first quarter of its fiscal year, amounting to approximately \$41,000,000, as compared with about \$34,000,000 in 1919. This is at an annual rate of more than \$160,000,000. During the same period the amount of goods shipped totaled approximately \$31,000,000, or almost \$7,000,000 ahead of the figures for 1919. However, outstanding orders on the company's books on

April 1, 1920, the beginning of the fiscal year, were but \$71,000,000, it is learned, while on July 1 the total was approximately \$85,000,000, indicating the increasing transportation difficulties. During the month of July the shipping situation eased up sufficiently to allow orders to be shipped at close to an annual rate of \$160,000,000. Bookings also increased during that time and at present a yearly rate of about \$180,000,000 is said to be a close approximation.

## Buying of Steam Roads Will Affect Market

**Expenditure of About \$750,000,000 in Equipment Should Lengthen Deliveries and Reduce Supplies Available for Traction Companies**

In view of the close connection between the electric and steam railways so far as purchasing much of their equipment in the same market is concerned, the proposed program of expenditures of the latter is very important. The buying of track and roadbed material, car wheels and trucks, signal equipment and many other items by steam roads has a very direct bearing upon the supplies of the same goods available for traction companies. If the large carriers throughout the country should within the next few months place the greater part of orders they are now contemplating the market may be expected to be oversold for a long time to come, with chances of favorable deliveries pushed further into the background.

According to the estimates received by the Interstate Commerce Commission, the needs of the main carriers in the United States, constituting more than 100 lines, will necessitate expenditures aggregating more than \$750,000,000. The greater part of this buying is said to be contemplated for 1921. Orders as yet have not been placed in large volume, mainly because of financial difficulties. Following the relief accorded to railroads by the inauguration of increased passenger and freight rates, however, steps have been taken to raise much of the \$750,000,000 through private loans on the strength of improved credit. The I. C. C. has also approved applications for nearly \$200,000,000 in railroad loans under the provisions of the Esch-Cummins Act. The carriers are now operating on their own initiative since the first of September, and though this may induce a short period of readjustment, it seems logical to believe that in combination with the above mentioned factors, it will result in hastening the anticipated buy-

ing. An indication of this is evident in the increased demand that is even now felt in certain lines, such as spikes, bolts, rails, etc.

More than a fourth of the estimated expenditures that will be made for improvements and extensions will be applied on track and roadbed equipment it is reported. Not quite a fourth of the total sum will go for rolling stock additions and repairs, and included in this quota is a provision for 30,000 box cars alone, not to mention open top cars, passenger coaches, refrigerator cars and locomotives. All this equipment will vitally affect the market for purchases along similar lines by electric railways. The balance of the budget will be divided among stations, shops, signal plants and among other departments.

## Menace to Trade in Cancellation of Orders

**National Chamber of Commerce Reveals Wide Extent of Practice—Danger in Regarding It Leniently**

From time to time reports are received from electrical manufacturers of cancellations in their field. This is a tendency which, if regarded as unimportant, may assume serious proportions, according to the Chamber of Commerce of the United States. The latter has completed a survey of the manufacturing field which reveals the great prevalence of the cancellation evil in almost every phase of business. No separate classification of the electrical industry is apparently made in this report, but the general conclusions are interesting.

Inquiries were sent to 106 leading trade associations to learn the situation.



Some of the chief reasons given for cancellations were: Inability to make prompt delivery, overstock, business declining, revision of production schedule and financial embarrassment. The lumber industry seems to have been one of those hardest hit, as over 3,500 cars have been canceled in one division alone since January.

Responsibility does not rest wholly with the buyer, however, it is stated. Some factories have been in the habit of accepting considerably more orders than they knew they could fill, with the expectation that a certain proportion would be canceled. It is this tendency to regard the practice leniently which is said to represent a menace to the integrity of the country's business structure, as even the most upright of customers have indulged in the practice.

Several trade organizations have taken steps toward remedying the situation by creating advisory bureaus to pass upon the claims for cancellation grounds. The Chamber of Commerce will also take further steps in attempting to preserve the validity of all contracts.

## Production of Friction Tape Increasing

Output Is Reducing Back Orders—  
Demand for Cotton Tape Is  
Especially Heavy

Friction tape is being produced at a rate which is rapidly overcoming back orders, according to leading manufacturers. Cotton insulating tape, on the other hand, is in great demand, and production is falling behind orders. A leading maker of friction tape recently informed the *ELECTRIC RAILWAY JOURNAL* that all production records were broken in his plant in a recent week, a total of 200,950 lb. being turned out. Tape manufacturers state that the raw material supply is now very satisfactory. Transportation conditions are improving, and a slackening of demand compared with a few weeks ago is facilitating the filling of back orders. Stocks are spotty, some makers having little tape on hand and others being prepared to make almost immediate shipment. Recent moderate reductions in the price of cotton have been insufficient to affect the price of friction tape to any extent. The latter quotes in representative cases from 60 to 70 cents per pound, according to quantity and quality involved. A representative jobbers' price last week on  $\frac{3}{4}$ -in. black friction tape was 68 cents per pound on lots of less than 10 lb., 60 cents on 10 to 25-lb. lots and 57 cents on 25 to 100-lb. lots.

One prominent distributor has sold four times as much tape to date this year as for the same period last year, and still can make immediate deliveries on fairly good-sized orders. Another producer reports 80 per cent more business this year, the month of July showing the largest production in the company's history. Foreign business is

running about 15 per cent ahead of last year, this manufacturer states. Deliveries can easily be made in two to three weeks in large quantities. Labor conditions are steady for the time being, and since the wage increase accorded about three months ago production has been coming along well. Black and gray tapes are being sponsored vigorously by some manufacturers at present for use instead of white friction tape.

High-quality woven tapes used in the insulation of electrical machinery coils are in great demand. Deliveries are being quoted on about three months' basis. Prices are firm, with extremely wide range according to weave, size and quality purchased. A representative tape of high-class finish used in field coil winding sells for about \$3 50 per gross yard, and a good quality used in armature coil work runs around \$2. The cost of labor is a primary factor in price advances that have been made in the past, as well as in the increases in the price of the high-grade cotton involved in manufacture. No less than four handlings are required in preparing the raw yarn for weaving in one of the leading makes, and after the weaving the finishing process or calendaring to exact size calls for skilled work. The thinner tapes must be finished with extreme accuracy on account of the space limitations of slots. It is not feasible to predict future price movements, but so long as raw material and labor costs remain close to present levels it is hard to see any early downward movement. Factory stocks are practically cleaned out and orders are holding up well.

## Smaller Bulbs in 23-Watt Street Railway Lamps

The Edison Lamp Works of the General Electric Company announces that the 23-watt, S-19 bulb street railway lamp, listed on page 11 of its *Data Book*, will be superseded by an S-17 bulb. Arrangements have already been made to carry out this plan and from now on all of these lamps will be made with the S-17 bulb, which is similar in all respects to the S-19 type except that it is smaller in size. The new bulb is  $2\frac{3}{8}$  in. in diameter compared with  $2\frac{5}{8}$  in. for the old model. The new bulb is also smaller in length, giving a height of  $4\frac{1}{4}$  in. over all instead of  $5\frac{1}{4}$  in. as in the S-19 type.

The reason for making the change is because of the saving in glass effected and the smaller space required for packing and shipping the lamps. The lighting qualities of the two bulbs are the same.

The new S-17 bulb is designed to operate in series with the old type so that customers who may not wish to make the change all at once will be able to use both bulbs. Because of the advantage of giving a uniform appearance, however, it is advised that a whole car should be changed over at one time.

## Rolling Stock

Chicago Surface Lines, Chicago, Ill., has requested bids on fifteen standard safety cars.

Spokane & Eastern Railway & Power Company, Spokane, Wash., is spending \$300,000 this year in improvements to rolling stock, mostly in electric equipment, and for bridges. The city cars are being remade into one-man cars, one-half of which have already been so altered.

Twin City Rapid Transit Company, Minneapolis, Minn., is changing over 300 cars to the front exit type. Castings have been delaying the work, but are now being received at the shops. New heating apparatus will be installed to cope with the severe climate. About 175 of the remodeled cars will be placed in service on the Minneapolis lines and the balance in St. Paul.

Pekin Municipal Railway, Pekin, Ill., will receive three new cars within the next thirty days. The cars are now being built by the American Car Company, St. Louis, Mo.

Northampton Street Railway Company, Northampton, Mass., has purchased two McGuire-Cummings sweepers, to be delivered on Oct. 1.

Omaha, Lincoln & Beatrice Railway Company, Lincoln, Neb., announces that it is in the market for a snow sweeper.

The Richland Public Service Company, Mansfield, Ohio, states that it has purchased two four-motor equipments to replace old motors on two interurban cars. The new motors are General Electric, No. 247.

## Track and Roadway

Eastern Massachusetts Street Railway, Boston, Mass.—The Eastern Massachusetts Street Railway was granted permission to extend the tracks of a turnout on Water Street, between Main and Church Streets.

International Railway, Buffalo, N. Y.—Street and track repairs which will cost \$500,000 will be undertaken at once in Buffalo by the International Railway. Herbert G. Tulley, president of the company, has submitted to the City Council a list of streets in which the company will make improvements.

International Railway, Buffalo, N. Y.—City Manager E. J. Fort of Niagara Falls has been authorized by the City Council to advertise for bids for repaving between the tracks of the International Railway, Buffalo, on certain Niagara Falls streets. The company has agreed to repay the city in ten annual installments.

New York (N. Y.) Railways.—Federal Judge Mayer has authorized Job. E. Hedges, receiver of the New York Railways, to sell the property covering the block between Park and Lexington Avenues and Thirty-second and Thirty-third

Streets, which was used by the Madison & Fourth Avenue Railroad as a carhouse. It is believed that orders authorizing the receiver of the New York Railways to sell other carhouse property in the vicinity of Fiftieth Street will be signed soon.

**Trenton & Mercer County Traction Corporation, Trenton, N. J.**—The Trenton & Mercer County Traction Corporation is making a number of improvements to the line in the centre of Trenton. New switches and rails are being laid on East State Street and in other sections.

**Public Service Railway, Trenton, N. J.**—The Borough Commission of Collingswood, N. J., has ordered the Public Service Railway to lay a new roadbed and tracks from Lincoln Avenue to the city line. The company last spring gave notice that the work could not be done this year because of limited finances, but the borough officials insist that the improvement be done at once so concrete paving can be laid.

**Omaha, Lincoln & Beatrice Railway, Lincoln, Neb.**—The Omaha, Lincoln & Beatrice Railway in the early fall expects to complete 2½ miles of track.

**Richland Public Service Company, Mansfield, Ohio.**—The Richland Public Service Company expects to build ¾ mile of new track of 100 lb. "A. R. A." rail laid in concrete with International Steel ties and paved with brick.

**Oklahoma Railway, Oklahoma City, Okla.**—The Oklahoma Railway, which owns and operates an interurban line between Oklahoma City and Guthrie, will soon begin work on an extension of the line from Guthrie to Stillwater, the seat of the Oklahoma Agricultural and Mechanical College, according to announcement by John W. Shartell, president.

**Portland Railway, Light & Power Company, Portland, Ore.**—The Portland Railway, Light & Power Company has notified the Public Dock Commission that it will operate the extension of the St. Johns Street railway line to municipal terminal No. 4 at actual cost. It was originally agreed that the traction company would operate the extension at cost plus 10 per cent, thus giving the company a profit, but the commission recently issued an order that the extension be operated on a cost basis.

### Power Houses, Shops and Buildings

**Omaha, Lincoln & Beatrice Railway, Lincoln, Neb.**—The Omaha, Lincoln & Beatrice Railway is constructing a storage house and repair shop 50 ft. x 150 ft. The construction is absolutely fire-proof, being reinforced concrete with tile roof and steel sash.

**Richland Public Service Company, Mansfield, Ohio.**—The Richland Public Service Company is just completing the installation of a new 10,000 kw. G. E.

turbine and the construction of an additional 11-mile 66,000-volt transmission line. The construction of a 15,000-kw. outdoor substation is being started.

**Northern Ohio Traction & Light Company, Akron, Ohio.**—E. B. Atchley, publicity manager of the Northern Ohio Traction & Light Company, announces that real progress is being made on the new \$300,000 East Akron carhouse. The work is being done by the H. P. Moran Construction Company. The building is of brick with stone trimmings. Plans have been made for the storage of 100 cars in the carhouse and the work of installing machinery of the latest type will begin shortly.

**Mobile Light & Railroad Company, Mobile, Ala.**—The Mobile Light & Railroad Company has drawn plans for a new carhouse 100 ft. x 192 ft. The building will be of Truscon steel with concrete foundation and pits. At present the company is installing one new 768-hp. Class "M" 28 Stirling boiler to be equipped to burn fuel oil. Recently the company contracted for one new 1,000-kw. Westinghouse steam turbine, connected through reduction gears to Westinghouse 600-volt d.c. generator. Delivery on this unit will be expected in about eight months.

### Trade Notes

**The Black & Decker Manufacturing Company, Towson Heights, Baltimore, Md.**, has increased its capital stock from \$350,000 to \$2,000,000.

**The J. G. Brill Company, Philadelphia, Pa.**, announces that its London office has been removed from 110 Cannon Street to 150 Southampton Row, London, W. C. 1.

**The Arrow Electric Company, Hartford, Conn.**, manufacturer of switches and other electrical equipment, has awarded contract for construction of an addition to its plant, 33 ft. x 40 ft.

**The Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa.**, has awarded contract for the erection of a one-story addition to its plant at Essington, 120 ft. x 200 ft., to be used as a foundry.

**The General Electric Company, Schenectady, N. Y.**, has filed plans for the construction of a one-story building at its plant at Columbia Avenue and Putnam Street, Baltimore, Md., recently acquired from the government. The factory will be used for the manufacture of electric switches and other specialties. It also announces that the Fort Wayne Electric Works of the company at Fort Wayne, Ind., has filed plans for the erection of a building there, at Wall Street and Broadway, to cost about \$325,000.

**The John C. Dolph Company, 168 Emmett Street, Newark, N. J.**, manufacturer of insulating varnishes and compounds, announces the appointment of Baker-Joslyn, 183 First Street, San Francisco, Cal., with branches in Los Angeles, and Seattle, Wash., as gen-

eral sales agents and distributors of its products on the Pacific Coast. L. D. Fleig, 212 West Austin Street, Chicago, Ill., has been appointed general Middle Western sales agent. The Edgar O. Oeters Company, the Bourse, Philadelphia, will represent the company in Philadelphia and contiguous territory.

**The Roller-Smith Company, 233 Broadway, New York City**, announces that C. H. Mohr has been added to the sales force of its Baltimore representative, the Perkins-LeNoir Company, 113 East Franklin Street. He will devote his attention to the various lines of electrical apparatus handled by the Perkins-LeNoir Company and will specialize in the Roller-Smith products, comprising electrical instruments, meters and circuit breakers. Mr. Mohr has been connected in the past with the Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa., and with the Standard Electric Elevator Company, Baltimore.

**The Johnson Fare Box Company**, manufacturer of the registering fare boxes used on the cars of a great many city properties, has moved into its new building in Ravenswood, Chicago, Ill., which it is expected will greatly facilitate the production of fare boxes and enable the company to make more prompt deliveries. The business of the company has grown so extensively in the last few years that its old quarters were outgrown and it was decided that the best way of enlarging its manufacturing facilities was to build a plant of its own. The new building has a frontage of 125 ft. and a depth of 167 ft. It is a three-story building constructed of concrete and brick with continuous windows on all four sides which provide unusually good lighting and ventilation facilities. The floor space totals over 62,000 sq. ft. and about 400 men are employed.

### New Advertising Literature

**Fare Register.**—"Time and Tide" is the title of a booklet distributed by the Ohmer Fare Register Company, Dayton, Ohio, describing the Ohmer fare register.

**Reversible Seats.**—The J. G. Brill Company, Philadelphia, has issued bulletin No. 246, which describes and illustrates the "Winner" and the "Waylo" types of Brill reversible seats.

**Copper Wire, Cables, Etc.**—The Copper Clad Steel Company, Rankin, Pa., Braddock post office, has issued five four-page leaflets covering its "Copperweld" bond wires for aerial cables, signal service, low-voltage power transmission and for power transmission and distribution.

**Counters.**—"Veeders Counters Checking Up Production" is the title of catalog No. 1901, issued by the Veeder Manufacturing Company, Hartford, Conn., describing its products, including cyclometers, odometers, counters, tachometers, fine die castings, etc.