

# Electric Railway Journal

Consolidation of STREET RAILWAY JOURNAL and ELECTRIC RAILWAY REVIEW

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## Utilize the Skip Stop to Increase Schedule Speed

**D**URING the war period the United States Fuel Administration furnished the backing needed to get the skip-stop idea "over" in many quarters. Fuel saving was the immediate goal, with general operating economies on beyond. The operating economies were predicated upon the increasing of schedule speeds to absorb the time saving, in other words on the taking up of slack in the schedules. The result with respect to fuel saving was gratifying; that with respect to time saving, disappointing. It is not too late to speed up the cars. The public is entitled to an increment of speed for each eliminated stop. The railway profits by furnishing it.

## What the Federal Commission Could Do

**I**T IS INDEED a hopeful augury for the future that President Wilson has decided to appoint a federal commission to study the electric railway situation. If this action should help to secure a higher net return for the electric railways, it will be some reparation for the heavy wage burdens which were imposed on them by the War Labor Board. This cheerful prospect must have occurred to thousands of investors when they read a few days ago that President Wilson had cabled his sanction for the plan mentioned.

Ever since the War Labor Board made public its first findings last August the distressed utilities have continued to look to Washington for relief, their experience with city and state authorities having convinced them that the recommendations of Messrs. Taft and Walsh for sympathetic consideration from regulatory bodies would bear little fruit. Now it appears that the nation's leaders have been impressed with the necessity for action, and millions of investors will wait anxiously for results which may turn the tide away from the abyss of disaster. We can only express the hope that they will not be disappointed and that the history of the new commission will be more cheering than that of the War Finance Corporation, several of whose utility patients did not survive the delayed treatment.

It is announced that the proposed commission will have in its membership representatives of various organizations most concerned with the fate of the electric railways. This statement holds the promise of an intelligent handling of the problem, and if effective relief should call for new legislation there is hope that such measures will be put into force by the present Congress which now must be convinced that national prosperity is closely connected with the well-being of the railway industry.

Electric railway interests might well submit to the consideration of the new commission the suggestion out-

lined at the recent meeting of the Chamber of Commerce of the United States by Samuel W. Fordyce, Jr., which was mentioned in our issue of May 3. This plan called for a congressional act by which utility bonds would be put on the same basis of tax exemption as municipal bonds. That the corporation tax burden is also a heavy one for electric railways is shown by the 1912 census wherein it is indicated that taxes consumed 13.8 per cent of gross income remaining after payment of operating expenses. While it is not expected that the lifting of all these taxes would be contemplated in a federal law, a considerable part of the burden undoubtedly could be removed.

The advantage of tax-exemption securities was argued in a plan recently offered for a new franchise in Chicago. It was shown there that about \$1,000,000 would be saved in fixed charges annually by the tax exemption feature and there would be less likelihood that increased rates of fare would be necessary. There may be obstacles in the way of the plan suggested by Mr. Fordyce, but this and the many other suggestions for the elimination of non-transportation charges should be weighed carefully by the new federal commission when it is organized and gets down to work.

## Putting "Pep" Into Every-day Work

**M**ANUFACTURERS tell us that there has been a "letting down" during the last two years in the sense of personal responsibility of workmen, in spite of the great increases in wages that have accompanied the war activity. Attention has been called editorially in this paper to the same fact in connection with construction and maintenance work on electric railways. The same condition undoubtedly exists in other lines of work in this field. The period of reconstruction which now confronts us will require a quickening of effort all along the line. There is bound to be a labor shortage soon, and the output of the individual must be increased, whether he is molding from patterns in a foundry or retailing transportation with the aid of a trolley car.

In a talk before the Public Service Railway company section last week, Alexander Jackson stated some plain truths very forcefully, with particular reference to the transportation department. The talk is abstracted elsewhere in this issue. The speaker's thought was that each man holding a position of any responsibility in the department has a wonderful opportunity to improve the character of the service with the end in view of pleasing and serving the public. The secret of success, if secret it be, is in the attitude of the individual toward his job. If the attitude is that of a "time server" the work is going to be slipshod and constantly on the down grade. If the attitude is that of one whose constant

desire is to make the local service the "best ever," then the carhouses will be neat, the headways will be maintained, the car windows will be clean, reports will be accurate and complete, etc. If all of his men held the latter attitude the day of the superintendent's millennium would be in sight.

### There Is a Better Outlook in Railway Power

IT IS encouraging to observe lighter skies in the railway power supply field. Here at least seems to be a department in which costs can be somewhat reduced as time goes on, and as the handicaps of the war period diminish. The difficulties of the past two or three years need not be detailed. Every chief engineer and manager knows how hard it has been either to generate or to buy electrical energy on entirely satisfactory terms, in view of the increased cost of coal, labor and supplies, the burdens of a poor load factor, and the uneven character of the fuel available in so many cases. The last factor in station inefficiency attained a climax in the severe winter of 1917-1918.

Fuel costs are still very high and central station rates still generally embody coal clauses. Wages are high too, yet there is reason for optimism. Electric railways which generate and distribute their own energy supply are now in a position to look outside and in many cases will find it to their advantage to investigate the possibility of combining their generating and purchasing abilities. The central stations are generally somewhat underloaded at present, owing to a falling off in power output since the armistice was signed and to plant expansion carried forward during the latter part of the period of hostilities. Great strides toward economical power production and distribution over considerable areas are being made through the interconnection of plants. While it is true that in many cases the interconnection of central stations and railway plants is handicapped by differences in frequency or in current type, other instances occur in which interchange can be handled with economy to all interests involved. The time is ripe to analyze the possibilities of purchasing part of the energy requirements by utilizing surplus central station power, and in some cases, certainly, non-overlapping railway and central station loads will permit a reasonable degree of interchange through appropriate equipment.

Electric railways operating in adjacent territory may well consider the possibilities of plant interconnection and load subdivision. The "electrical island" policy is out of date. Then, inside the company organization, the analysis of schedules in relation to power requirements is worth while. Of course, fundamentally, traffic needs determine schedules, but there are many cases where minor adjustments one way or the other with respect to the clock and plant load curve would not affect the patronage materially, and might help to raise the load factor of the station, that *bête noir* of the operating engineer. If fuel costs stay high and little chance of reductions of magnitude yet appears, a good deal of valuable work can be done in the way of analyzing the coal available, studying the combustion problems of local installations and looking into bonus systems for operating personnel. The present price of copper is more favorable to the revamping of feeder

and return system layouts than for some months, and the growing use of the safety, light-weight car should be accompanied by thorough studies of its relation to power plant costs. As contracts for electrical service extended under war conditions expire, there may also be an opportunity for railways to put a better foot forward and make a more advantageous bargain for the next period of supply. Where rotary converters or synchronous motors are utilized in supplying the direct-current railway service from an alternating-current system, the effect on the central station power factor is helpful, and should have a positive money value in contract negotiations. The automatic substation also presents opportunity for cost reduction in the distribution system.

In brief, the war brought about tremendous changes in the work of power production which were reflected in increased costs all along the line, but since loads, traffic, rolling stock units, coal quality and electrical interchange possibilities are now changing from mid-war values, it is time to renew the ever-important investigations on behalf of minimum energy cost delivered at the trolley. Difficult as is the path of the electric railway to-day, every advantage should be taken of those phases of the electric railway power demand which are assets to the power generator and distributor, and no manager should hesitate to "stand up in his boots" and defend those assets on behalf of making a good trade in buying power. New opportunities for team play within the railway organization are at hand, and from the watt-hour meter on the car to the calorimeter in the consulting fuel expert's laboratory, forces should be combined to cut the cost of electrical service utilized in traction operations.

### The International Association, Reconstructed, Begins Again

ALL electric railway men in this country who are acquainted with the splendid results achieved by the International Tramway & Light Railway Association during the thirty years of its life up to 1914 will be much pleased to hear that plans have been completed by which it will take up its work again. Brussels, its headquarters, was for many years the city from which capital flowed all over the world to build and operate tramways. It was in Brussels that most of the large international syndicates, including the tramway syndicates, had their domicile, presumably because the neutrality of Belgium was guaranteed by its larger neighbors and it was thought that a Belgian company would be less apt to be affected by wars and international jealousies than would a company in one of the larger countries. But 1914 showed the error of all this. The International Association has now been reincorporated to include only tramway companies and individuals in the Allied countries or in neutral nations, and it hopes to renew its activity, broken off when the war began. It is pleasing to note that its announcement to this effect is signed by President de Burlet, who occupied that office in 1914 and was for many years general manager of the national light railway system of Belgium and later was government inspector general of bridges and highways. Mr. Camp, the association's efficient secretary, also survived the war and occupies his old office. We welcome the re-created association and wish it all success in its future work of service.

## If Milk Prices Can Be Raised, Why Not Fares?

THE people of Chicago had an effective illustration recently of the difference between a public utility and another line of business which dealt with as great a necessity for the public, possibly, as urban transportation. The milkmen of the Chicago district had been on strike several days and there was much inconvenience and some suffering from the sudden shutting off of deliveries of this essential lacteal food. The drivers insisted on an advance of \$9 a week in their wages and the employers said they would stand firm against an increase in costs of operation which they could not afford. A federal mediator came along, got the leaders of both sides together, and the next morning milk was being delivered as usual—but the people found the price of milk had gone up 1 cent a quart. There was the usual stir of indignation but the consumers had to have their milk and the new rate was established as another item in the increased cost of living.

Only a few weeks before, the Chicago car-riding public was made happy by a decision of the State Utilities Commission refusing to allow an advance in rates of fare. The commission said that the proposed rate would impose a burden on the people greatly in excess of any apparent deficit in the year's net income. Evidently there were no such considerations in the discussions which led to the increase in the price of milk, although it was reported later that the 1 cent advance would produce revenue much in excess of the requirements to pay the drivers the extra wage demanded.

The contrast in these two cases was commented on freely in Chicago. It is the same old story of people submitting to increases in the cost of living over which they have no direct control and fighting hard against extension of any clemency toward utility companies which happen to be bound by contract to a fixed rate of fare. Undoubtedly, many persons will be impressed with a sense of the unfairness indicated by comparison of the two situations, but will it lead to any different treatment for the transportation companies? We doubt it. Instead, the people are likely to take all the more pride in the feeling that there is at least one situation which they can control and they will insist that the ordinance contract be adhered to.

Perhaps this is human nature, to glory in the feeling of authority. It is apparent, however, that the public still needs to be educated to the fact that in insisting on their pound of flesh they may be doing their community irreparable harm. There are few, if any, instances where city officials have shown that they were impressed with this fact and have urged the public to extend a helping hand to the utilities which happened to have the bad end of a bargain. Probably it is not good politics in the present state of the public mind to urge such clemency.

The suggestion has been made that the electric railways which have been caught by rising prices with an unprofitable contract are no worse off than breweries which are being put out of business just now. The breweries do not ask the public for recompense for losses suffered, it is said, so why should the railways? No one, we believe, will really insist on this as a fair comparison. Neither the law nor the public is asking the breweries to continue business at a

loss, as they are the railways, and capital and labor engaged in making beer can find other fields for their employment.

The great necessity of the utility situation, as we see it, is to impress the public—including the politicians—with the fact that their prosperity and the good name of their communities are bound up in the prosperity of the railway companies, and that such prosperity is not possible under terms agreed to years ago when world conditions were so different. Publicity, and more publicity is the crying need of the hour. Fair treatment to the electric railways must follow as the day the night.

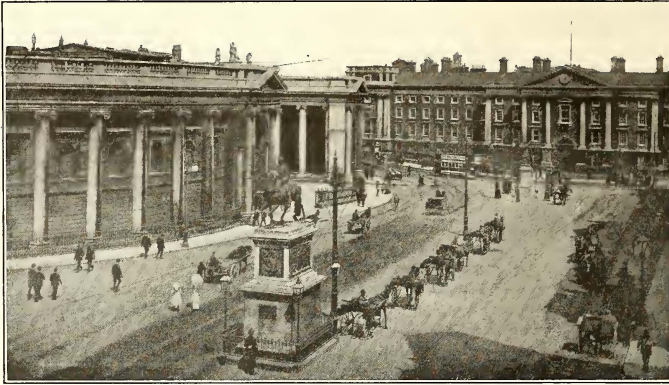
## Traffic Grows Faster in East than in West

ANALYSIS of the comparative census data for electric railways, printed in our issue of May 3, presents a striking illustration of the lack of development of the industry in certain sections of the country. Taking, for instance, the item of "revenue passengers carried" in the year 1917 as compared with 1912, we see that the Pacific states showed a decrease of 2 per cent and the Mountain states an increase of only 5 per cent, while the average increase for the country was 15.5 per cent—the East-North Central states leading with a gain of 25.6 per cent. The Pacific and the Mountain states showed a small increase in gross revenue and the former group were the only states in the country which showed a deficit in net income. One need not look further for evidence of the hurtful effect of jitney competition and the high labor and material costs which prevail in the Far West.

While the preliminary figures issued by the Census Bureau do not include a showing as to investment in the industry for the recent period, no one expects that it will indicate any such increase in capitalization as the 24 per cent from 1907 to 1912 or the 63 per cent gain in 1902 to 1907. While one explanation of this probably is the fact that there has been no great development of the industry as in former periods, another undoubtedly may be found in the lack of encouragement to capital since regulatory bodies began to bear down on the transportation companies.

The census figures have been made public at a time when one who can read history and make prophecies from statistics may find in them a basis for serious thought. In the present period of nation-wide development one would not think the majority of people have to be convinced that it is worth while to safeguard a business which handles the entire population of the United States 100 times over in a year—a business which in 1917 paid out more than \$267,000,000 in salaries and wages to its employees—a business which now represents perhaps more than \$6,000,000,000 of invested capital.

And yet if the census study had covered also the year 1918 we believe that the showing of declining net income would be the most effective propaganda to persuade the thoughtful average citizen that the critical situation of these public utilities bodes no good for the prosperity of the nation particularly of the communities which they serve. Study of the completed census report when it is issued should be recommended to those who are most concerned with the future of the electric railway companies.



BANK OF IRELAND AND TRINITY COLLEGE, COLLEGE GREEN

# The Zone Fare in Practice

BY WALTER JACKSON

## DUBLIN—PART I

**Dublin's Housing Problem Arose From Activities of House Jobbers in Old Wealthy Sections and From Immigration of Laborers to City From Country Because of High Wages—Tramway Company Has Built 220 Houses for Employees**

In large manufacturing centers it is the rule, rather than the exception, for five or six men to be found sleeping in a room which will not properly hold more than two, and it is a common thing for the same beds to be occupied day and night by different shifts of workers. The sanitation is often deplorable. There are many large houses now occupied by several families in which there is only one toilet for general use. Many of the poorer tenements have no water supply, and the tenants have to fetch their water from a pump or faucet in the yard. The bath tub is an unknown luxury. In many cities only a very small proportion of the houses of the working classes are connected with the sewers, while the privy and cesspool are everywhere.

**N**O, THIS IS NOT a description of conditions in some thousand-year old city of Europe, but in our own United States! The quotation is from an article on "The Problem of Industrial Housing," written by Leslie H. Allen for the December, 1917, issue of *Industrial Management*. To continue the quotation:

Localities as far apart as California, Texas, Pittsburgh, Boston, Fall River and Bridgeport have a like state of affairs. . . . In most American cities few houses have been built for the unskilled workmen, and, as a result, they are very badly housed and overcrowded.

Evidently, the universal fare hitherto prevalent in the American communities named is not of itself a cure-all for congestion.

### THE HOUSING PROBLEM IN DUBLIN

Dublin, as regards the origin of its housing problem, is unlike many other cities because its tenement houses are not a deliberate creation. The congestion in Dublin, according to the 1918 report of the municipality's housing committee, arose from the fact that the large old mansions and residential quarters built by the no-

bility and gentry during the earlier periods gradually drifted from their private residential character and ownership into the hands of the house jobber, whose only concern was to extract the best return for his investment by letting out the rooms in tenements. Numbers of the successors of the original occupants have ceased to retain their town houses in the city, the rapid means of transit gradually transferring the residential life of the wealthy classes from the city to the suburbs. On the other hand, large numbers of the laboring classes have migrated from the provinces to the city, attracted, no doubt, by the large works in progress from time to time and the comparatively high wages prevailing under city conditions.

The report contains a survey, street by street, of the north side of Dublin, showing that the degeneration of many thoroughfares from wealthy to workmen's sections began to be perceptible as long ago as 1850 (a generation before the tramway period). The conclusion of the committee is that "had the municipal area been extended from time to time in accordance with the city's natural expansion, the question of housing the working classes would not be so acute, and the expenditure now required in that direction would be more equitably distributed."

The earlier way of attacking the slum question in Dublin was by the acquisition, destruction and reconstruction of the original property. This proved prohibitory in cost inasmuch as the locations were close to the business district and highly profitable to their landlords. More recently, the plan of purchasing the cheaper, open land near or beyond the city boundaries

has been followed in the hope that ultimately the tenants of the slums would move out of their own accord. Curiously enough, the same war that has slowed up the fulfillment of the housing plans, through the enormous increase in building costs, has also demonstrated that, once the workman has learned to love the country because of his work in the war garden allotments, he no longer accepts the stuffy tenement as a matter of course.

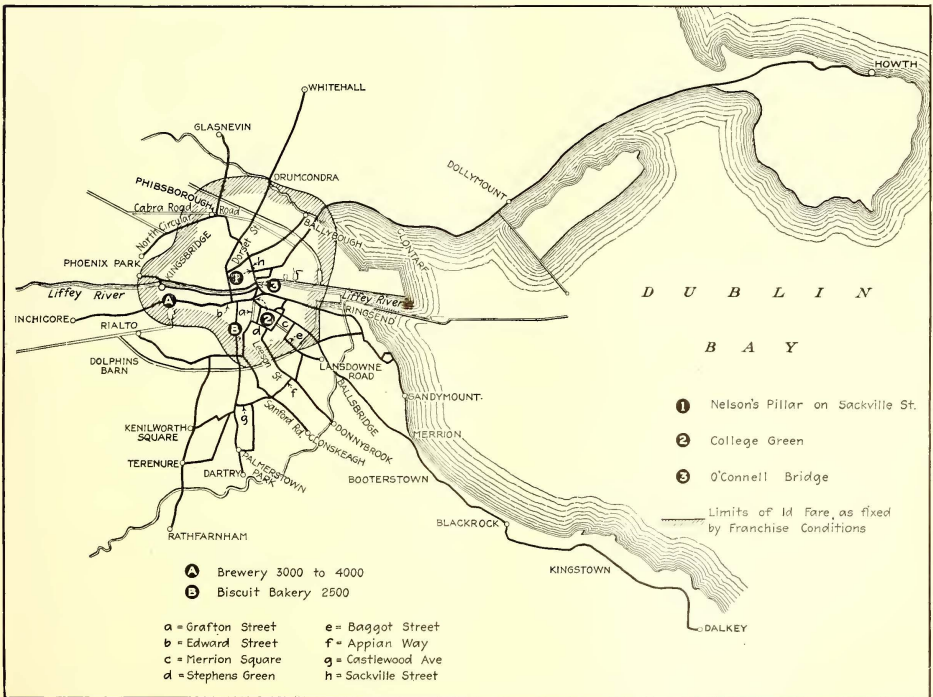
In a "Report on Dublin Housing" made in 1918, P. C. Cowan, chief engineering inspector Local Government Board, shows the difference in cost between slum and suburban areas in Dublin. Mr. Cowan states that the average cost per acre for acquiring eleven slum sections with a total area of 18 acres, between 1886 and 1912, was about £6,160, which with the cost of clearing the streets, etc., gave a total of £8,798 per acre apart from the cost of building. On the other hand, 12½ acres purchased at Inchicore within the city boundary in 1903 cost £320 per acre, and 22 acres of the Fairbrother's Fields, purchased in 1914, cost £717 per acre. According to the city by-laws, all new streets must have footpaths (sidewalks) with a concreted surface, chisel-dressed granite curbing and a paved channel 3 ft. wide on each side. These items alone, with footpaths 6 ft. wide, would cost £4 per lineal yard. But even this construction, which Mr. Cowan regards as unnecessarily elaborate, would not have cost in 1918 more than £1,046 per acre, including sewer, gas and water mains.

The pressing nature of the housing problem is well indicated by the following: From 1914 to 1917,

inclusive, 956 tenements housing 3989 families were closed as unfit for habitation, but during the same period the city built only 327 new houses and other agencies a much smaller number. Moreover, the houses remaining open deteriorated at a more rapid rate than in peace times because of the difficulty and the expense of maintenance. Mr. Cowan's estimate as of January, 1918, is that at least 16,500 new houses and 13,900 reconstructed dwellings are imperatively needed. The corporation of Dublin has already built and is the landlord of 1880 houses. The new houses contemplated would be similar at least in size to the one-family houses constructed in recent years. A few flats might be built for two to four families, but they would be a small percentage of the total construction.

Some of the existing three and four-room houses built by the city are shown in the illustrations on page 1043. It should be noted that they are built along the sides of a plaza, although there is no garden space as contemplated for the suburban area. To an American familiar with the possibilities of the modern apartment house with its private courtyard, roof playgrounds, etc., these one-family houses appear to be a wasteful use of extremely costly space. American apartments are not to be compared, of course, with the old-fashioned tenement, such as the Dublin municipality built a generation ago.

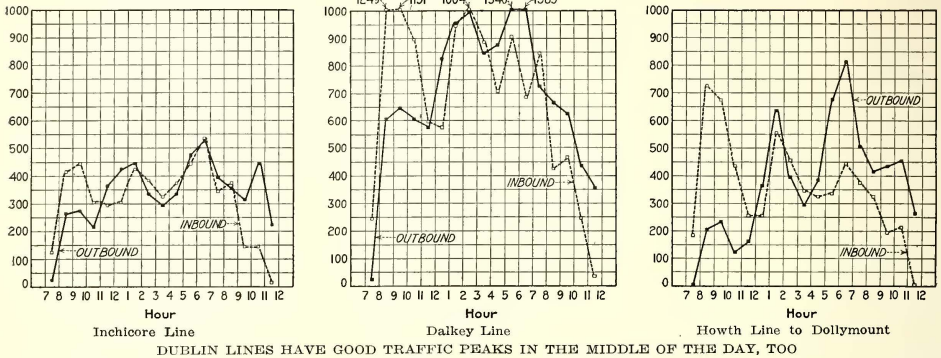
At the present time, 1919, approximately 40 to 45 per cent of the population of 390,000 in Dublin are in need of better housing. It would not be practicable to build all the new houses within the present limits of Dublin,



ROUTE MAP OF DUBLIN UNITED TRAMWAYS

nor would it be desirable, in Mr. Cowan's opinion, to intrust the spending of millions of dollars a year to a council too responsive to local selfish influences. He has therefore recommended that the houses be built under the auspices of a board representing the national government (which is expected to loan the money at low rates of interest), the city of Dublin, the urban districts of Rathmines and Pembroke, and Dublin County.

centers. For revenue purposes, such a population is non-existent. This is obvious enough from a comparison of the Dublin passenger-per-car-mile statistics with those of other cities in the United Kingdom where the population is distributed more evenly, and from a study of the Dublin routes and their characteristics. Mr. Cowan evidently does not hold the tramways to blame, for he refers to them as "excellent," and notes with



It cannot be said that this proposal meets the unqualified approval of the Dublin Council, and the resulting differences of opinion, plus the war aftermath and local politics, are seriously retarding the advancement of the several housing projects.

HOUSING AS RELATED TO TRANSIT FACILITIES

The foregoing facts regarding the housing situation in Dublin have been recited at some length to show how little the electric railway conditions have had to do with congestion. It is surely no advantage to a tramway to have a large proportion of the population within ten to fifteen minutes walk of the working and shopping

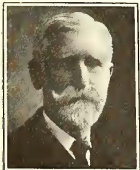
interest the following: "The longest extensions are for the service of places which have long had a railway service (steam), such as Clontarf, Sutton, Howth, Merriion, Blackrock, Kingstown and Dalkey. The tramways naturally enough followed development. The time has now arrived when they should take a leading part in the development of such areas as Cabra and Crumlin."

Although it can hardly be said that the Dublin fare system has acted as a deterrent to development, Mr. Cowan takes the extreme view recently put forth also by Ralph S. Bauer, Lynn, Mass., namely, that the provision of cheap or absolutely free transit is but a logical step from the free use of the public highways, and that this would be an immense help in securing healthful houses "on an economic basis." As the Dublin tramways are not owned by the city, this proposal is not likely to do more than create some embarrassment for the company in trying to run its own affairs on an economic basis.

In view of the fact that the wages of all classes of labor have risen in greater proportion than tramway fares, it might be well to see if new suburban houses do not fill up without the stimulus of free transit. It is a safe prophecy that whenever the city erects the 600 houses at Marino in the Clontarf section and the 370 dwellings laid out for Fairbrother's Field on the south side, it will not have to cry for tenants! If the tramways were owned by the city and if tramway operation were free from its opportunities for appalling wastage of labor and material, the subject of "free transit" would be riper for discussion.

In concluding these references to the matter of housing and transit, the writer extends his thanks to Edmund W. Eyre, treasurer of the city of Dublin, for his courtesy in permitting the inspection of official documents, and of the several classes of houses built by the city.

Aside from its port activities, Dublin is not an industrial city. Its largest establishments are a brewery with 3000 to 4000 employees and a biscuit bakery with 2500



No article on the Dublin United Tramways could be complete without some reference to WILLIAM MARTIN MURPHY, chairman of the company for a generation. Mr. Murphy is one of the great pioneers of the electric railway industry. He electrified the Dublin system, the first work of the kind on a large scale in the United Kingdom. He financed and built the Belfast horse lines as far back as 1879, and he promoted, financed or built—and sometimes of Thanet, Hastings, Poole & Bourne-mouth, London Southern, Cork and Paisley (Scotland) tramways. He also constructed railways in the Gold Coast Colony, West Africa, and partook actively in general railway and lighting projects in the United Kingdom. Mr. Murphy's activities, however, have not been limited to his public utility labors. Parliament saw him as representative of St. Patrick's Division, Dublin, from 1885 to 1892. In 1905 he founded the *Irish Independent*, the first half-penny (now penny) morning daily newspaper in Ireland. In 1907 he was the principal promoter and committee chairman of the Irish International Exhibition in Dublin, and during 1912 and 1913 he was president of the Dublin Chamber of Commerce. Since February, 1915, Mr. Murphy has shown his public spirit in a most timely way by serving as chairman of the general finance and general purposes committee, Dublin Castle Red Cross Hospital. That the Dublin United Tramways has so good a record to show under the most trying conditions of recent years is due in large measure to the continued personal attention that Mr. Murphy has been able to give this undertaking because of his residence at Dublin.

employees. In both cases, the mass of the workers live in the immediate vicinity. The reputation of Dublin as a capital and its salubrious climate have, as Mr. Cowan says, made it the rest house or alms house to which people broken in health, character or fortune come from all over Ireland to shelter or hide themselves or to take advantage of its numerous hospitals and almost innumerable overlapping charities. These factors are not particularly favorable to the highest degree of tramway development, but the Dublin system was the first tramway in the United Kingdom to be electrified and it has been progressing ever since. Therefore, an insight into the operating standards will be worth while.

#### WHAT THE TRAMWAY SYSTEM IS

The system as a whole, shown in the map on page 1039, comprises 101 miles of single track. Practically all routes are double-tracked except  $1\frac{1}{2}$  miles of gauntlet or interlaced track on certain narrow streets where inbound cars have the right of way up to 2.30 p.m. and outbound cars for the remainder of the day. The main streams of travel are north and south, with Nelson's Pillar in the center of the city as the converging point. Of the eight routes that reach the pillar, five are turnbacks

car left at 11.30 p.m. To-day the coal shortage is the determining factor in the hours and the amount of service. At the time of the writer's visit, G. Marshall Harriss, general manager, was absent on a prospecting tour among Irish coal mines.

As indicated on page 1040 there are three peaks on week-days—8.30 to 9.30 a.m., 1 to 2 p.m. and 5.15 to 6 p.m., the last being the heaviest. During these hours the customary headway is two and one-half minutes. A five-minute headway is the normal service, lengthening out to seven and one-half and ten-minute headways at night. The peak hours indicate that life in Dublin is not too strenuous. The shops open at 9 a.m. and close at 6 p.m., and many are closed also during the luncheon period for one to one and one-half hours. Half holidays prevail on Wednesdays and Saturdays, the smaller shops generally observing Wednesday and the larger ones Saturday. During the lively summer travel to the parks and beaches, the pleasure lines are operated on headways down to one minute. Recent betterment of afternoon riding is credited in part to the moving-picture theaters.

While motor cars are permitted a speed of 25 m.p.h., the rather obsolete local regulations specify tramcar



DUBLIN'S CARS AT A MAIN TRAFFIC POINT

and the others are through lines. The inequality of population per acre in Dublin is reflected in this arrangement of routes.

With a war-time service of 170 cars, compared with 212 in pre-war days, the company carried 71,008,655 passengers for the year ended Dec. 31, 1918, as compared with 66,624,326 passengers the preceding year. On the basis of 390,000 inhabitants, the journeys per head of population per annum were thereby increased from 171 to 182 and the passengers per car-mile from 8.7 to 10.6. The car-miles run per inhabitant per annum, however, were reduced from 19.7 to 17.2.

Except for the workmen's cars run out of the depots at 5.30 a.m., the operating hours are from 7.30 a.m. to shortly before midnight, the last cars outbound leaving Nelson's Pillar at 11.15 p.m. In peace days, the last

speeds of 3 m.p.h. on curves and 7, 12 to 16 m.p.h. from city to open sections. The actual schedule speed is approximately 9 m.p.h., with a maximum speed of 16 m.p.h. on the longer lines. The same schedule speeds are maintained throughout the day. The comparative scarcity of automobiles and the width of Sackville Street, on which the lines converge, serve to prevent congestion troubles. During rush hours as many as 120 cars—all double-deck—are handled per hour at Nelson's Pillar without any difficulty under the control of timekeepers who pass the cars in and out by whistle signals.

In addition to the stops made at the boundaries of fare stages, there are a number of safety stops prescribed partly by the Board of Trade and partly by the company. Otherwise, the spacing between stops is five poles, equivalent to 600 ft. This is the revised distance,

about one-third of the original stops having been eliminated as a coal-saving measure. Stops are usually on the near side, but they are governed by traffic conditions rather than by an inflexible rule. Ordinary stops are marked by a pole with a white band; fare stages, by a red plate in addition to the banding.

The Dublin United Tramways handles practically all the traffic of the city. At one time, the little back-to-back carriages known as "jaunting cars" were quite popular, but the high and uncertain fares said to have been charged by the drivers diminished their use. For a short time a bus line was in operation to the steamship piers, largely because it did not pay to put down a 1½-mile railway for one-hour-a-day traffic. After the suspension of this service, four buses were licensed to run between Kingsbridge and North Wall, but as there was a two and one-half minute car service between Kingsbridge and O'Connell Bridge, the buses ran only from the latter point to the North Wall. One of these buses has already been withdrawn. Aside from the traffic conditions, the paving of Dublin is not encouraging to bus operation.

#### DETAIL OF ROUTES—NON-STOP SUBURBAN CARS

The 55.3 miles of route of the Dublin system include the following lines, all shown on the map on page 1039:

**Dalkey Line** (9.1 miles) is a suburban line of residential character but also carries harbor business at Kingstown, the port of Dublin, and in summer transports the working class of people to Merrion Beach. In addition to the usual four-minute headway on this line, the company for about ten years has been running a through or non-stop car service during the rush hours as part of its competition against the Dublin South Eastern Railway. In the morning, three cars leave Dalkey at 8.30, 9 and 9.25 o'clock; in the evening, the times of departure from Nelson's Pillar are 4.16, 5.04, 5.36 and 6.08, the first car out returning in time to make a second trip. These cars make the run in about forty-five minutes, as compared with sixty minutes by the locals. To do this, the local cars must begin to take sidings as near as Ballsbridge (1½ miles from the city), according to time points and the instructions of the traffic inspectors. At Booterstown it is necessary for the local to switch over to the opposing track. As the result of this competition, the steam road cut its service to a thirty-minute headway, a reduction of 50 per cent. The steam run takes but thirty minutes, but as the electric terminals are more conveniently situated and the headway of the tramway is so short, the advantage of time is usually with the electric service. A diagram on page 1040 shows the afternoon travel on this route.

**Howth Line via Dollymount** (9.5 miles) is Dublin's other suburban line along Dublin Bay. To Dollymount (4.09 miles) there is good traffic, beginning with the business section and extending out into a good residential district. The territory between Howth is largely a campers' district and seaside playground. Through cars to Howth did not pay because they did not start well filled, as the Dalkey ones do. The load curve on page 1040 shows that there is good mid-day travel 4.09 miles out to Dollymount.

**Terenure Line** (3.4 miles) serves a good residential district.

**Dartry Line** (3.15 miles) is similar to the Terenure line, which it overlaps for almost the first 2 miles from the center, making for the encouragement of short riders.

**Palmerston Park Line** (3.23 miles) has good business traffic at one end and residences of good class at the other end.

**Sandymount Line via Ringsend** (3.25 miles) has a working-class district with a beach at the end.

**Inchicore Line** (3.14 miles) serves a working-class district. The aforementioned brewery and a railway locomotive plant are located along and at the outer end of this line respectively. The load curve between Inchicore and College Green is given on page 1040.

**Ballybough Line** (2.86 miles) serves a working-class district.

**Donnybrook Line to Phoenix Park** (5.06 miles) is a through route on which a four-minute service is given be-

tween Nelson's Pillar and Phoenix Park over a single route. On the other side of the city, close to the center, part of the cars are routed via Merrion Square and Baggot Street, and part via Stephens' Green and Leeson Street. Formerly, the cars on both arms went to Donnybrook. Coal shortage, however, made it necessary to cancel the near-by Nelson's Pillar-Clonskeagh line. Consequently, since April, 1918, the Leeson Street arm carries its half of the service via Apian Way and Sandford Road to Clonskeagh. In this way Clonskeagh receives an eight-minute service in place of the former six-minute independent service, and Donnybrook receives an eight-minute service in place of a four-minute service. This reduction produced a big saving in mileage without affecting the Nelson's Pillar-Phoenix Park section, which is a far better traffic producer. The Donnybrook district bears no signs of the famous fair of old, but is a district of substantial residences. Close by in the direction of Clonskeagh there are some poor, dilapidated cottages, most of them being so ancient that they are below the level of the more modern roadways.

**Drumcondra-Rathfarnham Line** (6.2 miles) is a busy through route.

**Dolphin's Barn-Glasnevin Line** (5.12 miles) is a through route. The Dolphin's Barn terminus is in suburban territory, while Glasnevin is a gathering point for farmers on their way to Dublin.

**Fairview-Westland Line** (2 miles) has been canceled because of coal shortage.

**Lansdowne Road Line** (2.5 miles) is a crosstown line to Kenilworth Square. It is now cut off at Castlewood, 1.7 miles being operated at the Lansdowne Road end to keep the suburbanites in proximity to the beach as before.

**Drumcondra-College Green Line** is a circular route which is otherwise served and is now out of use because of the coal shortage.

In addition to the foregoing reductions several other services were canceled during the spring of 1918, but the total amount of single track made idle did not exceed 10 miles. The car-miles for 1918 were 6,787,654 as compared with 7,732,897 for 1917, and although the average number of cars per diem was reduced from 208.6 to 177.6, the daily mileage per car was increased from 100.6 to 103.69 miles. As compared with 1914, the increase in passengers carried was 21.8 per cent besides a reduction in mileage of 12 per cent.

#### SINGLE-TRUCK CARS PREVAIL IN DUBLIN

The total rolling stock for passenger use in Dublin amounts to 328 cars, but the number in operation has been much below this figure because of coal restrictions. Except on the suburban lines to Dalkey and Howth, the single-truck car prevails. The lower deck of these cars seats twenty-five, and the upper deck, thirty-three. An unusual feature is the plush seating on the lower deck. This seating is kept in excellent condition through the use of a vacuum-cleaner car, which visits each car-house in order. Curtains are also used.

Only fifty of the single-truck cars have top covers, the rest being open because of clearance limitations under bridges, etc. The body doors of all cars are of sliding type, 2 ft. wide in the clear. On the through lines, passengers are permitted to use both front and rear doors at certain places to facilitate traffic. Conductors are ordered to keep the platform clear at all times, and passengers are not allowed to stand inside the cars except when the weather becomes suddenly inclement. "Car Full" signs are hung from the hood directly over the step.

In addition to the roller-type destination sign, every car carries a route-number designation below. A novelty of the painted-board side signs is the use of opposing index fingers at each end to show toward which terminal the car is going—a little thing, perhaps, but one which the stranger appreciates.



The company's double-truck cars are somewhat larger than the single-truck cars, seating thirty-three below and forty-seven above, or eighty as compared to fifty-eight. The principal motor on the double-truck cars is the GE-80, 40-hp. type for a speed of 16 m.p.h., with B-18 and B-49 controllers. Some of these cars are fitted with Westinghouse 220, 40-hp. motors and the same maker's T-IC controllers. All double-truck cars are fitted with the Westinghouse magnetic track brake.

Most of the single-truck cars have GE-52 motors of 27-hp. rating, with B-13 and B-18 controllers. Lately the company has been replacing these equipments with the new GE-200 self-ventilated interpole 40-hp. motor and the same maker's B-49 controller. The work cars have GE-58, 27-hp. motors with B-13 controllers.

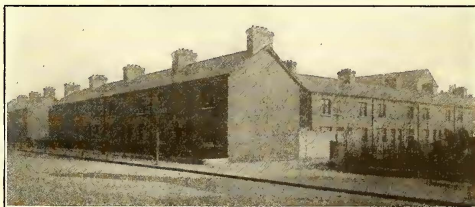
**WORKING CONDITIONS—COMPANY-BUILT HOMES**

As elsewhere, the war brought large increases in pay to the 700 motormen and conductors of the Dublin United Tramways. New motormen now receive weekly 48s. 6d. (\$11.64), of which 23s. is a war bonus. For three-year motormen the corresponding amount is 53s.

3d. a week brings free medical service, free medicine and 7s. a week to members who fall ill. Free pensions are also provided.

A feature of the time-table practice of the company is that an extra or spare man takes over the regular rotation of runs of the man he temporarily replaces instead of a regular man being advanced from one run to another. Regular men may have a rotation of early, late and split runs, something like this: First week, start 7 a.m., off 12.43 p.m. to 1.43 p.m., and on to 5.30 p.m.; second week, start 12.51 p.m., off at 5.39 p.m., return at 6.50 p.m. and finish at 11.12 p.m.; third week, early morning and late night split or return to first week.

As the first part of this article began with a discussion of the housing problem in Dublin, it is not inappropriate to close it with a few particulars of what the local tramway has done to solve this problem for its own car men. Up to date it has built 220 one-family cottages at locations convenient to the different depots. These houses cost £42,000, and are let at rents of 3s., 4s. and 4s. 6d. weekly. There are 190 one-story houses comprising two



CITY-BUILT HOUSES, BRIDE'S ALLEY, AT LEFT; TRAMWAY BUILT HOUSES, CABRA, AT RIGHT, AND CITY HOUSES OPPOSITE FATHER MATTHEW'S CHURCH, BELOW

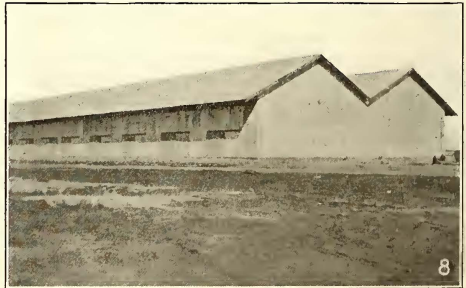
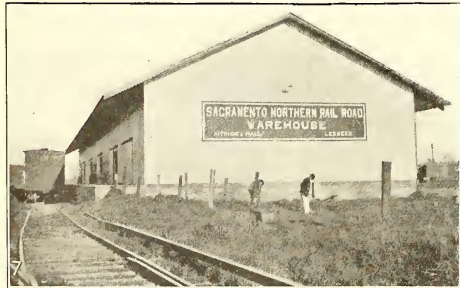
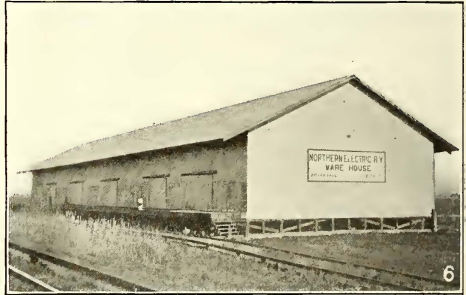
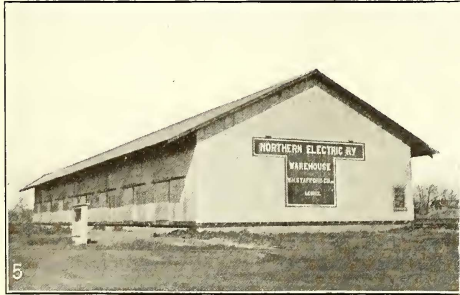
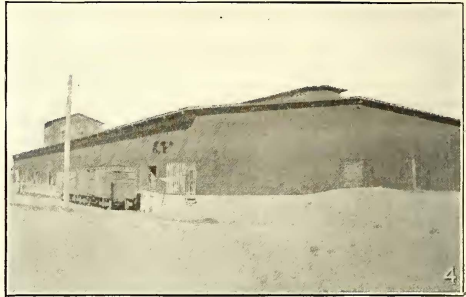
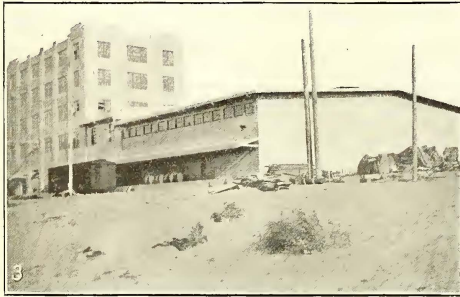
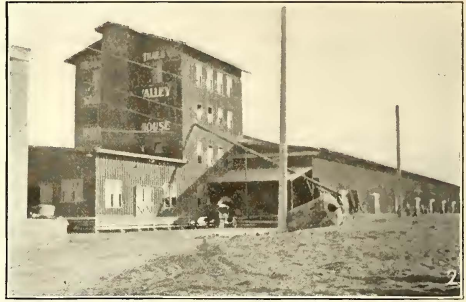
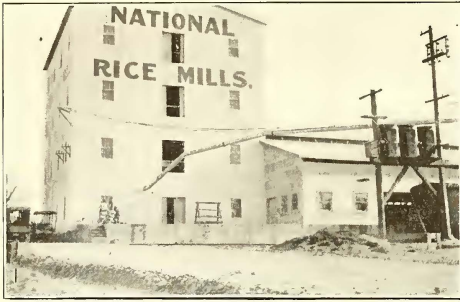
6d. (\$12.84), of which 22s. 6d. is a war bonus. New conductors now get 45s. (\$10.80), and three-year conductors the maximum of 51s. 6d. (\$12.36). These rates have probably been increased under the new general agreement of 48 hours' work for 54 hours' pay.

The average workday is nine and one-half hours on week days and eight hours on Sunday, with every twelfth day off with pay. The week averages sixty hours. Uniforms, caps and other operating necessities are supplied free, but 1s. a week is set aside from a man's pay up to £2 as a guarantee against carelessness and loss of uniform. This money is returned to the man whenever he leaves the service.

The employees of the Dublin United Tramways had a mutual welfare society long before the passage of the government acts relating to compulsory insurance. The functions of this society have since been reorganized to meet government requirements where voluntary insurance is maintained. A contribution of

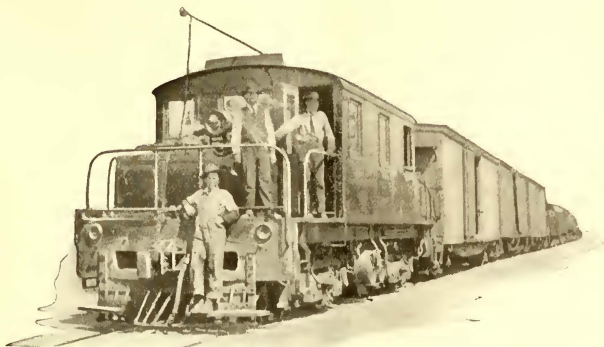
rooms, with kitchen and scullery; ten two-story houses comprising three rooms, with kitchen and scullery, and twenty two-story houses comprising four rooms each.

The houses are assigned to the men in the order of seniority and good behavior. They are welcomed by the men not only for their convenience but also for their accessibility. For example, the Cabra carhouse near Phibsborough is located in a good residential section where houses of suitable size and low rental were unobtainable. Here the company erected a complete block of neat brick houses which inclose the street from three sides to make a safe playground for the children. At Donnybrook, where there is plenty of open ground, each tenant has an allotment or war garden opposite his house. From these few notes and the accompanying illustration it will be evident that the company has grappled wisely with its own housing problem. Part II of this article will show the good results of fare increases in 1918 despite enforced reductions in service.



These Houses Have Been a Big Factor in Developing the  
Sacramento-Northern's Freight Traffic

1. National Rice Mills at Sacramento. 2. West Sacramento Bean Warehouse. 3. California State Rice Mill at West Sacramento. 4. West Sacramento Bean Warehouse. 5. Live Oak Warehouse. 6. Esquon Warehouse. 7. Durham Warehouse. 8. Blave Warehouse.



TYPICAL SACRAMENTO BELT LINE FREIGHT TRAIN

## Developing Feeders for Freight Traffic

Sacramento Northern Railroad Demonstrates from Operating Data the Value of Storage and Industrial Plants in Upbuilding Freight Traffic—Warehouses Have Increased Business Tenfold

THE development of freight traffic on the Sacramento Northern Railroad, particularly with respect to the part played by the warehouse facilities, shows what can be done by intensive effort. This system lies generally north and south in the Sacramento Valley of California and reaches the cities of Sacramento, Woodland, Marysville, Colusa, Oroville, Chico, Suisun and Vacaville, constituting in all approximately 170 miles of main-track line.

TABLE I—GROWTH IN FREIGHT REVENUE

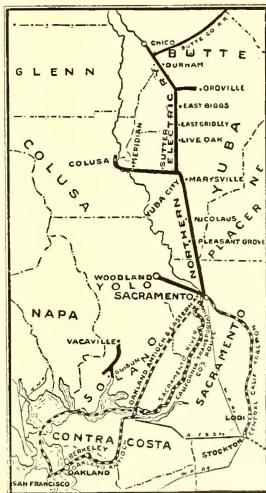
Year	Freight Revenue, Per Year	Revenue Compared with that for 1914, Per Cent	Ratio of Freight Revenue to Total Passenger and Freight Revenue, Per Cent
1914	\$260,000	100	34.8
1915	290,000	112	39.6
1916	360,000	139	44
1917	490,000	154	45.1
1918	556,000	214	52.2

During the past four years more attention has been paid to the development of freight business than previously, with the results listed in Table I. The table shows that during the past calendar year the revenue from freight exceeded that from passenger business for the first time, having increased 114 per cent during the four-year period.

A fair idea of the extent of the freight traffic handled may be gained from the following figures for year 1918:

Gross ton-miles.....	41,000,000
Foreign freight car-miles.....	512,000
System freight car-miles.....	920,000

From the mileage of foreign cars on these lines, it will be noted that a large amount of the business is interline traffic with the connecting steam and electric lines. This foreign equipment is handled under the M. C. B. interchange rules. Interchange connections are maintained with other carriers as follows:



SACRAMENTO-NORTHERN SYSTEM AND CONNECTIONS

1. At Sacramento with the Southern Pacific Company, the Western Pacific Railway, the Central California Traction Company and the Oakland, Antioch & Eastern Railroad. Of these the first two are steam lines and the others electric lines. Interchange is made also with the California Transportation Company, the Sacramento Transportation Company, and the Producers' Transportation Company, the latter two being river carriers.
2. At Marysville with the Southern Pacific Company, and the Western Pacific Railway.
3. At Oroville with the Western Pacific Railway.
4. At Chico with the Southern Pacific Company.
5. At Fairfield with the Southern Pacific Company.

### LOW-SPEED TYPE LOCOMOTIVES ARE PREFERRED

Table II shows the freight locomotive, power and freight car equipment operated by the company. The smaller locomotives, such as the 1000 to 1005 class, are wooden frame units, equipped with the same type of motors as are used on the interurban passenger equip-

TABLE II—EQUIPMENT OF FREIGHT MOTIVE POWER

Identification Number	Tons on Driver	Locomotives		One-Hour Rating			
		Continuous T.E. Lb.	Rating M.p.h.	Amp.	R.p.m.	T.E. Per Amp.	Horsepower
701	21	1,880	15.2	140	515	19.2	160
1000	35	2,800	25.5	300	720	12.5	360
1002	41	2,800	25.5	300	720	12.5	360
1003							
1004	41	4,400	21.0	400	720	12.5	360
1005*	77	6,400	24.3	620	70	13.8	700
1020*	61	13,000	15.4	760	470	19.6	800
1030*	60	12,000	18.0	800	547	17.1	800
1040*	30	9,000	13.0	460	380	21.9	400

\* Forced ventilation.

FREIGHT CAR EQUIPMENT

Number of Cars	Type	Capacity, Lb.
109	Box	80,000
141	Flat	80,000
6	Stock	80,000
40	Ballast	80,000

TABLE III—WAREHOUSES OWNED AND LEASED

Location	Year Built	Size, Ft.	Type of Construction
Sankey, Live Oak, Esquon.....	1916	50x200	Concrete foundation, wooden floor, corrugated-iron building.
Woodland, Colusa, Shippee.....	1918*	50x200	Concrete foundation, concrete floor, wooden building.
Blava.....	1918*	100x250	Concrete foundation, concrete floor, corrugated-iron building.
West Sacramento Warehouse No. 1 and Bean Cleaner.....	1917	100x400	Concrete foundation, concrete floor, wooden building.
West Sacramento Warehouse No. 2.....	1918	100x200	Concrete foundation, concrete floor, corrugated-iron building.
Tarke*.....	1914	50x400	Concrete foundation, wooden floor, corrugated-iron building.
Durham.....	1918	50x200	Concrete foundation, concrete floor, corrugated-iron building.

\* Community concerns promoted by railroad and in which it is part owner only.

ment, except that they are provided with freight gearing. Motors of this particular equipment, however, are of the high-speed type suitable for passenger service, and not suitable for freight service, and the tractive effort necessary for handling the heavy freight trains with these locomotives is obtained only with excessive current, resulting in severe motor maintenance costs and heavy drag on the substations. On account of this fact, more recently locomotives of the low-speed type have been selected, of which locomotives 1020, 1030 and 1040 are typical.

The freight traffic movement consists of two heavy freight trains each day northbound from Sacramento to Chico and Oroville, and two heavy freight trains southbound to Sacramento. These trains approximate 1000 to 1200 trailing tons, and require the services of the larger locomotives. In addition one freight locomotive is kept in regular service on the branch line between Marysville and Colusa, and another on the branch line from Sacramento to Woodland. The small locomotive 701 is employed on the line from Suisun to Vacaville, where freight business exists only a few months of the year when orchard products are being moved.

Two locomotives regularly, and sometimes a third, are required in the Sacramento yards and on the belt line, distributing cars to the various industries. This belt line surrounds the business district of Sacramento on three sides and serves various industries, including the river carriers along the Sacramento River waterfront. The Sacramento yards include about 10 miles of tracks, and from 150 to 200 cars per day are switched in them.

With the California Transportation Company, at the Sacramento River wharfs, are interchanged each day approximately ten full carloads and from one to two cars of l.c.l. business transferred to the boats, and from them approximately 125,000 lb. of l.c.l. merchandise is received for points on this line. A large amount of rice is transferred to the boat company for export. For such switching service locomotive 1040 is particularly well fitted on account of its high tractive effort and low speed.

For the main-line service, however, locomotives of a somewhat higher speed are preferable, suitable locomotives for this service being similar in characteristics to 1020 and 1030. An examination of Table II, and particularly the columns headed "Tractive Effort Per Ampere" and "R. P. M." shows the vital characteristics which are necessary in electric locomotives for handling freight trains; i.e., the most suitable locomotives are those of low-speed design, giving a high tractive ef-

fort per ampere, so that the moderate substation capacity of the average electric line can handle the large demands of power made by freight service and still not exceed the capacity of the substation or of the distributing system.

Freight is handled at night after most of the passenger trains are off the line, and one of the operating rules is that all freight trains meeting a passenger train must not start within five minutes after the passenger trains have passed, this rule permitting the line voltage to be held up until the passenger train is accelerated and fairly on its way.

The substations are equipped each with one 400-kw., 600-volt motor-generator set. They are spaced approx-



A 50-TON SACRAMENTO NORTHERN FREIGHT LOCOMOTIVE

imately 10 miles apart, and the positive conductor between substations is a 60-lb. third-rail approximately equivalent to 600,000 circ.mil. copper.

WHY WAREHOUSES WERE NECESSARY

A large extent of the country tributary to the line is planted to rice, beans and grain, which products must be held in warehouses until sold. The competitive steam lines were well equipped with warehouse facilities, and thus were entrenched in the business of hauling these particular products through the switching facilities on their own tracks. In this competitive territory local capital could not be interested in the construction of additional warehouses on the Sacramento Northern, and in order to obtain a fair share of this traffic it was decided several years ago to construct warehouses at different points on the system. Most of these warehouses were built by the railroad company and are leased to outside warehouse concerns. In some cases the warehouses were community affairs promoted

by the railroad, which became a stockholder for a certain amount of the cost. In other cases the ownership is entirely with the railroad. Where the railroad is the sole owner in the warehouse the rental charged to the warehouse concern is sufficient in amount to cover fixed charges and upkeep of the property, the benefit to the company arising from the additional freight business received through new storage facilities and not from any profit in the operation of the warehouse itself.

Table III shows the warehouses recently constructed, together with sizes and type of construction.

Table IV has been made up to indicate the growth of freight traffic in the items of rice, beans, grains and raisins moved in carload lots at various warehouse points. It permits comparison of the growth in tonnage and revenue in the year 1918, when warehouse facilities were available, with these items in 1915, when there were no warehouse facilities. At the nine points where warehouses have been constructed the increase in tonnage is, on the average, 1120 per cent.

1000 PER CENT INCREASE IN BUSINESS DONE BY WAREHOUSES

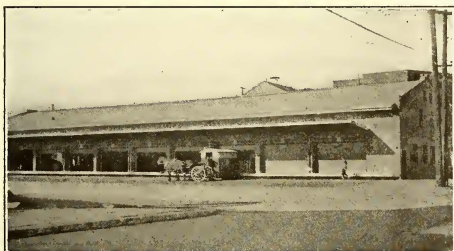
Naturally some of the growth indicated in the upper portion of Table IV was due to increased acreage. To give some idea of what this normal growth has been, the figures for Tarke Station are given. At this point a warehouse existed both in 1915 and 1918, so that an increase in business at this point would indicate the normal growth of the traffic uninfluenced by any additional warehouse facilities. In this way the normal

TABLE IV—GROWTH OF FREIGHT TRAFFIC IN RICE, BEANS, GRAINS AND RAISINS AT POINTS WHERE RAILROAD HAS WAREHOUSES

Location	Freight Traffic, Tons		GROWTH AT NON-WAREHOUSE POINTS	
	1915	1918	1915	1918
Blava	1,227	956		
Colusa	409	5,023	East Nicolaus	365
Durham	682	3,961	Increase in per cent	24
Esquon	22	2,946		
Live Oak	675	5,540	GROWTH AT POINTS WHERE WAREHOUSE EXISTED BOTH PERIODS	
Sankey	45	2,121	Tarke	1,915
West Sacramento	38	8,397	Increase in per cent	5,334
Woodland		1,582		108
	3,098	38,877		
Increase in per cent		1,120		

to take care of the storage in transit, with the same rate applying from the point of origin to the destination as would be in effect with a through haul. In other words, warehouses in the territory where barley is grown may be empty in October and November. During these months rice can be stored, and if the warehouse facilities in the rice territory are not sufficient during these months the rice may be carried to a warehouse in the barley district and there stored until such time as its movement may be completed to the final destination.

The large bean warehouse shown in an illustration is located on the Sacramento River, opposite the City of Sacramento and on the Woodland branch of the railroad. This warehouse was built to attract raw materials from non-competitive points on the Sacramento River and non-competitive rail points to this warehouse. As the warehouse is served exclusively by this



WAREHOUSE AT SACRAMENTO



PASSENGER STATION AT LIVE OAK

growth of tonnage is seen to be approximately 108 per cent, which checks with the increase of 114 per cent in freight business over the entire system, as shown in Table I. In other words, at normal points, the growth of traffic in four years has been roughly 100 per cent, while the introduction of warehouse facilities has increased this traffic by more than 1100 per cent.

All of these warehouses were provided with portable grain stackers, operated by 220-volt, three-phase motors when this source of power was available, otherwise by 600-volt direct-current motors drawing power from the third-rail.

Obviously the warehouse must be of capacity sufficient to take care of the tributary acreage. In one instance recently a warehouse at one point was not large enough, and business to the extent of upwards of 12,000 sacks of beans, 20,000 sacks of barley and 10,000 sacks of rice was lost. This was approximately 80 carloads.

A salient fact in connection with the warehousing of grain products is that provision is made in the tariff

road the railroad gets a haul on all outbound business in the finished products, the Sacramento Northern line having both local and joint transcontinental rates with all of connecting steam lines. Thus, the bean-cleaning plant and warehouse creates a market for products from non-competitive territory and brings this material to this company's rails so that outbound it may move over its line.

Adjacent to this bean-cleaning plant and warehouse there have recently been constructed two large rice mills, one by the National Rice Mills, in which local capital is interested, and the other by the California State Rice Milling Company, the parent company of which is the Louisiana State Rice Milling Company. This latter rice mill is now the largest west of New Orleans and this year will become the largest rice mill in the United States. These plants at West Sacramento have had the effect of stopping at Sacramento a large amount of tonnage which would have gone to San Francisco, thus giving an opportunity to profit by the growth of acreage in territory not naturally tributary

to this system, and in addition to the outbound haul which is obtained on the finished produce the City of Sacramento obtains the benefit of the large payrolls of these plants.

By way of summary it may be said that the experience of the Sacramento Northern Railroad in building up a substantial freight service and revenue has shown the following results:

1. Added service was given to the community served by the provision of warehouses, terminals, etc., and co-operation with desirable industries.
2. Steam-road competition was met by the quality and frequency of freight service.
3. Motor-truck competitive haulage was reduced to a minimum by superior and cheaper service.
4. Gross revenue was greatly increased through the upbuilding of a profitable freight account.
5. Existing investment in track and power houses was used for freight business.

## Where Do You Live?

### Zone Postal Law Compels a Higher Subscription Rate West of the Mississippi River

AT THE TIME that the zone system for second-class postage was under consideration by Congress two years ago, this paper protested against the unscientific nature of the proposed rates which exaggerated the effect of length of haul on postal charges and ignored the terminal expense. The evils from a national standpoint of basing a charge for postage on distance and thus sectionalizing the country in the distribution of intelligence were also pointed out. At that time a number of readers of this paper who would be most affected by the measure wrote to their representatives in Congress protesting against the change. Other opposition developed, but the bill was finally made part of the war revenue bill and was passed.

As publishers generally did not believe that the reformation of this tax would be seriously considered after

pealed the publishers of this paper feel forced to recognize the facts in their subscription rate. They do not plan at present to go farther than to establish two zones, the dividing line being the Mississippi River. Hence, beginning July 1, subscribers to the ELECTRIC RAILWAY JOURNAL who live west of the Mississippi River must add 50 cents a year when they send their subscriptions, and if the zone law is not repealed, it may be necessary later to readjust these differential rates. The accompanying map shows the postal zones into which the country is divided by the law, the postage annually per subscription under the old rate, that in 1919 and that in 1921.

It will readily be seen, from the rapidly progressive charge per zone, that the result of such a system of postal charges will seriously penalize the spread of intelligence in this country, particularly to those farthest from the large industrial centers. It will be surprising if those who are thus obliged to pay these higher rates do not complain to their congressmen about the continuance of any postal system which disregards the cost of transportation as absolutely as does the present zone postal law for second-class matter.

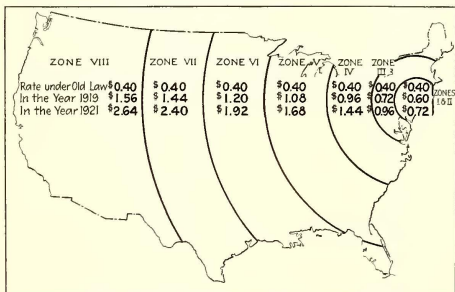
## Engineering Association Assigns Subjects

THE American Railway Engineering Association has assigned a number of new subjects for committee work. Among those of interest to electric railway men are the following: Use of reinforced-concrete slabs, etc., to assist the ballast in distributing the load on soft roadbeds. Effect of usage on the physical properties of rail steel. Effect of distribution of loads through ballast and embankment as affecting the design of masonry structures. Study of methods of conveying and depositing concrete. Study of the availability and use of sodium chloride as a preservative for ties, and of the comparative value of several grades of creosote oil and creosote coal tar solutions as preservative agencies. Further collection of data relative to clearances of third-rail and overhead working conditions. Co-operation with the Bureau of Standards in regard to the National Electrical Safety Code and other safety codes, and preparation of specifications for insulated wire and cables. Study of methods for training and educating engineering and maintenance department employees.

## Franchise Calls for Value, Not Coin

L. A. HERDT, D.S.C., vice-chairman Montreal Tramways Commission, gave a very clear presentation of the electric railway situation in an address before the Montreal Publicity Association on May 9. He brought out very clearly the present situation on fares when he said:

"The fares should be restored to the level which prevailed in past years. In Montreal the ticket dropped in our fare boxes to-day bears the impress '5 cents' but as compared with the 5 cents of a few years ago, it is 2½ cents and no more. The street railway franchise, or the statute of agreement calling for the 5-cent unit, calls not for an impress or a coin but for a certain value of purchasing power. The equivalent of the 5-cent coin in the decade 1890 to 1900 in purchasing power is the 10-cent fare. The purchasing power of the dollar has declined at least 50 per cent since the early nineties."



POSTAL ZONES IN THE UNITED STATES

The United States is now divided into sections for second-class postal rates. The map shows the old rate, present rate and rate in 1921 if the law is not repealed.

the war, most of them, including those who issue this paper, paid it, partly because of the complication in accounts involved when a difference is made in subscription rates according to residence, and partly because of the discrimination between subscribers which the plan requires. As the rate is progressive, however, and as there is no evidence that the law is to be re-

# Plain Words on Transportation Service\*

Concrete Suggestions Are Made on Ways in Which the Service Can Be Improved in Schedule Making, Lay-Overs, Traffic Supervision, Assignment of Runs and Other Ways

BY ALEXANDER JACKSON

Superintendent of Time-tables, Public Service Railway,  
Newark, N. J.

THE time-tables of an electric railway property are the cornerstone upon which the financial structure is built, and a great loss can be incurred by carelessness in their construction and operation. A time-table to meet traffic conditions should be developed with great care after a comprehensive study has been made of the district to be served, and sufficient cars should be placed in service to accommodate all persons presenting themselves for transportation. After the schedule has been inaugurated it should be carefully checked at frequent intervals to see that it is giving the results desired.

## THREE FACTORS TO BE CONSIDERED IN DEVISING SCHEDULES

In providing the public with safe, convenient and adequate service, and in the development of time-tables to that end, there are three governing factors which must be taken into consideration if satisfactory results are to be obtained.

First, the public should be furnished with dependable service, given by means of clean, well-lighted and well-ventilated cars suitably heated during the winter months. These cars should be in charge of courteous, careful trainmen, including conductors who among their other duties will call out the streets and transfer points distinctly so that strangers will not be carried past their destinations.

The trainmen, through proper division of the cars comprising the proposed schedule, should be given a day's work to be completed within a reasonable time and with an over-all spread as short as possible.

The company, comprising the many holders of securities, should receive a reasonable return upon the investment made in the property. The extent to which this can be accomplished depends upon the furnishing of such service as will attract business and as can be furnished at a minimum of expense.

Satisfactory service to the public involves regular operation in accordance with the time-table, the cars leaving the terminals on schedule time and being kept on time so that headways will be equalized. The service must be adjusted to the needs of the line but it should be remembered that constant changing of schedules does not always improve conditions. It tends to keep the men in an upset condition, always anxious to know when a change is to be made and how it is going to affect them personally. This is perfectly natural as it may happen that a man holding a day run on one schedule may draw a half night run when a change is made, thus necessitating a change in his entire mode of living.

A division superintendent, before making recommendations to the general superintendent as to changes in time-tables, should be thoroughly familiar with conditions existing on the several lines of his division so that when a supervisor makes a request for additional service the superintendent can decide wisely in justifying or refusing the change. He should pass on no alterations in the time-table without having made personal observations of the service. The same principle applies in connection with applications for additional running time or lay-over time.

The division superintendent needs first-hand information to enable him to check the laying out of time points. He should not deal in generalities, but should depend upon facts which he can personally verify. He should know if apparent trouble is caused by one or two trainmen on a line who continually run late, or whether most of the cars run late. It may be that the trouble is caused by vehicular interference or by delays in interchange of passengers at heavy loading points. When time cannot be made, specific reasons should be assigned for the trouble.

The superintendent should try to avoid making a request for one or more additional cars to be used to increase lay-over or running time. If he owned the road himself he certainly would use every effort to save a car. He would not spend \$12,000, a year for an extra car if the money came out of his own pocket. In the last analysis the company's interests are his own.

There is no other industry in which, after a man has worked a period of time equivalent to a trip on a trolley car, he is allowed 5 or 10 per cent of the working time to rest. How often is a trainman overheard to say: "The time on this line is too fast, and only two minutes are allowed in lay-over; we have to work every minute and it is a case of getting to the end of the line and right back again"? This is as it should be.

Some of the time allowed in lay-over is for slack in the time-table, so that in case of delay on any trip the car can leave for the next trip on time. Most of the lay-over time is due to the fact that the running time for the round trip is not evenly divisible by the headway, the remainder in many cases being the only time allowed for standing. If cars could be operated without delays and if the running time were divisible into even minutes in all cases lay-over time would not be necessary.

The time has arrived when electric railways cannot afford to pay for lost time. If on the 14,274 trips operated per day on the Public Service Railway we allow an average of only two minutes lay-over on each trip, there results a total of 476 car-hours per day. The corresponding annual cost in platform wages approaches \$150,000.

The division superintendent should be on the look-

\*Abstract of paper read at meeting of Public Service Railway Company section, American Electric Railway Association, Newark, N. J., May 28, 1919.

out for signs of congestion at any point and be ready to work out plans of relief. Congestion spreads very rapidly, and soon leads to saturation and stagnation. Motionless cars cannot increase a company's income.

Again, he can be prompt in making thorough investigations of complaints from the public regarding service. A prompt removal of the cause of criticism will be to the advantage of all concerned. Furthermore, on the occurrence of accidents, derailments or serious delays on any line the division superintendent should inaugurate investigation immediately. He should make it his business to visit the carhouses on his division frequently and to keep in close touch with the station force and trainmen. Cordial greetings to the men will do much to show them that the superintendent and the company have their welfare at heart.

Superintendents should also ride much in the cars on their lines, and not travel too exclusively by automobile when they have the opportunity to do so. The automobile is to be used when such use will conduce most to the benefit of the company, but the best place to secure first-hand information regarding equipment, tracks, paving, overhead and service in general is on the cars.

#### EFFICIENT SUPERVISION IS A PRIME NECESSITY IN TRANSPORTATION

The supervisor who is on the job knows that equalized headways mean good business. The earning capacity of a line depends to a considerable extent upon the regularity with which headway between cars is maintained. Broken headways, with cars running in bunches, drive business away and irritate the passengers who are forced to patronize the service. Irritation on the part of passengers makes the work of the trainmen more difficult and strains relations with the public.

When bunching of cars occurs the supervisor must find out the cause of the irregularity and determine why proper headway cannot be maintained. As his title indicates he is supposed to oversee the operation of the cars assigned to his lines.

It is the supervisor's duty also to see that the cars are kept clean, because he is furnished with the necessary help for this purpose. Conditions of uncleanness would not exist if the supervisors conducted periodical campaigns on car cleaning.

The supervisor also should be very careful in picking men for advancement in his department. Men should be picked on the basis of their efficiency; for character, ability and personality. In this department a man who can mix well with his fellow-workers and can smooth out troubles is greatly to be desired. Men who keep things "riled up" should never be selected for work in this department. It is a poor philosophy also for the supervisor to be afraid to pick a good man for fear that the latter may eventually oust the supervisor from his job. If a man, in this as well as in any other department, expects advancement himself, he should always have someone prepared to "step into his shoes."

#### WHERE THE STATION MASTER COMES IN

The first duty of the station master is to see that cars pull out of the carhouse on schedule time in starting the day's work. When crews leave a minute or two late they are making a bad start for the day's run. Furthermore, this induces a tendency on the part of

motormen to run their cars recklessly trying to make up for the lost time. It is impossible for a company to have careful trainmen and careless station masters.

The station master also should assure himself that his cars are clean and in proper condition to be placed in service. Very often public opinion is greatly influenced in regard to service by the appearance of equipment.

It is a good practice for the station master to glance out through his office window now and then to see how headway is being maintained on his lines. This will give him first-hand information.

Among the many little duties to which the station master should give attention are such as these: He should make an inspection of the carhouse and yard after the car cleaners are through to see in what condition they have left the premises. He should see that all trolley poles have been removed from the overhead wire and are securely fastened down. He should insist on the cutting out of all unnecessary lights around the carhouses and yards. He should insist on care in seeing that bolts, nuts, washers, and trolley wheels are not scattered around the yard but are collected and deposited in their proper places. He should keep a sharp lookout for stray oily waste, journal box packing and litter generally, with his mind fixed on the possibility of fire. He should assist in conserving stationery and other materials.

Finally, the relations of the station master with his men are very important. He should give them a square deal, especially in assigning extra men from the list to the board. A favor done a man one day may be returned later when, for example, the station master wishes to have a man take out an extra trip after completing his day's work.

#### REPORTS NEED PROPER INSPECTION

Regarding clerks and receivers, it is well known that the carhouse employees of these classes are continually busy attending to their regular duties. It is, however, just as easy for them to do their work well as to turn in illegible, "sloppy" and inadequate records. Clerks should not accept conductors' day cards unless these are properly and completely made out, and the same is true with regard to accident reports.

These remarks apply on the Public Service Railway particularly to form No. 418, a very important one, as it is the basis for all car-mileage and carhouse data. This form calls for the schedule number, the number of cars run, the number of trips, the car-hours and the car-miles. The necessity for care in the filling in of this form is an obvious one.

When the cars are all out on the line it falls to the inspector to be responsible for their movement. He is the man who must actually check the headway and turn in reports as to bunching and the reasons for this difficulty.

The inspector has an excellent opportunity to explain to motormen who are running ahead of time how serious is the effect of this practice in producing unequal distribution of passenger transportation. He can explain how the motorman is not doing his share of the work in passing up some of his business to his follower, who is running on time and having his car overcrowded because the leader is running away.

The inspector should frequently compare watches with the trainmen to insure their knowing that they are



keeping to schedules. He can also study the manner in which the motormen are operating their cars, with reference to feeding the controller, applying the brakes, reducing speed over special work and curves, etc. And in regard to coasting, the supervisor has an opportunity to assist in the saving of energy. Some motormen have the very bad habit of running by passengers. The inspector should detect this practice and secure the dismissal of men who cannot overcome the habit, which is not fair to the passengers or the company. It is not fair, either, to run away from an approaching car at a transfer point, especially when the lines are on a long headway. The company is selling transportation and it is the inspector's duty to help develop trade and not discourage it.

The inspector should see also that all crews are familiar with the running time points on the line and that they are striving to adhere strictly to them. After a delay on the line he can do much to straighten out the cars rather than leave it to the trainmen to get back on schedule time the best they can. In all of this work great tact is necessary, for it is humiliating to a man to be corrected before his associates.

The inspector should also keep his eye on the equipment on the line and see that it is up to standard. Cars should not be allowed to be operated with dilapidated or missing signs, broken windows, etc. He should also keep in close touch with traffic conditions on the line and make it his business to learn when churches, lodges and other organizations in his district are to have special gatherings that will overtax the cars. A notification to the supervisor will insure proper service, and it is such emergency service that wins friends for the company. During the summer he can canvass his district to learn when there is to be extra riding due to excursions or picnics.

In the foregoing attention has been called to some points regarding which strict observance will make the employee's work easier and more effective to himself and his superiors. "If a job is worth doing at all it is worth doing well." The electric railway industry is working at present under most trying conditions and must expect the utmost from every employee regardless of his rank. If the business is to continue each individual must work with his maximum effectiveness.

### Utilizing the Transformer Pumps for Emergency Duty

IN THE Canal Substation of the Columbus Railway, Power & Light Company, Columbus, Ohio, recently completed by the E. W. Clark Engineering Corporation, the circulating pumps used for the transformer cooling water also perform other functions. In addition to circulating this water through the cooling tower, the piping is so arranged that either pump can be used to pump out the transformer pit or the substation basement in time of flood when the ordinary sewer connections have to be closed. The basement is rather deep, due to provision being made for installing feeder regulators on the outgoing circuits at a later date if necessary. The substation site is well above extreme high-water level but both the basement and the transformer pit are below this level, so that the sewer connections from them are provided with valves and the above provisions are made for pumping them out in case of flood.

## 1918 Steam Line Statistics

Under Government Control Net Operating Income of Class I Carriers Fell Off \$214,000,000 or 23 Per Cent

THE operating revenues in 1918 of 195 steam railroads of Class I (having annual revenues of more than \$1,000,000) amounted to \$4,913,319,604, an increase of \$862,856,025 or 21.3 per cent over 1917. Freight revenue rose 21.7 per cent and passenger revenue 24.7 per cent. These figures are contained in the latest report of the Bureau of Railway Economics, based on returns to the Interstate Commerce Commission.

The operating expenses of these carriers aggregated \$4,006,894,762, an increase of \$1,148,682,552 or 40.2 per cent. Maintenance of way expenditures increased 46.7 per cent, maintenance of equipment 60.4 per cent and transportation 33.7 per cent. The operating ratio was 81.55 per cent in 1918 as compared to 70.57 per cent in 1917. Taxes at \$186,652,095 represented an advance of 2.1 per cent, and the net operating income at \$690,418,778, a decrease of \$284,360,159 or 29.2 per cent.

The net operating income for 1917 was greater by about \$70,000,000 than the annual average of the three years ended June 30, 1917, the test period which formed the basis of the standard return guaranteed by the railroad control act of March 21, 1917. Accordingly, the point of greatest interest in connection with the net income earned in 1918 is not the \$284,000,000 by which it fell below that for 1917, but the approximate difference of \$214,000,000 between the \$690,000,000 actually earned by railroads of Class I under government operation during 1918 and the \$904,000,000 which they earned annually during the test period.

The following table compares the returns of 1918 with the average annual results of the three-year test period:

Item	1918	Test Period, Average 1915-1917	Change in Per Cent
Operating revenues.....	\$4,913,000,000	\$3,391,000,000	Inc. 44.9
Operating expenses.....	4,007,000,000	2,293,000,000	Inc. 74.7
Net operating revenue.....	906,000,000	1,098,000,000	Dec. 17.4
Taxes.....	187,000,000	152,000,000	Inc. 22.6
Net operating income.....	690,000,000	904,000,000	Dec. 23.7
Operating ratio—per cent.....	81.6	67.6	Inc. 20.2

It should be noted in connection with the operating expenses of 1918 that the aggregate shown in the next table (\$4,007,000,000) does not include the cost of maintaining the corporate organizations of the railroads. This cost represents a substantial sum, the exact amount of which is not yet available. Corporate expenses were a part of the operating expenses of 1917 and of the test period. For an exact comparison, the corporate expenses should be added to the operating expenses of 1918, which would correspondingly swell the increase over 1917 and over the test period.

According to a note in the *Electrical Review*, London, the president of the Hungarian State Railways has submitted a proposal to the Minister of Commerce urging that immediate steps be taken for the electrification of the Budapest Railways. It is estimated that by the electrification of about 135 miles of line 1,500,000 tons of coal would be saved annually.

## Side Lights on the Zone Fare—The Bane of Comparative Statistics

The Greater Track-Miles in the United States Cannot Explain Away the Fact That British People Are Better Riders of "Walking" Distances

BY WALTER JACKSON

THE many misconceptions that have prevailed in this country concerning the British system of graduated fares seem to be due to two causes: Hearsay and the thoughtless repetition of hearsay; comparisons of street railway statistics made by those who were unfamiliar with conditions in detail in both the British and the American cities compared. It is a pity that so many should have decried for so long the principle of charging by distance because some of these folk will now have to reverse themselves. For example: After all the gratuitous assertions that zone fares are responsible for British congestion we are now gravely assured by a former universalist that "the typical American city has a highly congested center, etc.," and not the zone-fare British city. Precisely! But why didn't we make this discovery sooner?

Hearsay has many sins to answer for, but the "comparative statistics" fellow is worse. He takes a peculiar delight in comparing such figures as track-miles, passengers per track-mile and passengers per car-mile, and has no difficulty in proving what is true: That the American rider is offered too much for his money. It does not occur to him to go to the sources, namely, the cities themselves, to see what the pretty figures really mean. "Fine words butter no parsnips" and duplicate track pays no dividends.

To avoid burdening the reader with figures, let the dread truth be admitted without parley: British cities do have less miles of track per population than American cities. In fact, one may say that we generally have too much and the other chap too little track. Why is this? Primarily, the lesser amount of trackage of British tramways is not due to any unwillingness by the operators to develop facilities or by the public to move out into the country. In part it is the result of legislation since 1870 which makes it necessary for a municipal or private operator to go through cumbersome Parliamentary procedure for the right to extend trackage; in part, it is the result of a more unified development in which every piece of track is made to count.

Whereas British tramway development was greatly hampered, especially in planning suburban extensions into other political subdivisions, American builders were free to risk as much as they liked. In their optimism, they built too far out into the country, often transforming the 2-mile rider into a 4- or 5-miler, but without getting any more money for the doubled service. But even in the older parts of the cities the old competitive lines built more track than was really needed. Unfortunately the investment involved blinded the owners to the desirability of wiping out needless lines after consolidation.

Instead of bemoaning the taking up of unprofitable track we ought to be thankful that the true commercial spirit is entering the industry. It is cheaper to pay fixed charges on the bonds of an obliterated road than to pay operating deficits, too. At least that has been the standpoint of British municipal tramway managers for years. Is it not worth a thought that even these

compact properties will not tolerate the retention of useless trackage?

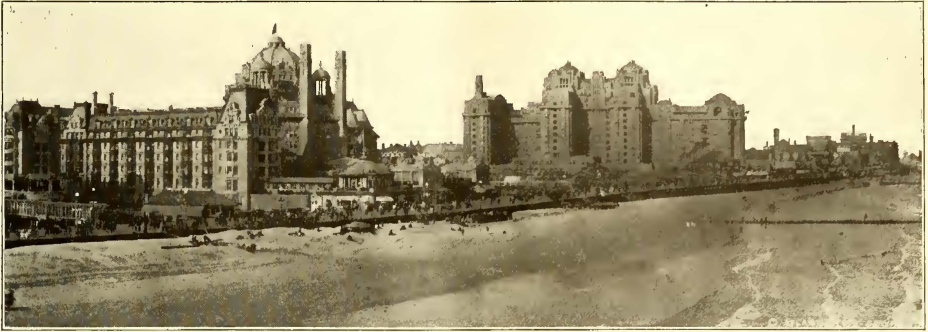
The true test with regard to track mileage is whether there is enough of it to serve the needs of the community. If there is, nothing will be gained by comparing it with another city of like size, because no two towns are similar in topography, distribution of industries, etc. While most of the British tramways lately visited by the writer were contemplating either track or omnibus extensions, none except the Edinburgh electrification from cable traction felt that they would need to build any important extensions at the termination of the war period. Of the other roads, the Glasgow Corporation Tramways apparently has the most ambitious plans, in figuring to go from 196 to 238 miles of single track.

Rides per inhabitant per annum offer a second dangerous means of comparison unless used with care. This per capita figure is not merely a function of trackage, cars, fares and other street railway indices. The degree of concentration of the inhabitants with regard to places of work and pleasure is extremely important—yet the effect of this cannot be estimated except by a population survey. To illustrate: In Edinburgh a great part of the population lives in tall tenements. The older folk and children on the upper floors of such houses are virtually prisoners, while many of the active workers are within walking distance of their jobs. Contrariwise, a city in a river valley, like Glasgow, has the right foundation for high per capita riding.

Nor should we forget in connection with these studies that hitherto many British workmen have had such long hours that they have tried to live close to their work. With shortened working hours they will be more willing to move out into more distant sections and so become car riders.

In a recent quasi-technical paper passengers per car-mile were used as an index of service. The reader was allowed to infer that the more customers a street railway car gets the more censure the company deserves! That there are but six passengers per car-mile in the American city praised and eighteen in Glasgow is no severe reflection on Glasgow, when a person familiar with both cities knows that most of the difference is due to the better load factor built up in Glasgow by short-ride traffic. Overcrowding during the rush hours is not inconsistent with a low passenger per car-mile index, for the American passenger averages a longer occupancy of the seat. For example: Sixteen passengers per car-mile where each passenger averages 2 miles means no more seats used than eight passengers averaging 4 miles each. In each case the passenger-miles, a unit unknown to the universal fare, are the same, 32. The higher figures of Britain do not mean that the cars are overcrowded. Riders going 1½ miles or less are not likely to board a car that is uncomfortably full. As these riders constitute one-half the traffic and are the patrons who can walk, the answer as to service standards is obvious.

After all, what have we to gain by comparisons that do not put customers in empty seats? It is up to each operator to find whether he can create on his own system by either the zone system or frequent service or both that great percentage of short-ride traffic which is an inevitable characteristic of British travel, whether the cities are large or small, congested or diffused, industrial or residential.



A FAMILIAR PIECE OF SKY LINE ON THE JERSEY COAST

## N. E. L. A. Meets at Atlantic City

The Subjects Discussed at the General Sessions Included Municipal Ownership, Conservation of Power Resources and Lamp Production—The Technical Sessions Took Up the Questions of Prime Movers, Oil Switches, Underground Construction and Overhead Lines

**A**N "OLD TIME" convention was held by the National Electric Light Association at Atlantic City last week. In 1918, only about 300 were present and they met in a hall of one of the hotels. This year "The Million Dollar Pier" was engaged, meetings were resumed by all of the different sections, the attendance was large and there were about 200 exhibits. It was called a "victory" convention, and all in attendance seemed pleased to be back on a peace footing again.

### FOUR GENERAL SESSIONS WERE HELD

Four general or executive sessions were held on the three days of the meeting. In addition meetings were held of the technical, commercial, vehicle and accounting sections.

In his presidential address at the first general session, Mr. Wells referred to the sweeping change between the conditions of last year and those of this year. He then discussed the rising costs of operation and of raising capital and expressed the opinion that the uncertainty of the future makes a short-term note at high interest rates probably the most favorable competitor at present of tax-free investments.

In the report of the rate research committee, Alexander Dow referred to the general practice of commissions of allowing surcharges rather than increases in the basic rate, evidently with the belief that the present price conditions were only temporary; but he pointed out that these conditions remain and that the period of readjustment which the country is now undergoing is not likely to be a period of retrogression in costs.

The report of the public policy committee was presented at the second general session on Tuesday evening. W. W. Freeman, chairman of the committee, in speaking of municipal ownership, called attention to the difference between the man who advocates municipal ownership as a question of economics and one who advocates it because he believes in socialization of the

country. The former can be reached by arguments and a showing of facts. The latter will continue to advocate socialization irrespective of any financial considerations. The spread of socialism and municipal ownership is being urged by an active propaganda, said Mr. Freeman. The problem of a counter propaganda has been considered by the committee, but it was not prepared to outline any specific plan of action.

At the third general session George Otis Smith, director of the United States Geological Survey, described the ideas underlying the proposal of Secretary of the Interior Lane for an investigation of the power resources in the entire country and in the Atlantic Seaboard District. He also called attention to the difference in manpower required by a steam plant and a hydroelectric plant and cited the case of the Alabama Power Company where the ratio was 84:1. It is time, he thought, to count the rising costs of labor in the steam plant, where the coal miner as well as the fireman is an employee in fact. From the proposed power system of the so-called Boston-Washington District would flow the energy to serve a score of railroads, hundreds of public service companies, thousands of manufacturing plants and millions of homes.

The report of the lamp committee, presented at the fourth general session, showed the total sales of incandescent lamps for domestic purposes, excluding miniatures, during 1918, to be 186,000,000; of this number nearly 90 per cent were tungsten filament lamps and the rest were carbon and "gem." The production of gem lamps has now been discontinued. The use of carbon lamps seems still to be confined to places where service is severe, where the use is temporary or where protection from theft cannot be afforded.

At the conclusion of the meeting the following officers were elected for the ensuing year: President, R. H. Ballard, Southern California Edison Company; first vice-president, Martin J. Insull, Middle West Utilities Com-

pany; second vice-president, M. R. Bump, H. L. Doherty Company; third vice-president, Frank W. Smith, United Electric Light & Power Company, New York; fourth vice-president, Walter H. Johnson, Philadelphia Electric Company; treasurer, H. C. Abell, American Light & Traction Company.

#### THE DISCUSSION ON PRIME MOVERS

The principal feature of the technical meetings of electric railway interest was the report of the committee on prime movers, of which an abstract was published in the last issue of this paper.

In the discussion, W. L. Abbott, Chicago, pointed out that although there had been considerable concern regarding the operation of large turbines, there is nothing in the situation that warrants distrust in large turbine units or in the present design of these machines. W. S. Finlay, Jr., Interborough Rapid Transit Company, New York, commented on the operation of the large turbines of that company. He said that the generating system of the company is now laid out on the basis of a 30,000-kw. unit, and operating conditions and connections are such that a 15,000-kw. unit is floated on the lines and available at all times, so that a 30,000-kw. unit can be taken out at any time without a disturbance in plant operation.

On the subject of boiler operation a number of speakers seemed to agree that higher pressures must come at an early date, 500 to 600 lb. being mentioned by several. One speaker, in commenting on the subject of superheaters, said that the superheater is a good indicator of the condition of the boiler. In case the boiler throws over solid material, the trouble should be corrected at its source.

In connection with the section on stokers and grates, one speaker mentioned interesting results secured by means of water backs which had been installed to help out in troubles with clinker grinders and to utilize heat for raising the temperature of feed water. He said that with long water backs, from 4 to 5 per cent of the heat generated in the furnace was absorbed by the water passing through the water backs, while with short water backs this rate of heat transmission was reduced approximately 60 per cent. Progress was mentioned by several speakers in the burning of powdered fuel.

#### ELECTRICAL APPARATUS REPORT

The discussion on this report, of which an abstract was published on page 1003 of last week's issue, centered around standardization of transformer polarity, construction of substations which can be easily enlarged, automatic substations, difficulties with oil and airbreak switches, basis for oil-switch guarantees, and protection of generators against internal troubles. Owing to the difference of opinion which developed at the meeting regarding the advisability of standardizing transformer polarity, the subject was referred back to the sub-committee for further consideration. According to several speakers, too many outdoor substations are constructed so that they cannot be easily extended. Another referred to the use of automatic substations for serving three-wire loads as a means of saving investment in large feeders. One central station operator suggested that oil switch explosions were sometimes due to explosion of oil fumes, in which case they may be prevented by proper scavenging of the air, one method being described. This involved the use of two large

check valves, one at oil level and one at the top of the case to permit air circulation. The subject of extinguishing fires in generators was a lively one, the use of steam or water or both being advocated for this purpose, although preference was shown for water. It was said that the immersion of armature coils in water if not prolonged is not permanently injurious, but they should be dried as soon as possible.

#### CONDUITS AND CONSTRUCTION OF UNDERGROUND FEEDERS

Underground construction was discussed under fourteen headings in the report of the committee of which B. D. Meyer is chairman. Three topics which were treated most extensively were, carrying capacity of cables, dielectric losses and cable failure. According to the committee, the rating of a cable should depend on the temperature actually obtained during operation. To facilitate determining this rating, operating companies are urged to keep accurate records on the loads on their transmission cables as well as measurements of temperature and data on characteristics of the duct line. The Public Service Electric Company has developed a plan by which the cable is given a seasonal rating based on the average temperature of an idle duct. Another company reports that the temperature of a bad local hot spot in the duct line was reduced from about 160 deg. Fahr. to about 75 deg. by uncovering the conduit line for a distance of about 20 ft. and back filling the excavation with heavy clay to replace the sandy fill which had been causing the trouble. Where local conditions do not permit the use of this method, a specially ventilated manhole may be installed at the point where the temperature is excessive.

Considerable space was given in the report to a discussion of the relative values of rosin and mineral-oil compounds for feeder insulation. The mineral-oil compounds seem superior to the rosin oil base as far as dielectric losses are concerned, but the committee suggests that some mineral-oil compounds might become too fluid at high temperatures, leaving the insulating material dry at certain sections and thereby liable to breakdown. Additional investigations will be undertaken by the committee.

The committee reports cement as being superior to the various types of asbestos covering used for fire-proofing cables in manholes. However, there is a considerable difference of opinion regarding the comparative merits of rope and metal lath for reinforcing the cement covering. It is generally agreed that the covered cable in the manhole has a better chance to radiate its heat than the covered cable in a conduit line.

The opinion was expressed that it is not desirable to concentrate more than 7000 kva. to 8000 kva. in a single underground circuit, and that 3-in. (outside diameter) cable is about the largest now in use. The committee recommended that the size of a single conduit be limited to from sixteen to twenty ducts and repeated a previous recommendation that not more than 35,000 kva. be carried in a single duct line.

In discussing the committee report, the members agreed that great advantages would result from further standardization of manhole and duct line construction. Several members felt that the standard duct size might well be 4 in. or 4½ in. instead of 3½ in. This would facilitate changes and repairs. Considerable difference of opinion was expressed regarding the relative methods of protecting cables in manholes with cement (over

metal lath or rope) and disposing them on shelves. One speaker advocated more uniform spacing of manholes in the interest of reducing the number of cable lengths which must be kept on hand.

REPORT ON OVERHEAD LINES

The committee on this subject referred to the studies conducted by the California joint committee. Reference was made also to the joint use of poles by power and telephone companies as of much concern to the industry and public. Thus far, it was said, prevailing telephone practice had definitely discouraged extensive joint pole use, it being limited to circuits not exceeding 5000 volts, no suitable provision being made for the higher voltages which are required in the development of power company business.

One war-time suggestion made by manufacturers was a new standard for cable stranding, based upon utilizing a minimum number of strand sizes and designating each cable in terms of the number and diameter of strands composing it, rather than in terms of circular mils, as at present. This would reduce stocks and make for more prompt deliveries.

Further study of the causes for insulator depreciation was urged.

California Electric Railway Association Holds Annual Meeting

AT THE annual meeting of the California Electric Railway Association in San Francisco on May 19 there was a detailed discussion of the problems confronting the California companies at the present time. The increased cost of operation, increased labor and material costs and automobile competition were some of the foremost topics. It was decided to continue the association for a term of three years and plans were arranged accordingly.

W. V. Hill, who managed the affairs of the association in San Francisco previous to taking up his duties at Washington for the American Association, is to return to San Francisco to take care of the interests of the California Association immediately after the conclusion of the present special session of Congress. Mr. Hill was present at the May 19 meeting, but left for Washington immediately afterward.

The election of officers resulted as follows: W. R. Alberger, vice-president and general manager San Francisco-Oakland Terminal Railways, was elected president; W. E. Dunn, vice-president Los Angeles Railway Corporation, vice-president; W. V. Hill, manager. Jesse W. Lilienthal, president United Railroads of San Francisco; W. Clayton, vice-president San Diego Electric Railway; Paul Shoup, president Pacific Electric Railway; W. R. Alberger and W. E. Dunn were re-elected members of the executive board.

The proposed increase of fares by the London General Omnibus Company is objected to by the Westminster City Council on the ground that it would create a traffic monopoly against the interest of omnibus users and ratepayers. It was also decided to investigate the working and management of the company with a view to providing out of its revenue a direct contribution to the upkeep of the highways of the city and elsewhere.

International Association Begins Again

Executive Committee Issues Call—Subjects of Enemy Nations to Be Excluded from Body

UNDER date of May 3, the president of the Union Internationale de Tramways et de Chemins de Fer d'Intérêt local, C. de Burlet, has announced the re-establishment of the association. The notice was issued from the office of the secretary at Rue d'Arlon 23, Brussels, and is signed by President de Burlet. It reads as follows:

It is with a feeling of great satisfaction that the executive committee, after a long and sad separation, is able at last to renew its communications with the members of the association. The events of the terrible war have had their effect on the association, and radical changes are necessary to maintain its existence and prevent its work of years from being irredeemably lost.

In view of the new international situation the executive committee, at a meeting on March 22, decided that the only solution possible was the dissolution of the organization as it had existed and then its immediate reorganization with members only from countries of the allies and the neutral countries. An association embracing all countries being considered morally impossible at the time, the executive committee assumed the responsibility of the measure mentioned and now asks ratification of its acts as soon as the circumstances permit. The act is legal because under a decree of the Belgian Government the property and rights of the citizens of an enemy country are subject to confiscation, and similar laws have been passed in all of the countries of the allies. The association has already given notice of this action to those who will be affected by it.

Through a surplus balance left from previous years, the executive committee has been able to administer the affairs of the association during the period when mail communication was interrupted between its office and the greater number of its members. This is in spite of the fact that no dues have been received since 1914. It is the intention of the executive committee not to collect any dues for the years 1915, 1916 and 1917, but to enable the association actively to begin its work again, issue reports, etc., members are invited to forward to the secretary their dues for the years 1918 and 1919.

Article 13 of the bylaws fixes the dues for active members (tramway companies) as follows:

For annual receipts of:

(a) Less than 1,000,000 francs.....	50 francs a year
(b) Between 1,000,000 and 2,000,000 francs.....	100 francs a year
(c) Between 2,000,000 and 3,000,000 francs.....	150 francs a year
(d) Between 3,000,000 and 4,000,000 francs.....	200 francs a year
(e) Between 4,000,000 and 5,000,000 francs.....	250 francs a year
(f) More than 5,000,000 francs.....	300 francs a year

The annual dues of individual members are 20 francs, those of associate member companies (firms, etc., interested in the tramway industry) are 100 francs.

Members will shortly receive a volume containing the questionnaire of the Christiania Congress and a certain number of reports which were issued in expectation of the Budapest Congress. The sending out of these reports, whose printing had not been finished in 1914, will follow immediately on the receipt by the association of the dues mentioned above.

Important changes have occurred or are inevitable in the tramway and light railway business as in all branches of industry, and it is of the greatest importance at this time that all companies and individuals engaged or interested in tramways should give their experience.

The committee counts on the active co-operation of all its members. It is happy to say that from all sides expressions of sympathy and hopes of seeing the association revived have been received at its headquarters. It hopes to inspire the same sentiments among all for a work commenced thirty-four years ago so that the association may carry out its purposes for the good not only of the companies but also of the public and all directly and indirectly interested in the development of intercommunity transportation.

All communications should be addressed to the secretary, H. Camp, 23 Rue d'Arlon, Brussels, Belgium.

## Some Principles in the Training of Car Men

### It Is Not Necessary for a Motorman to Cause an Accident to Train Him in Safe Car Operation

BY E. C. CLARKE

A MAN may be told a thousand times to be careful but he does not understand unless he has been properly instructed. Not knowing of danger he cannot avoid it.

A car may be equipped with every known safety and economy device and every part of the car may be in excellent condition, but all appliances become useless unless the trainman has been properly instructed. An improperly instructed motorman will send the best car that was ever manufactured to the scrap heap. And the money paid out for accident claims amount to more than the cost of the car in some cases.

It is quite a different story if the motorman has been fully instructed. For instance, take an old-style hand-brake car that is not equipped with a single safety device. The controller may be stiff and the pawl spring broken, and there may be too much slack in the brake chain making it exceedingly hard to stop the car—in fact, the general condition of the car may be very bad. Place in charge of such a car a competent motorman, who has been properly instructed regarding the car equipment and the careful operation of a car through the streets, and he will operate the car safely. In all probability he will not keep the car on time, for having been properly instructed he will realize that the safety of passengers and the car equipment is the first consideration. He will operate the car to the depot safely but he will be tired and worried and will, of course, want to change the defective car for one that is in good condition.

It has not been a great while since raw recruits were assigned for instruction to a motorman who did not fully understand the operation of a car. In fact, there are cases of this kind now. After a few trips with such an instructor the recruit was pronounced competent, but what happened when he started to work for himself? It was necessary for him to learn how to operate a car in a manner of his own creation. If anything happened to be on the tracks in front of his car while he was learning it was a case for the wrecker, the ambulance or the coroner, and not infrequently all three were needed.

It has been said that a man is not a good motorman until he has had an accident, the cause assigned to this fallacy being that in having the accident the motorman saw how it occurred and can avoid a repetition. If there is anything in such a statement it is simply that the accident frightened the man into being more careful. The chances are that he is so occupied in stopping the car that he is prevented from seeing just how the accident occurred. Obviously the paying of accident claims is a very expensive method of instruction.

The past few years have brought a crying need for the systematic instruction and following up of operating department employees. Cars and trains have become greatly overcrowded and the streets are congested with pedestrians and vehicular traffic. There is a demand for speeding up of schedules and the prevention of accidents.

While the multiple-unit system of control, with the automatic air brake, has been used for some time on elevated, subway and interurban trains, such equipment has only recently been installed on surface cars. Such cars are now being equipped with devices to insure the proper operation of the controller, to save power and reduce brakeshoe wear, but the desired results are not to be obtained without a proper system of instruction.

The most recent improvement in cars and car equipment is the one-man safety car. While the safety car is simple it is just enough different from other cars to require special instruction in order to secure the best possible results in operating the equipment and handling the passengers.

### VISUAL MEANS SHOULD BE UTILIZED FULLY IN INSTRUCTION WORK

A recruit to-day must be carefully selected; then sent to a school where he can be thoroughly instructed with regard to the different parts of the car equipment and the functions they perform. The student should not only be instructed as to the proper operation of the equipment, but also should be shown the damage resulting from improper operation. This is not only necessary for the comfort of the passengers but for the prevention of abuse of the equipment. The different pieces of apparatus should be arranged so that the student can be shown as fully as possible the functions performed by each part. There should be no mysteries about any piece of apparatus or the duties it performs.

When the student passes through the school successfully he should receive instructions from a corps of instructors selected from each line and properly qualified at the school. The instructor and the student should be advised and coached by a force of instructors who act in a supervisory capacity.

While the student is receiving actual instruction on the line under the guidance of competent instructors it is possible for the latter to explain conditions and situations in the street that produce accidents. The supervisory instructors should ride with the new man just as soon as he starts to work for himself, advising and coaching him in his duties. The thoroughness of such a system will make it no more necessary for a new man to have an accident just to see how it occurs than it is to look down the barrel of a gun to see what happens when the trigger is pulled.

To supplement verbal instructions, drawings, stereopticon slides and motion pictures are of great value in showing how accidents occur and how they can be avoided. The most natural method of instruction is through the eye. An additional value of the pictures is that they are presented when the student is at ease in a comfortable seat, thereby making it possible to secure his undivided attention. Stereopticon slides and motion pictures cannot be surpassed in illustrating the car equipment and the functions performed, particularly those operations that cannot be seen otherwise. Animated drawings visualize such work and relieve the effort to understand the operations.

The Canadian Engineering Standards Association has been incorporated for the same general purposes as those of the similar organization in Great Britain and the proposed American Engineering Standards Association in this country.

## Inaugurating Safety-Car Service in Ogden

**A**FTER the Utah-Idaho Central Railroad had decided to make a trial installation of seven one-man safety cars on its lines in Ogden, Utah, the management made a special study of introducing them with the greatest possible satisfaction to the public and the employees.

A special effort was made to inform the public as to what safety cars were accomplishing in other cities, and the co-operation of several "boosters" on each line was secured to assist in this phase of the work. As soon as the first car arrived it was well limbered up and its operation was demonstrated to a party comprising the Mayor, the city commissioners, newspaper men and the company officials. The result was reflected in an editorial in the *Ogden Standard* where, after listing some of the good features of the cars, the editors said: "All of these and other accomplishments of the one-man safety cars show that the street railway company in Ogden is making an advance step which will be appreciated."

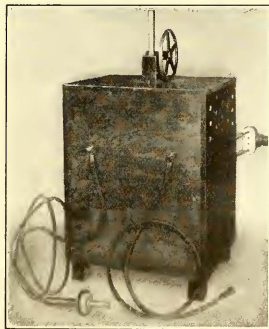
To secure intelligent co-operation on the part of employees the men were given thorough training on two lines on which, fortunately for the purpose, there was very little passenger traffic. Furthermore, without any reference to the further use of the one-man cars in Ogden, the following clause was put into the wage agreement with the carmen: "Conductors or motormen required to work safety cars will receive 5 cents per hour in addition to their regular pay." In consequence there was no discussion necessary with the men at the time the cars went into operation and the publication of the unfavorable newspaper comment usually accompanying such discussion was avoided.

## Welding Transformer with Adjustable Secondary Winding

**A**NEW type of alternating-current arc-welding transformer has been developed and has been given the trade name of "Zeus" by the maker, the Gibb Instrument Company, Detroit, Mich.

The transformer is mounted in a box provided with line and welding circuit terminals. One of the particular features in this equipment is its arrangement for regulation of welding current through the raising and lowering of the secondary winding of the transformer. This is accomplished by means of a rack-and-pinion connection operated by a hand wheel installed on the top of the transformer box.

The "Zeus" is arranged for unit installation and it is recommended that a 150-amp. outfit be installed and as the work increases a duplicate may be connected in parallel with the original machine.



A. C. WELDING OUTFIT FOR CONVENIENT ADJUSTMENT OF SECONDARY CURRENT

## More Light on the Situation

National Chamber of Commerce Continues Its Study of the Vital Needs of Electric Railways

**I**N THE furtherance of its plan to make a thorough examination of the critical condition of the electric railway industry, the public utilities committee of the Chamber of Commerce of the United States held its second hearing in Washington, D. C., on May 28 and 29. The sessions are still going on as this issue goes to press, and for this reason a detailed report of the proceedings will not be published until the following issue.

It may be said now, however, that the various speakers gave a clear-cut picture of the essentiality of the electric railway industry to the nation's welfare and of the inevitable disaster that will follow a continuance of the existing situation. The efforts made to secure relief through more elastic franchises, through fare increases and through the curtailment of tax burdens were all described in detail.

For example, L. R. Nash, of Stone & Webster, Boston, Mass., discussed the various efforts that have been made in recent years to perfect the service-at-cost franchise, and other speakers took up this and other points in connection with individual communities. John W. Van Allen described the complex difficulties of the Buffalo fare situation and the still unsuccessful efforts to find a means of settlement. The conditions of the lines in their respective cities and salient points regarding the franchises were mentioned by Walter A. Draper, vice-president Cincinnati (Ohio) Traction Company; W. C. Culkins, director of street railways in Cincinnati; Britton I. Budd, president Chicago (Ill.) Elevated Railways, and Lucius S. Storrs, president the Connecticut Company. The points most emphasized by all were the need of flexible service-at-cost franchises and of a better understanding on the part of the public of its responsibility for and interest in successful railway operation.

Another highly significant point was that made by T. S. Holden, economics investigator of the Division of Public Works and Construction Development, Department of Labor, in regard to the 1919 price situation. Mr. Holden averred that no recession in the general price level should be expected for several years. He added that there was no reason to assume that a 5-cent carfare was to-day "normal," for a normal rate now is one based upon the cost of production under present high price conditions.

The members of the public utilities committee present at the hearing were Lewis E. Pierson, New York, N. Y., chairman; P. H. Gadsden, Philadelphia, Pa.; Arthur W. Brady, Anderson, Ind.; F. B. De Berard, New York, N. Y.; E. K. Hall, New York, N. Y.; Charles L. Harrison, Cincinnati, Ohio, and P. N. Myers, St. Paul, Minn.

In its second quarterly report to Congress the Rehabilitation Division of the Federal Board for Vocational Education gives the number of registrations of disabled men up to March 15 as 49,161. At the time of their registration all of these men were prospective cases for vocational re-education or for placement without training in suitable employments.

## Car Body Maintenance in Belfast

Original Improvements Which Have Been Made to Prolong the Life and Strengthen the Structure of Double-Deck Cars

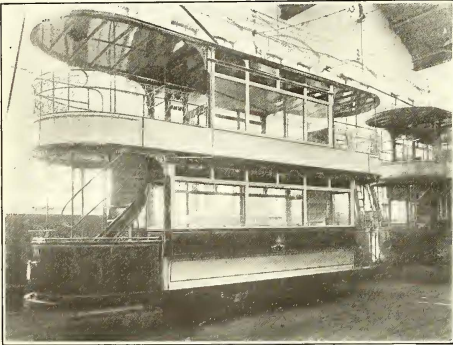
BY P. WILLIAMSON

Car Works Superintendent Belfast City Tramways

FOR a number of years tramways throughout the United Kingdom have been experimenting in a variety of ways, so as to improve their rolling stock and lengthen its life. In this direction it has become established that, since the introduction of top covers to the old, standard, wooden underframe type of car, many difficulties have arisen that are mainly due to heavy loading and higher speeds. These conditions have now become responsible for much distortion and hogging at the ends of the bodies, which not only detract from the general appearance, but shorten the life of the main structure and increase the cost of maintenance very materially.

The builders of this class of rolling stock have for a number of years followed the practice of bracing

the intermediate and stump pillars (short posts), which are checked out  $\frac{3}{8}$  in. to form a level at all bearing surfaces, and 4 in. from the top edge of the bottom glass rail (window sill). We have found it an advantage to shape the steel bar to a  $2\frac{1}{2}$  camber, as that has the effect of regulating the strain to a greater degree. The ends of the steel bar are set in the direction of the corner posts shoulder and side sill, and drilled to accommodate a  $\frac{3}{8}$ -in. cast-steel connecting pin. At the junction of the corner post and side sill, there is attached and bolted a malleable-steel knee  $2\frac{1}{2}$  in. x  $\frac{3}{4}$  in. with a lip directly in the center, and drilled to take a  $\frac{3}{8}$ -in. steel cotter pin. To these two steel pins at each corner of the cars are fixed  $\frac{3}{4}$ -in. connecting rods with 5-in. turnbuckles, and so arranged that when necessary they can be used for adjustment by removing the back portion of the seat only, which in no way incurs any further labor. In combination with this arrangement the intermediate glass pillars (window posts) have been reinforced with T-section steel 1 in. x 1 in. x  $\frac{1}{4}$  in. set in flush, which extends from the cant rail (to the existing portion of the builder's truss



DOUBLE DECK CAR WITH TOP COVER



INTERIOR VIEW OF BELFAST CAR

the framework together with a light iron rod (the lower one in the interior illustration) to the inside of the side members, and securing it in position to the ends of the sole bar (side sill) with a strong adjustable nut. To a great extent this method has proved in itself deficient for the purpose for which it was intended, and it has now become necessary to improve upon it so as to restore the cars to their original shape.

After many years' experience in the building and maintenance of this class of rolling stock, the writer has developed several improvements that have been found to overcome some of the difficulties in Belfast. These methods are applied when the cars are passing through the workshops for a general overhaul. In order to inspect, repair and repaint them thoroughly it was found necessary completely to remove the internal structure so as to simplify the labor in fixing new floor boards, wheel covers, and heelboard rails. The advantage of this is the obtaining of a clear opening for the inspection of the head stock, bolster and center bearer, and it simplifies the removal of defective bolts that are likely otherwise to be overlooked. At this stage of the work, we take the opportunity of fitting a new trussing device (shown in the interior view) by fixing a spring-steel bar 9 ft. x  $2\frac{1}{2}$  in. x  $\frac{3}{8}$  in. to

rod) and is screwed firmly along the outer edges. This device not only has the effect of strengthening the posts and other parts of the main framework, but has been the means of overcoming all troubles with leaky windows.

It has been found by cutting away  $2\frac{1}{2}$  in. of the above-mentioned 1-in. x 1-in. x  $\frac{1}{4}$ -in. web that this serves as a keeper plate for retaining the truss bar in the required position. At the extreme ends of the  $2\frac{1}{2}$ -in. truss bar, it has been found to be a much better plan to use angle iron  $1\frac{1}{2}$  in. x  $1\frac{1}{2}$  in. x  $\frac{1}{2}$  in. as retaining plates to protect the timber of the short posts, where the portion is notched out, in place of the flat iron so commonly used for similar purposes.

Continuing along these lines, another improvement has been added by lining up the window sills with lengths of hardwood and screwing steel plates  $1\frac{1}{2}$  in. x  $\frac{3}{4}$  in. to the underside of the timber before finally securing these to the window sills. By this method we have been able to restore the window sills to their original shape and to improve greatly the appearance of the cars.

The floor bearers (sills) have also required attention as the earlier construction of these members of the car was altogether unsuitable and unreliable to sustain the



requirements of heavy traffic conditions. The original method of fixing the center sill in position was by means of an iron bracket bolted to the inside of the side sill, the sills being secured by bolts to the brackets. This form of fixing, however, proved to be very unreliable as the whole weight entirely depended upon two  $\frac{3}{4}$ -in. diameter bolts, which were so arranged that inspection was most difficult. It has been overcome and all further danger of breakage of bolts, etc., removed by redesigning the malleable-iron bracket and extending the side flanges so as to utilize the top of the side sill for bolting-down purposes, instead of relying solely on the side bolts. Along the bottom sides of the sills we have fixed angle steel  $1\frac{3}{4}$  in. x  $1\frac{3}{4}$  in. x  $\frac{1}{2}$  in. made flush on each surface, the object of this arrangement being to retain the bar in shape and maintain an even appearance of the floor generally.

#### BOLTS CUT OFF AND HOLES ELONGATED BY HEAVY LOADS CARRIED

The constant use of the mechanical brakes, and the excess load of passengers occupying the platforms are responsible for the displacement of the wooden sills and the bolster. In many instances we found on inspection that the ends of the bolts (that pass through the side sill and angle steel) were completely cut away, and the holes quite elongated. To overcome the wear and to prevent excessive strains having a detrimental effect, we have attached to the side sill bolt a malleable-iron stay, angular in form, with a broad, flat surface shouldered to rest upon the top edge of the steel angle bar, and finally held in position to the side of the short posts by two hexagon bolts and nuts. Many advantages have been obtained by this arrangement, more particularly where the tenons of the wood bar enter the mortices in the side sill, as previous to this alteration we were compelled in some cases to renew the side sill owing to breakage having been found at the mortice holes. Frequent removal of the trapdoors of the main flooring for inspection of the motors, etc., resulted in a very noticeable amount of wear taking place on the outer edges of the boards, and, in view of the scarcity of this class of timber, which is difficult to obtain, and the necessity for the practice of the utmost economy, it has been found to be a great benefit to fix light angle iron  $1\frac{1}{2}$  in. x  $1\frac{1}{2}$  in. x  $\frac{1}{2}$  in. to the worn edges of the boards. This lengthens the life and does not interfere in any way with the removal of the trapdoors. Together with this alteration we have added angle irons  $1\frac{1}{2}$  in. x  $1\frac{1}{2}$  in. x  $\frac{3}{8}$  in. to the floor runner bars (that are set in below the heel boards) the advantages of which are the supporting of the heavy weight of passengers standing and also the regulating of shrinkage that occurs during the summer season.

Since the addition of top covers to the Belfast double-deck cars a greater tendency in the direction of heavier loading has brought about many defects in certain forms of car construction. In view of the fact that many difficulties present themselves in the way of combining both body and top cover in a more solid form, it has become essential in Belfast to provide other methods to secure these two parts more firmly together. In this direction we have been able to devise means whereby we brace both structures together, which relieves the strain thrown upon the joints. Our method has been to fix two braces of iron 2 in. x  $\frac{1}{2}$  in. along the inside of the bottom window sill, thickened

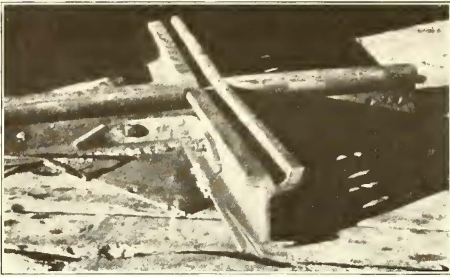
out to  $\frac{3}{4}$  in., made in the form of a knee at each end, to accommodate a  $\frac{3}{8}$ -in. hexagonal nut, provision having been made for screwing up by extending the iron brace 2 in. beyond the outer edge of the corner posts. To the center of the window sill an iron plate 7 in. x 2 in. x  $\frac{1}{4}$  in. is set in level, screwed with counter sunk iron screws. The other two holes adjoining are drilled  $\frac{3}{8}$  in. and tapped to receive countersunk metal-threaded screws. The surfaces of the iron braces are drilled for countersunk wood screws spaced at short intervals and firmly fixed to the window sill. On each side of the body canopy rim a cast-brass sleeve (formed on an angular surface plate) is fixed about 2 ft. 6 in. from the end of the corner post. To the ends of the iron brace we have fixed a mild steel rod  $\frac{3}{8}$  in. in diameter with screwed ends, and at the brass sleeve an easy form of adjustment is arranged, which provides an even support and hold to this essential part. In many other forms we have found angle iron  $\frac{3}{4}$  in. x  $\frac{3}{4}$  in. x  $\frac{1}{2}$  in. to be of great service, and by fixing it to the top edges of the decency boards (dress covering at the staircase landing) it has been the means of improving the appearance and overcoming all wear which is brought about by thoughtless passengers using these as foot rests.

Where inside portable wood seats are in use it is frequently found that the front rail warps, thereby causing the ends to curl upward (more especially where the body framework is out of line) and much annoyance and danger have resulted from this source. To avoid renewing the timber it has been found that by reinforcing the wood rails on the lower side with  $\frac{3}{4}$ -in. x  $\frac{3}{4}$ -in. x  $\frac{3}{16}$ -in. angle steel, much trouble and expense are avoided, and the danger of passengers' clothing becoming entangled and damaged is considerably reduced.

#### GUTTERS INSTALLED AT ENDS OF CANOPIES PROTECT PASSENGERS

Included with the above, the labor involved in washing and cleaning the cars has been brought under similar consideration, in the way of arranging a device to preserve the paint and protect passengers from objectionable drenchings when entering or leaving the car.

This provision is made in the form of a wooden gutter, screwed to the front cant rail and canopy rim, directly below the nosing of the roof boards, in continuous form with the outline of the roof. At the staircase sides only, a portion has been slotted out of the bottom of the wood gutter, to form an outlet for rain or snow. Directly below this aperture a brass casting has been fixed, made in the form of a trunk head, and so arranged on the corner post to provide for the intake of rain. To this attachment is fixed a  $\frac{3}{8}$ -in. copper tube, that extends to the bottom of the side decency board (which is cut away to make provision for the tube in direct form), and to this junction a double elbow is attached in sleeve form, which provides for an additional length that passes down the end of the body corner post and terminates 6 in. below the platform boards. By this contrivance we claim to have not only reduced the labor in washing and repainting, but also to have protected passengers from much annoyance during wet and stormy weather, and in addition we find that a better appearance of the car is very simply maintained.

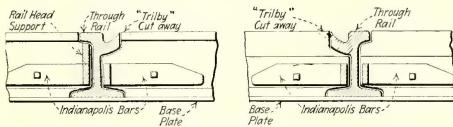


CROSSING RAILS BEING WELDED TO BASE PLATE  
IN THE SHOP

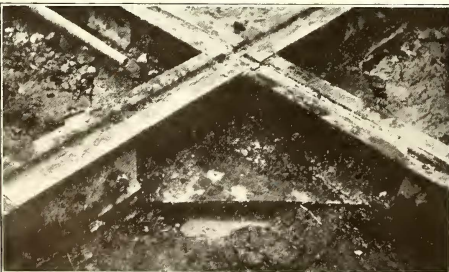
## Emergency Special Work Made With Arc Welder

**Kansas City Railways Use Arc Welding Equipment  
to Build Right Angle Crossings  
for Emergency Use**

**D**URING the latter part of December, 1918, Kansas City was visited by a very heavy fall of wet snow which on account of existing labor conditions was not promptly removed from the streets and was speedily packed into a sheet of ice over all the tracks. The traffic over the rails and special work constantly packed this ice into the crevices and breaks in the special work, and many pieces which ordinarily would have lasted for some months were destroyed by spreading, lifting of the hard centers and breaking of the bolts and fastenings. The result was that when the snow was finally cleared several crossing frogs were almost impassable and were in danger of breaking equipment every time they were used. A period of at least sixty days would have been necessary to secure repair pieces and a very considerable time would have been required to make up bolted work in the shops. The latter plan was impracticable on account of the crowded condition of the shops at that time.



DIAGRAMS SHOWING SHAPES  
TO WHICH RAILS WERE  
CUT BEFORE JOINING



SECTION OF KANSAS CITY EMERGENCY CROSSING  
INSTALLED

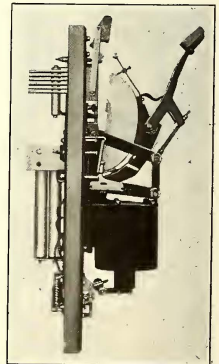
Under these circumstances the Indianapolis welder was utilized in such a way that five crossing frogs were turned out at the rate of one per day by four men. These crossings were constructed of a section of 7-in. grooved rail, one length serving as through rail, with a section of the "Tribby" cut away and a flangeway cut through the ball. The other rails were shaped and cut by means of hacksaws to fit against the through rail and all were welded to a base plate. Then knee braces made of standard Indianapolis bars bent to the proper angle were welded to the webs of the rails.

The crossing made up as above had the weakness that the ball of the rail was unsupported at the flangeways. This was remedied by fitting a block of steel between the under side of the rail head and the top of the knee braces and welding it in place. In addition the bottom flangeways were built up to form flange-bearing crossings.

These crossings were made to meet an emergency, but they are holding up well, and it is possible that crossings of this type may be used in more permanent construction.

## New Construction Used for Automatic Reclosing Circuit Breaker

**T**HE accompanying illustration shows a new circuit breaker, type "LRL" of 3000 and 4000-amp. capacity, recently put on the market by the Automatic Reclosing Circuit Breaker Company. This breaker is an electro-magnetically operated circuit breaker, having the following characteristics: (1) Breaker is closed and held closed by means of an electromagnet. (2) Opens automatically in case of overload, short-circuit or voltage failure. (3) Remains open a definite time interval regardless of cause of opening. (4) In case breaker is opened by a short-circuit, the breaker makes no attempt to reclose while the short-circuit exists, but closes instantly upon the removal of short-circuit or overload. The main contact brush is of a laminated butt contact type. The studs are of laminated construction, the lower stud being slotted vertically and the upper stud being slotted horizontally. The main contact brush is protected from arcing by an auxiliary copper contact sheet and the final arc is formed on upper "graph-alloy" contact tips. The upper arcing tip is supported on a pivoted support actuated by a strong compression spring so that the upper rear tip follows out a considerable distance in opening, thereby insuring good contact of the arcing tips until brush and auxiliary contact are separated from their respective contacts. The upper rear arcing tip is also pivoted directly on a bracket so that it is free to align itself with the front contact in all positions. Provision is made for adjusting the tension of the main brush by means of an eccentric bushing in the brush support.



AUTOMATIC RECLOSING  
CIRCUIT BREAKER FOR  
LARGE CURRENTS

# American Association News

COMMITTEE ON POWER GENERATION AND ONE-MAN CAR COMMITTEE  
HOLD MEETINGS—ACTIVITY IN THE NEWARK AND CHICAGO  
COMPANY SECTIONS

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## Power Generation Committee Holds Two-Day Session

THE committee on power generation of the Engineering Association held a meeting at association headquarters in New York on May 26 and 27 to discuss the subjects which had been assigned to it for consideration. Those present were A. B. Stitzer, New York, chairman; R. W. Eaton, Providence, R. I.; C. R. Greenidge, New York City; Charles S. Lloyd, East Pittsburgh, Pa.; W. C. Slade, Providence, R. I. and Howell Van Blarcom, East Pittsburgh, Pa.

Considerable time was spent in a discussion of the points which are considered necessary for inclusion in the report on the development of the automatic substation. The replies received to the questionnaire sent out to secure information on the operating performances of railway power stations were reported to have been tabulated. The data were considered in detail and recommendations were made regarding additional data which it seemed advisable to secure. The considerations necessary to be included in a form of power contract for the purchase of railway power were also discussed. From replies to a questionnaire sent out on railway operating conditions it appears that the majority of the member companies are buying their power. It was decided that these companies be asked to furnish copies of forms of contract under which they are purchasing power, and that the different items entering into these contracts be tabulated by the committee for convenience in determining the parts that can be recommended for further consideration. A digest is to be made for the guidance of companies who are desirous of making new contracts.

## One-Man Car Committee Interested in "Movie" Film

THE joint committee of the Transportation & Traffic and Engineering Associations on one-man car operation met at the association headquarters, New York City, on May 23. The members of the committee present were C. W. Kellogg, Boston, Mass., chairman; C. H. Beck, St. Louis, Mo.; J. M. Bosenbury, Peoria, Ill.; S. W. Greenland, Fort Wayne, Ind.; J. K. Punderford, New Haven, Conn., and Clarence Renshaw, East Pittsburgh, Pa.

A tabulation, prepared by J. W. Welsh, of the results and experiences with one-man car operation as shown by replies to the questionnaire sent out was reviewed by the committee and recommendations were made for important items to be included in the final report.

Mr. Beck reported on a meeting held in St. Louis to devise a plan for taking moving pictures of one-man car operation and construction. The plan proposed was discussed by the committee at considerable length and the general opinion was that this is a very advisable undertaking and should prove of great benefit to the industry.

## Transportation Department Work Analyzed at Newark Meeting

THE Public Service Railway Company section met on May 23 at Newark. A paper on the work of the transportation department, abstracted on page 1049 of this issue, was read by Alexander Jackson, superintendent of time-tables of the company. R. E. Danforth, general manager, Public Service Railway, discussed the paper, approving the practical suggestions made by Mr. Jackson.

William Arthur, New Haven, Conn., spoke informally on power saving and discussed means which are available to this end. He gave data as to results which had been secured in several parts of the country. Mr. Arthur put his thoughts into everyday language, avoiding technical terms, so that others than engineers would see the force of his arguments.

The membership committee reported a substantial number of new members for the month and stated that its campaign will be carried on throughout the summer.

## Mr. Budd Addresses Chicago Section

AT THE meeting of the Elevated Railways company section, held in Chicago on May 20, President B. I. Budd of the Elevated Railways briefly outlined the present serious condition of the electric railway industry, with special reference to the local properties. He pointed out why it is to the interest of the individual employees as well as to the company to do all that can be done to acquaint the public with the facts in the case. He especially urged the necessity for full co-operation between men occupying supervisory positions and those with whom they worked. Maj. D. L. Smith gave a recital of his work with the 149th Field Artillery in the war zone.

By way of entertainment J. H. Mallon spoke humorously on the Irish question and there were also some vocal selections.

## Big Questions to Come Up

ON MAY 23 a joint meeting of the committee on national relations and the committee on readjustment of the American Electric Railway Association was held at the Washington office. Those present were P. H. Gadsden, Philadelphia, Pa., chairman; Arthur W. Brady, Anderson, Ind.; Britton I. Budd, Chicago, Ill.; L. S. Storrs, New Haven, Conn.; W. A. Draper, Cincinnati, Ohio; Myles B. Lambert, East Pittsburgh, Pa.; and C. C. Peirce, Boston, Mass.

At the outset Mr. Gadsden reported on the recent events culminating in the recommendation of Secretaries Redfield and Wilson as noted in last week's issue, that President Wilson appoint a special commission to investigate the general electric railway situation. A general discussion then ensued as to the course of procedure this commission, when appointed, could with advantage follow. It was felt that a national

report on the general plight of the industry would be beneficial in helping to make the public realize the needs of the electric carriers.

It was pointed out also that besides the work of this investigating committee other matters of general importance are pending or will soon be coming up. These include the hearings on compensation for mail haulage, the hearings on short-line rates and connections, legislation regarding the return of the steam railroads to their owners, new valuation instructions and labor legislation. With all of these, it was believed, the industry must keep closely in touch.

## LETTER TO THE EDITORS

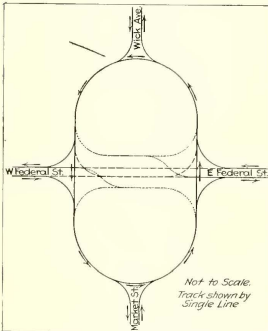
### Relieving Downtown Congestion at Youngstown, Ohio

120 BROADWAY,  
NEW YORK CITY, May 23, 1919.

To the Editors:

The article on "Relieving Congestion at the Diamond in Youngstown," appearing on page 969 of the issue of the ELECTRIC RAILWAY JOURNAL for May 17, presents an interesting problem in whose general solution many communities are interested, but comparatively few of these are so happily circumstanced as is Youngstown to effect a solution.

While it is some years now since I was called upon to examine the operation of the Youngstown property I was impressed at that time with the desirability to both the public and the railway, of through-routing practically all lines, turning none at the "Diamond." If for any reason that is not done, the present layout is admirably adapted, with probably a minimum of expense entailed, to permit safe, prompt and adequate operation through the business center, for either through routed or radial plans of operation; in either



SUGGESTED TRACK LAYOUT AT CIVIC CENTER IN YOUNGSTOWN, OHIO

case provision being made for the through interurban service on Federal Street.

The conditions to be met, in the order of their importance, are: (1) Safety or greater safety of passengers and public, (2) improved convenience to both passengers and general traffic, (3) increased speed of all traffic through this center. To secure these results in the best and quickest way the city and the company must co-operate. The present operation as reported is obviously unsatisfactory and unsafe; the ultimate solution proposed has several objectionable features from both the public and the company's standpoints.

As a suggested solution the accompanying sketch is presented in which two distinct, non-interfering, mini-

mum loops are proposed, yet through routing in any direction is left possible. In the diagram the dash lines show the present track within the loop, and the dotted lines the track which I suggest adding.

In the proposed plan it is assumed that the general traffic will be diverted (if it is not diverted already) from Federal Street at the center of the "Diamond" and required to follow the course designated by the arrows. This would leave the relieved space free for boarding, alighting and transfer passengers, and would involve for the last-named a minimum of street traverse, an important consideration in inclement weather. Track crossovers, or "Y's," should now be located within reasonable distance of the loop on all four approaching trunk lines as an insurance of continuity of service in case of blockade (from fires, etc.), occurring adjacent to the "Diamond."

Of course, if it be that the Federal Street track at the center of the "Diamond" either now needs or shortly will need replacement, the net cost of the work outlined will be much reduced; but in any event it looks as though the improvement were not only well worth while but readily possible through the joint efforts of the city and the company, and both have much to gain. The diagram should be sufficiently clear to need no further explanation.

W. B. YEREAANCE.

### New England Club in Prime Condition

AT THE dinner meeting of the New England Street Railway Club held on May 22, 1919, new members to the number of thirty-one were elected. J. E. Dozier, who presided, expressed appreciation of the manner in which the members had co-operated with the membership committee in enlarging the membership. He announced that the executive committee had decided that the next meeting, to be held about the middle of June, shall take the form of an outing.

The principal speaker at the meeting was Harlow C. Clark, of the American Electric Railway Association staff. His address was abstracted at length in the issue of this paper for May 24, page 1011. E. B. Burritt, secretary of the American Association, was also present. He explained some of the recent activities of that association, particularly the work of the committee on readjustment, and of the information bureau. He outlined the plans for the Atlantic City convention and referred to the approval by President Wilson of the appointment of a federal commission to deal with the electric railway situation. (See ELECTRIC RAILWAY JOURNAL, May 24, page 1015.)

The club passed a resolution of thanks to Messrs. Clark and Burritt for their assistance and of appreciation of the work of the association.

An agreement is being reached between the employers and the vehicle workers in London looking toward improved working conditions for the London omnibus drivers and conductors. The proposed agreement provides for a guaranteed week of forty-eight hours, based on six eight-hour days; six days holiday with pay, and bonuses annually to all men who had served for six months on Jan. 1; payment of overtime based on an agreed basis, and arrangement in regard to spread overtime.

# News of the Electric Railways

FINANCIAL AND CORPORATE • TRAFFIC AND TRANSPORTATION  
PERSONAL MENTION

## Buffalo Work Negated

Disapproval of Enabling Legislation by Governor Regarded as Reopening Whole Railway Case

The failure of the enabling legislation planned for the city of Buffalo, N. Y., referred to in the **ELECTRIC RAILWAY JOURNAL** for May 24, means that the work of the board of arbitration which has been trying to determine the physical valuation of the properties of the International Railway within the city will probably go for naught. The situation now reverts back to where it was more than a year ago when the municipal authorities were trying to solve the railway problem without granting an increase from the 5-cent fare.

The only chance for the International to get higher fares now rests with the appeal taken by the city from the decision of the Appellate Division granting the Public Service Commission for the Second District authority to hear the case brought by the municipality to determine what is a reasonable rate of fare in Buffalo.

PRESIDENT CONNETTE STILL HOPEFUL

E. G. Connette, president of the railway, is unable to see why Governor Smith vetoed the so-called Brady-Graves bill. In an interview he is quoted as saying:

I cannot see any immediate danger of suspension of railway service in Buffalo as the result of the Governor's veto. It looks to me as if the whole matter will ultimately revert to the Public Service Commission, which will determine and fix a fair rate of fare in Buffalo. This is the new view held by our attorneys after brief consideration of the meaning of the Governor's action. The one thing that I cannot understand is the Governor's sudden change of views on home rule and municipal ownership. He has preached the doctrines of home rule in his election speeches and now goes directly against his avowed policy. The Brady-Graves bill, while perhaps far from perfect, seemed to be the best plan put forward for the solution of Buffalo's traction problems. It was a decided step toward municipal ownership, which Governor Smith had said he favored, yet he disapproves of the bill despite these features.

In a letter to Governor Smith in which he expressed disapproval of the measure, Charles B. Hill, chairman of the Public Service Commission for the Second District, said:

If the bill should be found to be constitutional, its effect, so far as concerns the territory occupied by the International Railway, will be to abrogate completely the general legislative policy of the State as expressed in the public service commission laws and the railroad law and to surrender the police powers of the State as expressed in these laws in their entirety, so far as affects the large and important section of the State occupied by the International system, both within and without the boundaries of the city of Buffalo.

For three weeks the board of arbitration has been taking testimony as to the physical valuation of the Interna-

tional properties within the city of Buffalo. This figure would be used as the basis of a service-at-cost agreement with the city. The three arbiters will be paid jointly by the city and company. No additional sessions of the board will be held pending the decision of the City Council to discontinue all further proceedings of this character.

## To Electrify Suburban Lines

Officials of the Illinois Central Railroad have agreed with the Chicago Commission on Railway Terminals and a sub-committee of the City Council committee to a fifteen-year electrification provision being written into the proposed ordinance for the improvement of the south shore.

The provision is that within five years after the passage of the ordinance the railroad agrees to have its suburban service electrified. The next five years will bring electrification of the freight service north of Twelfth Street, and the next five years the balance of the freight service south of Twelfth Street.

With this agreement the remainder of the ordinance can be drawn up, and it is expected that the measure will be submitted to the Council within a short time.

## Another Service-at-Cost Proposal

A service-at-cost franchise has been submitted to the Council by the St. Paul Street Railway, included in the system of the Twin City Rapid Transit Company. The question of valuation is likely to be much debated as a basis for the franchise and it is probable the city will hire an expert to make a valuation.

The proposed franchise provides for a board of arbitration to decide moot questions between the city and company; submission to voters ninety days after approval by the two parties; one year notice if city wishes to buy the property; agreement to be reached on capital valuation plus reserve fund of \$250,000; rates of fare to be based on cost of service, with the possibility of a change of rates every two months; reserve fund to stabilize fares; St. Paul to be credited with eastbound fares collected east of the city limits of Minneapolis and Minneapolis with revenue west of Snelling Avenue in the city of St. Paul.

When earnings have decreased so the reserve fund is less than \$250,000 fares may be increased, and vice versa. This reserve fund is to come from surplus after fixed charges have been taken out.

## Homes for Its Employees

\$50,000 All Absorbed That Was Set Aside by British Columbia Electric Railway for Homes

Considerable progress is reported on the plan of the British Columbia Electric Railway, Vancouver, B. C., to assist its office employees to acquire homes. As explained in the **ELECTRIC RAILWAY JOURNAL** for April 26, page 835, the plan had its inception in the fact being brought to the attention of the general manager of the railway that a number of the office employees had had the houses in which they lived sold over their heads by owners and had experienced great difficulty in finding other houses at reasonable rents.

The company decided to set aside \$50,000 to be loaned at 6 per cent interest for the purpose of assisting its office employees to acquire their own homes. The details of the scheme were left in the hands of the Office Employees' Association through a committee elected by the members of that associations. A scale of repayments was arranged which provided for the loan, with interest, being repayable over a term of twelve years, the maximum amount to be loaned to any one employee being \$2,500.

APPLICATIONS TOTAL \$160,000

Out of approximately 250 office employees on the company's staff, there have been applications from eighty employees for amounts totaling \$160,000. A selection has been made of twenty-five cases which are considered to be most equitable. These will absorb the \$50,000 that has been set aside.

The first cases which have been handled are purchases of houses already built and the scheme promises to work quite satisfactorily. The committee of employees goes very thoroughly into the details of each case before putting it forward to the company for a loan to be made. The company has the property valued before finally passing upon the loan. The applicant is required to produce cash or other security equal to 10 per cent of the amount of the loan. The services of the company's legal and other departments are free.

In allotting the loan, the length of service of the applicant with the company, the number of members in his family and all other circumstances are taken into consideration, as well as his ability to furnish a proportion of the cost of the house.

All questions arising under the rules or in connection with the scheme are subject to the final decision of the general manager.

## Public Relations Greatly Improved

### Quick Results Follow Full Publicity Regarding Affairs of the Birmingham Railway, Light & Power Company

After five months of publicity work relations between the Birmingham Railway, Light & Power Company, Birmingham, Ala., and its patrons are cordial and the company is improving its service with the public co-operating and receiving the benefit. In fact, the results obtained are almost startling in the rapidity with which an extremely hostile public sentiment, countenancing even open violence and destruction of property, was overcome and converted to a spirit of co-operation.

#### DEMONSTRATION AGAINST COMPANY

An effective method of dealing with a public which had stoned several cars, attacked at least one car in mob formation, and through a civic organization was demanding of the City Commission the revocation of the company's franchises was the problem the company had to meet when its publicity campaign was decided upon and put into execution.

J. S. Pevear, as president of the company, decided upon and instituted the publicity campaign. When the company went into the hands of Lee C. Bradley as receiver, in January, Mr. Bradley, as was explained in the *ELECTRIC RAILWAY JOURNAL* at the time, not only continued the publicity work started by Mr. Pevear, but widened its scope. In charge of the campaign as director of publicity has been John Sparrow, for years a newspaper man and later an advertising man of Birmingham.

#### WAR TOLL LARGE

The Birmingham Railway, Light & Power Company was seriously affected by the war. It suffered a loss of 137 men in its operating department. In addition to the fact that it could not get the men because of the great amount of war work, there was a further and equally serious reduction in the effective operating force due to the epidemic of influenza. The war-time demands for material and machinery had prevented proper repairs and maintenance of cars and a considerable amount of rolling stock was out of repair.

All of the foregoing causes resulted in poor schedules. Cars broke down. The crowds waited for a car to get home. The car finally came and then in many instances it broke down. In spite of the fact that other cities were having similar troubles there was a growing hostility to the company.

#### SERVICE BREAKDOWN ON HOLIDAY

What has since been termed as the reign of terror came on with the Christmas season. An average schedule and average service was being maintained, but the system could not meet the heavy addition to traffic caused by the holidays.

Then it was that several cars were stoned. Windows were broken and the cars were otherwise damaged. One suburban car was attacked by a mob, which forced passengers to alight and then attempted to throw the car from the rails and overturn it. All cars were crowded above capacity and frequently all passengers who were standing would refuse to pay fares and rode free. In these cases conductors rarely made any effort to collect fares from those standing. The public utilities committee of the Civic Association took a hand, calling on the City Commission to act. President Pevear and other officials of the company were repeatedly arrested and fined in Recorder's Court for alleged failure to furnish proper service.

#### PUBLICITY CAMPAIGN STARTED IN JANUARY

At this juncture early in January the publicity work was started. The company did not take a defensive attitude, but began a campaign of informative advertising. The first advertisements and reading matter appeared in the local papers on Jan. 15. They set out the conditions which the company faced and the steps that were being taken to remedy matters. As more men were secured reports were published showing the additions to the operating force. At frequent intervals statistical reports were published showing the number of cars operated and the gain over the period just passed. News was immediately made public by the company as it developed and the advertising all tended to show a sincere effort on the part of the company to establish again and maintain good service.

This publicity, which included both advertisements and news matter, bore speedy results. Threats of violence against the company and its property and against President Pevear, which had been very common, subsided. There was an improvement in the attitude of passengers. They waited for their cars, and if they stood, owing to crowded conditions, most of them stood cheerfully.

#### BACK TO NORMAL AGAIN

Now, five months after the campaign was started, a very good schedule is being maintained. The operating force has been recruited to the strength necessary to furnish adequate service. Cars are being repaired and renovated, repainted and put into good operating condition. The tracks are being rehabilitated and a large amount of new rail, heavier than the old, is being laid. The public has been acquainted with all of the facts in the case and with all details of the work as rehabilitation of the system has progressed.

In discussing the matter with the representative of the *ELECTRIC RAILWAY JOURNAL* at Birmingham, Mr.

Sparrow, the director of publicity in the campaign, said:

The company adopted an open and above-board policy. The officers took the people into their confidence and placed all their cards on the table. All of the advertising was of a strictly informative nature. Any citizen could secure any information he wanted from me. The public was shown that the company was doing its best under adverse circumstances. Public sentiment showed an almost immediate improvement. The campaign appealed to the spirit of fair play and sportsmanship of the public and wonderful results were secured.

## Union Contract Unenforceable

### Strike on Pennsylvania Property Demonstrates Inability of Amalgamated to Force Compliance

The strike of the employees of the Schuylkill Railway, Girardville, Pa., to which a very brief reference has been made previously in the *ELECTRIC RAILWAY JOURNAL*, was brought to a close on May 6, the men returning to work after the general manager had met them in a body and talked to them at length. The situation in Girardville had assumed a very serious aspect in that the Amalgamated Association publicly confessed that it was unable to enforce the provisions of its contract and had to abandon the situation without any hope of finding a solution. The company and its employees left to themselves arrived at a solution in an entirely amicable manner.

#### CONTRACT PROVES SCRAP OF PAPER

The strike situation revolved around the contract made by the Schuylkill Railway with its men and the Amalgamated Association in July, 1918. This contract was to continue until Aug. 1, 1919. Under the terms of the agreement the company was to pay its men 33 and 35 cents an hour. The contract provided that either party desiring a change or modification should notify the other in writing thirty days before the expiration of the agreement. During the life of the agreement or any extension of it the company was not to suspend operations arbitrarily, except for causes beyond its control, and the men were not to strike, cease work or attempt directly or indirectly to hinder or prevent the company from operating. Both sides bound themselves to live up to the "letter and spirit of the contract as a matter of principle, honor and squareness."

Under this contract the wages of the men had been increased 60 per cent over those in force in 1915. The company in the meantime under an order from the Public Service Commission had been forced to return from an 8-cent fare to a 6-cent fare. About Sept. 1, scarcely two months after the contract had been signed, the men demanded a flat increase of 10 cents an hour. The company with its revenues thus decreased refused the demand. The men thereupon appealed to the National War Labor Board. This board on April 17 last dismissed the appeal, holding that it had no jurisdiction in

view of the contract between the men and the company. The men then delivered an ultimatum to the company renewing their demand and further insisting upon the payment of the new scale being made retroactive to the date set by them originally. This demand the company refused. The men thereupon went on strike.

The company promptly notified President Mahon of the Amalgamated and called upon him to replace the men and live up to the terms of the contract. Mr. Shea of the Amalgamated was sent to Girardville and with the committee waited upon the general manager of the railway, at which time the demand was repeated. The company took the position at this meeting that it could not deal with either the men or the association while the men were in open defiance of the obligations of their contract. Mr. Shea thereupon issued a public statement declaring that the men had violated their contract and the laws of the association and that he had suspended them from membership therein. Having issued this statement, he left the community.

After the strike became effective but before the return of the men, the Public Service Commission handed down a decision permitting the company to charge an 8-cent fare, but requiring it to sell seven tickets for 50 cents. With this opportunity for increasing its revenue, the company promptly offered its men a new wage rate of 35 cents, 38 cents and 40 cents, all of the old men to be permitted to return at the highest rate. The men thereupon agreed to return and individually entered into a contract with the company at the new rates. This contract is to run for a period of six months under substantially the same terms as the former contract, with the exceptions as stated previously.

### New York Mayors to Consider Traction Problems

One entire session of the tenth annual conference of the city officials of New York State at Schenectady on June 10, 11 and 12, will be set aside for consideration of the electric railway problem. Mayor Walter R. Stone, president of the cities' organization, who announced on May 28 that arrangements for this feature of the conference have been completed, is reported to have said:

This is one of the most important problems confronting the cities of the State. Adequate traction service is of vital importance to every municipality. In many of the cities the situation is serious.

Every city administration must prepare itself to solve the problem when presented. We have therefore arranged to have presented and discussed all of the plans that have thus far been suggested to insure adequate service at reasonable cost.

Dr. Thomas Conway, Jr., professor of finance of the University of Pennsylvania; Harlow C. Clark, of the American Electric Railway Association; T. E. Mitten, chairman of the executive committee of the Philadelphia Rapid Transit Company, and Delos F. Wilcox,

New York, will advise the city officials how they think the problem can be solved.

Among the plans that will be discussed will be increasing the revenues of the electric railways by increasing the fare, service-at-cost plans, private ownership and municipal operation and municipal ownership and operation.

### Wage Increase in Fort Smith

The Fort Smith Light & Traction Company, Fort Smith, Ark., has signed a two-year contract with the men, whereby a 32 per cent increase in wages is granted. The employees had asked a 52 per cent increase.

The company will ask the Corporation Commission of the State and the City Commission for a 6-cent fare, effective as soon as possible.

One-man cars will be used as soon as they can be had.

On some of the lines a fifteen minute service will be provided as soon as the necessary switches can be installed.

The new scale of wages follows: First six months, 33 cents; second six months, 34 cents; second year, 35 cents; third year, 36 cents; fourth year, 37 cents; fifth year and thereafter, 39 cents.

This scale is effective immediately and is without reservation, the company having every confidence in the fairness of the public and its willingness, in view of increased wages and cost of operation, to pay the additional cent fare asked for.

### Municipal Ownership the Alternative

Louis H. Bean, president of the Tacoma Railway & Power Company, Tacoma, Wash., has started what is believed to be propaganda for the sale of the company's railway system to the city, to be operated as a municipal line. Each Councilman has received a letter through the mails, inclosing a pamphlet, "The Street Railway Situation," in which arguments favoring municipal ownership are set forth. The booklet suggests that under present conditions the burden of supporting the system must be borne by patrons of the line, and that this burden can be made less irksome under municipal than private ownership. It is further pointed out that if the city wants the present regime continued, several important steps must be taken for the relief of the company, namely:

The company must have a complete monopoly of transportation; the city must establish control of vehicular traffic so as to prevent accidents, and give the street cars right of way at all times; all paving and bridge charges must be rescinded; the city should refund the amount the company has paid for bridges and paving of streets, if possible, also the gross earnings taxes; the company should be free to route cars and regulate traffic; there should be a readjustment of fares.

It is intimated that a valuation of \$7,500,000 is set on the company's properties.

### Construction Prospects Good

At least three new interurban electric railways will be built out of Dallas, Tex., within the next three years, according to J. F. Strickland, president of the Dallas (Tex.) Railway and the Texas Electric Railway. Mr. Strickland said his company would start work on one of the lines this year. Under the franchises granted the Strickland-Hobson interests covering electric railways, electric lighting and the interurban terminals, at least one line must be begun this year.

Mr. Strickland says three interurban lines: Dallas to Wichita Falls via Denton; Dallas to Greenville, and Dallas to Terrell, are needed now, and that all these lines should yield profitable return from the beginning of their operation. The Dallas-Wichita Falls line is now projected by other interests than the Strickland-Hobson combine, and it is known that Mr. Strickland and his associates are investigating projects of building lines to Greenville and Terrell.

In a recent address before the Dallas Chamber of Commerce and Manufacturers' Association, Mr. Strickland outlined the history of interurban building in north Texas and gave some interesting statistics regarding the operation of such lines.

### Honolulu Case Merely Presented

Owing to various causes, among which was the lateness of the application of the Honolulu Rapid Transit & Land Company, Honolulu, T. H., for legislation with respect to the problems before the company, it was impossible to do more than present the case to the Senate committee. The matter has therefore to go over for two years more. The company met with opposition regarding the terms desired. There is a public utility commission in Hawaii, but this commission has no jurisdiction at present over rates of fare or any authority to order extensions. The public demanded extensions which could not be built by the company under the terms of the present franchise without rendering it impossible for the company to meet its obligations to its security holders.

The work of educating public opinion to the fundamental stand which the company had taken was begun before the introduction of the new legislation and will undoubtedly be continued pending a full settlement of the matter. The problems before the company were made plain in an article which appeared in the ELECTRIC RAILWAY JOURNAL for March 29, page 660. L. T. Peck, president of the company, has said that it is absolutely necessary that the extended franchise should be flexible enough in its terms as to rates and government charges under commission control that the revenues will always be sufficient to provide the very best of service and a fair return on the capital already invested and on that yet to be sought for immediate and future expansion.

## Twenty-two Cent Wage Increase Asked

The employees of the Tri-City Railway, Davenport, Iowa, have asked for an increase in the wage scale which will total \$250,000 annually. The present contract expires in June. The unions are asking for a one-year contract with a maximum of 62 cents an hour. This is an increase of 22 cents over the present maximum of 40 cents. A nine-hour day is also asked for.

The petition comes from 425 men through Davenport, Rock Island and Moline locals of the Amalgamated Association. The present contract has been running for three years. The wages specified in the contract are: 28 cents an hour for the first year, 29 cents an hour for the second year and 33 cents an hour for the third year.

When the war broke out and high wages in other trades began to cut the force the following scale, still paid, was agreed upon: 36 cents an hour for the first year, 38 cents an hour for the second year and 40 cents an hour for the third year.

The union is now asking 58 cents an hour for the first year, 60 cents an hour for the second year and 62 cents an hour for the third year.

The companies affected are the Tri-City Railway of Iowa; Tri-City Railway of Illinois; Moline, Rock Island & Eastern Traction Company and the Clinton, Davenport & Muscatine Railway, an interurban.

The company has stated that for the last nine months passengers have been carried at a loss due to the increase in cost of labor, materials and operation.

## Interurban Employees Strike

Platform employees of the Rochester & Syracuse Railroad, Rochester, N. Y., went on strike on May 16 because of a wrangle between the Amalgamated Association and the Brotherhood of Locomotive Engineers and Order of Railway Conductors. The company is employing Amalgamated motormen and conductors and efforts are being made to maintain service on the interurban lines between Rochester and Syracuse.

The Amalgamated Association's refusal to agree to the operation of cars of the line by brotherhood men within the city of Rochester was back of the company's attempt to induce its employees to join the Amalgamated and do away with the necessity of changing crews at the Rochester city line. The men went on strike rather than abandon the brotherhood organization and the Amalgamated thereupon attempted to furnish men to the company for the temporary operation of its interurban lines.

If the attempt to operate cars entirely by members of the Amalgamated Association wins out the Rochester & Syracuse Railroad will save almost \$17,000 a year by eliminating the expensive incident to having extra crews meet all cars at the Rochester city line.

There is a feeling that the difficulty

may be solved by agreement between the rival unions to permit the employees of the Rochester & Syracuse Railroad to retain the insurance and benefit features of the brotherhood affiliations while permitting the Amalgamated to represent them in dealings with the company.

## News Notes

**Pay Increase in Springfield.**—The Springfield (Ill.) Consolidated Railway has granted an increase of pay to its trainmen from 36 cents to 39 cents an hour.

**Not Satisfied With Electrolysis Protection.**—The City Commission of Trenton, N. J., has notified the Trenton & Mercer County Traction Corporation that the company's present system for the mitigation of electrolysis is unsatisfactory.

**Wage Advance in East Liverpool.**—A wage scale, ranging from 43 to 47 cents an hour, was granted motormen and conductors of the Steubenville, East Liverpool & Beaver Valley Traction Company, East Liverpool, Ohio, in an award announced on May 23 by an arbitration board. This is an 11 per cent increase over the 1918 scale.

**Wage Increase in Montreal.**—An arbitration board which considered the demand of the employees of the Montreal (Que.) Tramways for higher wages has recommended that men in receipt of 37 cents an hour be raised to 48 cents and those getting 31 cents be raised to 41 cents. The increases will mean an addition of \$650,000 a year to the company's operating expenses. Three thousand five hundred men are affected.

**Opening of Modern Cafeteria at Cleveland.**—The establishment of the dry law in Cleveland on May 26 was preceded by a dinner at the Hollenden on May 23 attended by a number of railway and supply men who wished to mourn the wake (in Ohio) of John Barleycorn. A jazz orchestra made dull moments impossible. The cafeteria service counter constituted a bar over which floated every known kind of schooner—and some unknown. The Dean of the carbuilding industry officiated. Between 130 and 140 mourners sat up with the spirits.

**Wants New Regulatory Legislation.**—Declaring that the present situation as regards regulation of public utility rates in New Jersey is such as to warrant "immediate remedial legislation at a special session of the Legislature," Frank H. Sommer, counsel for the associated municipalities opposing the Public Service Railway's zoning plan and associate counsel with City At-

torney Kearns in Mayor Gillen's 1-cent suit against the company, has given out a statement criticising conditions which led to a decision being given in favor of the company by District Court Judge Frederic L. Johnson.

**Minneapolis Terminal Electrification Report.**—Electrification of the railroad terminals at Minneapolis, Minn., suggested as a means to eliminate the smoke nuisance from steam railroad engines, will cost \$70,000,000 according to F. W. Cappel, city engineer, in a report to the City Council. This district would include St. Paul, South St. Paul, Minnesota Transfer and Fridley. The survey necessary to draw plans would cost between \$30,000 to \$40,000. The Council will continue the investigation, although the engineer believes the railroads are not in a position now to undertake the improvement.

**Proposed National Engineering Board.**—A bill has been introduced into the Senate of the United States authorizing the organization of a National Engineering Board, to be composed of the Secretary of Commerce and the National Research Council. This board will appoint branch state boards of five engineers in each state and territory. These state boards will supervise and control all engineering and industrial investigations of a public nature such as those connected with the water supply, flood protection, etc., and including "transportation of property and persons on land and water, public lighting and heating, the development of power and of processes for the manufacture of materials useful to the people of the United States." The bill carries the authorization of \$15,000 for the payment of each of the state boards and of the national board.

## Programs of Meetings

### New York Electric Railway Association

The annual convention of the New York Electric Railway Association will be held at the Fort William Henry Hotel, Lake George, N. Y., on June 7. The program was published last week.

### American Short Line Railroad Association

A convention of the officers of all short line railroads in the United States will be held at the New Willard Hotel, Washington, D. C., on June 3-5. Among the speakers expected are Director-General of Railroads Hines, Senator Cummings, Senator Smith, John E. Esch, chairman of the House Interstate Commerce Committee, T. DeWitt Cuyler, chairman of the railroads executive committee. Invitations to attend this convention are being sent to electric railways which are engaged in the freight business. It is expected that legislation important to short line railroads will be enacted at this session of Congress so an especially large attendance is expected at this meeting.



# Financial and Corporate

## Baltimore's Worst Year

Revenues Gained 12 Per Cent, but Operating Expenses, Depreciation and Taxes 25 Per Cent

The calendar year 1918, it is said, was in many ways the worst year in the history of the United Railways & Electric Company, Baltimore, Md. The greatest difficulty from a revenue point of view was that wages and the cost of materials were increasing rapidly during the entire year, while the increased revenue from the 6-cent fare was effective during only the last three months of the year.

The gross receipts for 1918 were \$11,929,701, an increase of \$1,368,864 or 12.96 per cent over 1917. This in-

crease was due to three factors: (1) increased war activities; (2) increased fare effective during the last three months of the year, and (3) normal increase due to increase of population, riding habit, etc. While there is no satisfactory method of segregating these items, the company believes that the third and most important factor evidenced a satisfactory condition during 1918.

## WEATHER AND INFLUENZA AFFECT EARNINGS

On the other hand, the company suffered during the first few months of the year from the worst weather conditions that it has ever experienced. Traffic was interrupted and for brief periods completely shut down by snow and ice conditions and, in common with transportation companies everywhere, there was a rapid falling off in receipts. In October, when considerable relief was expected from the increased fare, the influenza epidemic resulted in the closing down of all theaters and schools and the avoidance, so far as possible, of contact on street cars by the public. The receipts for October and for some

little time thereafter were materially below what might otherwise have been expected. The increase in operating expenses of \$1,572,427 or 29.8 per cent was mainly reflected in the cost of conducting transportation. Although the largest increase of wages did not take place until September, the cost of conducting transportation, at \$3,518,310, showed an increase of \$884,470 or 33.5 per cent. The cost of maintenance of way and structures and equipment aggregated \$1,300,879 in 1918, an increase of \$377,239 or 40.8 per cent over 1917. The amounts charged to depreciation were increased \$68,444 or 12.9 per cent to a total of \$596,485. The cost of power at \$1,040,158 represented an advance of \$189,169 or 22.2 per cent.

### OPERATING RESULTS OF UNITED RAILWAYS & ELECTRIC COMPANY FOR YEARS ENDED DEC. 31, 1917 AND 1918

	1918	1917	Increase	Per Cent Increase
Operating revenues.....	\$11,929,701	\$10,560,836	\$1,368,864	12.96
Operating expenses.....	\$6,839,822	\$5,267,395	\$1,572,427	29.85
Depreciation.....	596,485	528,042	68,443	12.96
Taxes, licenses, etc.....	\$7,436,307	\$5,795,437	\$1,640,870	28.31
	1,160,452	1,079,723	80,729	7.48
	\$8,596,759	\$6,875,160	\$1,721,599	25.04
Ratio of operating expenses to operating revenues:				
Operating expenses (percent).....	57.33	49.88	.....	7.45
Depreciation (per cent).....	5.00	5.00	.....	.....
	62.33	54.88	.....	7.45
*Taxes, licenses, etc. (per cent).....	9.73	10.22	.....	† 0.49
	72.06	65.10	.....	6.96

\*Decrease caused by transfer to profit and loss of \$105,035 of income and excess profits taxes, whereas in 1917 the corresponding amount was included in the item of taxes, licenses, etc., in the income statement.  
†Increase.

The total taxes and public charges in 1918, including the park tax, cost of paving streets, etc., was \$1,344,408, or more than 26 per cent of the net receipts after operating expenses. This represented an increase of \$186,485 over 1917 and an increase of \$271,629 over 1916. The park tax for the year was \$755,467, an increase of \$83,755. The total amount paid to the city of Baltimore in park taxes alone, since the consolidation of the various electric railway lines in 1899, aggregates \$9,398,217.

The gross income of the United Railways & Electric Company in 1918 amounted to \$3,416,003, and deductions from income to \$3,083,351. This left a net income of \$332,652 subject to federal taxes. The company continued its dividend policy, \$486,715 of surplus being drawn upon. In addition, special demands, such as contributions incident to war, amounting to \$35,574, and income and excess profits taxes for 1917, amounting to \$105,035, were charged against surplus, resulting in a reduction of the item of surpluses to \$362,370 on Dec. 31, 1918, as compared to the sum of \$1,066,987 the year before.

## Boston Deficit Grows

April Returns Show a Loss of \$316,392 as Compared to \$224,920 in March —Repair Charges Bulk Larger

The financial report for April, made public by the trustees of the Boston (Mass.) Elevated Railway, shows a deficit of \$316,392 for the month. This compares with deficits of \$224,920 in March, \$285,124 in February and \$219,269 in January. One of the reasons for the larger deficit in April was the excess of track and car repair work above a fair monthly average.

### COST PER PASSENGER 9.328 CENTS

The total receipts from all sources for April were \$2,386,822. Of this amount \$2,309,079 was received from fares. The total cost of service was \$2,703,214, of which \$1,218,796 was expended for wages. The cost of labor per revenue passenger was 4.203 cents.

The total cost of service per passenger for April was 9.328 cents, as compared with 8.923 cents in March, 9.504 cents in February, 8.970 cents in January and 9 cents for the ten months ended April 30, 1919. The receipts under the 8-cent fare in April, 1919, as compared with the 5-cent fare in April, 1918, showed an increase of \$727,170, or 45.96 per cent as compared to 42.32 per cent in March, 44.91 per cent in February, and 43.77 per cent in January.

### RECEIPTS AND COST OF SERVICE OF THE BOSTON ELEVATED RAILWAY FOR APRIL, 1919

Receipts:	
From fares.....	\$2,309,079
From operation of special cars, mail pouch service, express and service cars.....	7,453
From advertising in cars, on transfers, privileges at stations, etc.....	24,563
From other railway companies for their use of tracks and facilities.....	4,260
From rent of buildings and other property.....	8,342
From sale of power and other revenue, (including coal sold, \$6,721).....	15,239
Total receipts from direct operation of the road.....	\$2,368,937
Interest on deposits, income from securities, etc.....	17,885
Total receipts.....	\$2,386,822
Cost of service:	
Maintaining track, line equipment and buildings.....	\$415,436
Maintaining cars, shop equipment, etc.....	234,854
Power (including 24,396 tons of coal at \$5.71 or \$139,381).....	211,663
Depreciation.....	167,000
Transportation expenses (including wages of car employees, carhouse expenses, etc.).....	804,755
Salaries of administrative officers.....	7,583
Law expenses, injuries and damages, and insurance.....	100,566
Other general expenses.....	72,943
Total operating expenses (of which \$1,218,796 represents wages).....	\$2,013,900
Taxes, proportion.....	85,175
Rent for leased roads (exclusive of subways).....	215,785
Proportion of rent of subways and tunnels to be paid to the City of Boston (exclusive of Cambridge Subway owned by the city).....	125,645
Interest on Boston Elevated bonds and notes.....	131,418
Miscellaneous items.....	8,693
Proportion of dividends under acts of 1918.....	116,998
Interest on unpaid taxes.....	2,596
Total cost of service.....	\$2,703,214
Net loss.....	\$316,392

## Merger Agreement Modified

### Indianapolis Plans Simplification of Corporate Structure Following Order of Public Service Commission

The committee of fifteen stockholders of the Indianapolis (Ind.) Street Railway, which was appointed at a stockholders' meeting some time ago to prepare a plan in keeping with the order of the Public Service Commission calling for a reduction of fixed charges and for expending in improvements the amounts paid into the sinking funds, held a meeting on May 21 and approved certain modifications in the proposed agreement for a merger of their company and the Indianapolis Traction & Terminal Company.

#### DIRECTORS AND COMMITTEE APPROVE PLAN

This agreement was approved by the board of directors of both companies on May 19. Following this approval by the directors and the committee of fifteen, the proposed agreement was submitted informally to members of the Public Service Commission, and sent to the stockholders who are to meet on June 2. If approved by the stockholders, the matter will then be subject to the final approval of the Public Service Commission and the city of Indianapolis. When the proposed agreement was presented informally to the Public Service Commission, it was requested that the 5-cent fare order of the commission be continued and that the charge to the various interurban companies for use of the tracks and terminals in the city of Indianapolis be increased from 4 cents to 6 cents a passenger.

#### FARE CASE REVIEWED

In the report to the stockholders of the Indianapolis Street Railway the committee recites the petition of the Indianapolis Traction & Terminal Company for increased fares. This was filed in November, 1917, and, on account of legal interferences, the hearing of this matter did not come up until August, 1918. Upon this hearing, it developed that the company had been operating for a considerable period at a heavy loss, and in October, 1918, the commission entered an order temporarily fixing a 5-cent fare, which, with other changes, it was thought by the commission, would produce an additional income of \$500,000. In this same case, however, the commission ordered wage increases which absorbed approximately \$375,000 of the increase granted. An attempt to secure a further increase in fare was denied by the commission in December, 1918.

#### INTEREST PAYMENT POSTPONED

On Jan. 1, the company postponed payment of the bond interest on the Indianapolis Street Railway bonds, and on April 1, the interest on the Indianapolis Traction & Terminal Company bonds. The report also states that for several years the company has been

aided in meeting other obligations by the postponement of the payment for power furnished by the Terre Haute, Indianapolis & Eastern Traction Company, which, to May 1, 1919, amounted to approximately \$718,000.

As arguments against any separation of the properties, the report states that it would be difficult to determine just what property would belong to each company, as the Indianapolis Traction & Terminal Company has added a great amount of property since the execution of the lease, and the street railway could not continue operations without the use of some of this property. The present stockholders of the street railway are investors and not operators, and to change into a working organization prepared to operate and finance the property is regarded as very difficult.

#### PLANS FOR NEW COMPANY

The proposed agreement for consolidation provides that the reorganized company shall issue \$5,000,000 of preferred stock and \$2,500,000 of common stock, and that each shall have equal voting rights. The \$2,500,000 of common stock is to be exchanged for the \$5,000,000 of stock of the Indianapolis Traction & Terminal Company on the basis of one share of the consolidated company for each two shares of the terminal company. The \$5,000,000 of preferred stock of the consolidated company is to be exchanged share for share for the \$5,000,000 of common stock of the Indianapolis Street Railway, which at present is guaranteed a dividend of 6 per cent as rental by the Indianapolis Traction & Terminal Company. Under the new consolidation, this preferred stock will carry a 6 per cent cumulative dividend, and this dividend will not be paid unless earned by the company.

#### LIMIT TO BOND ISSUES

The agreement provides further that not more than \$15,000,000 of bonds can be outstanding at any time during the existence of the present franchise, which expires in 1933. The bond issues which it is proposed to absorb are \$6,000,000 of the Indianapolis Street Railway and \$4,000,000 of the Citizens' Street Railroad, and a \$5,000,000 issue of the Indianapolis Traction & Terminal Company. Bonds amounting to approximately \$2,200,000 have been retired by payments of \$120,000 annually into sinking funds in addition to the interest on bonds which are kept alive in the sinking funds, and it is proposed that these retired bonds shall be reissued for the purpose of making extensions and other improvements to the system from time to time. Provisions for sinking fund fixed payments will be retained, but an effort will be made to discontinue paying interest on bonds already in the sinking fund.

The Public Service Commission stated that the agreement would be very carefully considered, and until it had been studied, the commission would express no opinion in regard to same. The city of Indianapolis desires the company to make certain extensions of lines, which will probably be considered in any agreement entered into between the Public Service Commission or the city and the street railway.

#### Standard Gas & Electric in Oil

H. M. Bylesby, president of the Standard Gas & Electric Company, Chicago, announces the completion of the consolidation of his company with oil and refining interests heretofore known as the C. B. Shaffer interests. The consolidation will result in the formation of a new company to be known as the Shaffer Oil & Refining Company, of which C. B. Shaffer will be president. His entire staff will remain with the new organization. Mr. Bylesby becomes chairman of the board of the new company and Mr. Shaffer becomes a director of the Standard Gas & Electric Company. A statement says:

The Shaffer interests have for years operated entirely independently and constitute the one remaining large independent complete oil property that has not heretofore been consolidated with other interests.

The new company starts with cash resources and will adopt an extremely progressive program. The Standard Gas & Electric Company in the consolidation obtains a majority interest in the new company.

#### PREFERRED DIVIDEND INCREASED

The directors of the Standard Gas & Electric Company have replaced the preferred stock on an 8 per cent annual basis by declaring a quarterly dividend of 2 per cent. The preferred has been paying 6 per cent annually. The following official statement has been issued:

The company announces that this is to be its future regular dividend policy. The dividend is paid from earnings of the company for the last quarter entirely irrespective of the large earnings of the Shaffer Oil & Refining Company interests which accrue to the Standard Gas & Electric Company from Jan. 1 of this year.

In view of the completion of acquisition of the Shaffer properties and the further large increase in Standard Gas & Electric Company's earnings, President Bylesby appointed a committee to report at an early date upon a plan for liquidation of unpaid accumulated dividends on the Standard preferred stock amounting to approximately 13 per cent.

The Standard Gas & Electric Company has acquired the engineering and management organization of H. M. Bylesby & Company. The engineering and management force will be used by the Standard in its new program of expansion in its gas and electric properties. A new corporation is to be formed, it is understood, embracing in this management organization all of the stock to be owned by the Standard Gas & Electric Company.

As noted elsewhere in this issue a syndicate of bankers is offering for subscription \$12,000,000 of Shaffer Oil & Refining Company first mortgage 6 per cent convertible bonds.

### Compromise Valuation

#### Minneapolis Street Railway Makes Offer in Hope of Bringing About Speedy Franchise Settlement

The street railway committee of the Council of Minneapolis, Minn., is considering a valuation offer by the Minneapolis Street Railway, which is about 3 per cent above the city's figure. The sum is \$23,232,018 as of Jan. 1, 1919, for all property inventoried by the city, exclusive of the Lake Harriet right-of-way, which is not on city streets. The offer is one of the steps under way to get a base for determination of the terms of a proposed new franchise for the company. The city's figure was \$23,533,150 as of Jan. 1, 1916.

In forwarding the offer of the directors of the railway Horace Lowry, the president, wrote:

In view of the acute situation now existing the company is at this time willing to make a compromise in order to bring about a prompt settlement of the whole problem, but we wish it understood that unless an agreement is now reached the company will have to withdraw the following offer, and in that case it will in the future be governed by conditions then existing.

The city's offer of \$23,533,150, as of Jan. 1, 1916, is lower than it is possible for the company to accept, and therefore the directors have decided to make the city a flat offer of value as of Jan. 1, 1919, as follows:

Value as of Jan. 1, 1919, of property inventoried by the city as of Jan. 1, 1916, (excluding the Harriet right-of-way).....	\$23,232,018
Value as of Jan. 1, 1919, of the Columbia Heights and Fort Snelling lines outside of the city (not included in city's offer).....	142,044
Net additions to and withdrawals from the property from Jan. 1, 1916 to Jan. 1, 1919 (subject to verification by the city).....	1,125,938
Total value as of Jan. 1, 1919.....	\$24,500,000

On this valuation we are to be allowed to earn 7 per cent a year, which is a lower rate of return than the company was compelled to pay in its recent refinancing of \$5,000,000 of its bonds.

Should your honorable body accept the above and embody it in a modern cost-of-service franchise which the electors ratify, it would be possible for us to re-establish the former high standards of service and provide such extensions as you deem needed at this time.

The discussion at Minneapolis has extended over many months, with the valuation material coming piecemeal. For that reason it is deemed advisable to reprint the various valuation figures as recently summarized for the benefit of local Minneapolis people:

BY THE CITY	
F. W. Cappelen, city engineer.....	\$25,914,308
C. L. Pillsbury, for city.....	24,300,000
BY THE COMPANY	
Original maximum claim.....	\$35,323,376
Original claim on physical property to reproduce.....	28,717,033
Compromise figure just submitted.....	23,232,018
UNOFFICIAL ESTIMATES	
Central Franchise committee, (majority).....	\$22,156,951
Central Franchise committee, (minority).....	15,470,360
Hogarth-Van Lear recheck and reappraisal on physical items of Cappelen report.....	13,608,730

The figure of \$23,232,018, as explained previously, does not include the Harriet private right-of-way. The Cappelen and Pillsbury valuations do include this item. It is pointed out that in order to put all the valuations on the same basis, the sum of \$632,000—the value of the Harriet right-of-way—must be subtracted from the Cappe-

len and Pillsbury figures and \$142,044 added to the figure of each for the Columbia Heights and Snelling lines and \$1,125,938 for net additions and withdrawals since their figures were made. The official figures, thus reduced to a common footing are:

Company's minimum, excluding Harriet right-of-way and including Columbia Heights and Snelling lines and net additions and withdrawals since Jan. 1, 1916.....	\$24,500,000
Cappelen figure on same basis.....	26,560,290
Pillsbury figure on same basis.....	24,935,982

### Receivership If Interest Is Not Waived

The management of the Augusta-Aiken Railway & Electric Corporation, Augusta, Ga., has sent circular letters to the owners of the corporation's first mortgage 5 per cent bonds acquainting them with the desperate financial condition of the property and asking them to accept interest-bearing notes for a period of three years in lieu of the payment in cash of the coupons as they mature during the interval. The company has also asked the bondholders to waive the operation of the sinking fund until 1925. This is the only alternative to receivership, according to the announcement.

It is imperative that the sum of \$400,000 be raised during the next few years in order to rehabilitate the property as ordered by the Public Service Commission of Georgia and to liquidate floating indebtedness, and as the corporation has no other way to obtain funds the bondholders are called upon to forego payment of interest in cash on the securities they own of the company.

The management says that the saving in interest and waiving of the sinking-fund provision will provide the sum needed and a considerable portion of the cash for the redemption of the notes at maturity.

Accompanying the letter is a form of agreement bondholders are asked to sign and return with their bonds to the Central Union Trust Company, New York.

### Would Settle Power Debt with Notes

A proposed agreement of the Indianapolis Traction & Terminal Company, Indianapolis (Ind.) Street Railway and Terre Haute, Indianapolis & Eastern Traction Company in regard to a \$700,000 debt for power due the Terre Haute, Indianapolis & Eastern from the Indianapolis Traction & Terminal Company, and for further supplying power, has been submitted to the Public Service Commission, together with a letter explaining the agreement and asking for approval.

The agreement is to be carried out in the event of a consolidation of the Indianapolis Street Railway and the Indianapolis Traction & Terminal Company. Because the notes the Indianapolis Traction & Terminal Company is to give will run for more than one year, the approval of the Public Service Commission is said to be required. The pro-

ceeding is in view of the meeting of stockholders of the Indianapolis Street Railway on June 2, to vote on a proposed consolidation.

The proposed agreement as to debt for power and for power to be supplied in the future, if a consolidated company is formed, is signed by the officials of the three companies concerned. In addition to providing that fourteen promissory notes of \$50,000 each shall be given for the \$700,000 power debt, which is to draw 4 per cent interest, beginning May 28, 1921, it is provided that the contract for power between the Indianapolis Traction & Terminal Company and the Terre Haute, Indianapolis & Eastern Traction Company shall continue with the proposed consolidated company until April 7, 1933, the termination of the franchise, except that the question of price shall be readjusted July 1, 1922, and July 1, 1927.

If the proposed consolidated company and the Terre Haute, Indianapolis & Eastern Traction Company cannot agree as to price at the readjustment times, it is provided that each shall appoint an arbitrator. If the two arbitrators cannot agree they shall select a third, and the decision of the three shall be final.

## Financial News Notes

**Offers Grand Rapids Bonds.**—Harris Forbes & Company, New York, N. Y., are offering for subscription at 96.86 and interest yielding 6.75 per cent \$1,500,000 of first mortgage 6 per cent five-year gold bonds of the Grand Rapids (Mich.) Railway.

**Receivers Made Permanent.**—Judge Sandford of the Federal Court at Knoxville has handed down an order making Percy Warner, Nashville, and John S. Graham, Philadelphia, permanent receivers of the Chattanooga Railway & Light Company. The receivership covers only the railway and not the light department of the company.

**Mr. Eccles After Linnton Road.**—D. C. Eccles, Ogden, Utah, who is interested in the Utah-Idaho Central Railroad, is negotiating for the purchase of the United Railways, operating from Linnton, a Portland suburb, to a tract of timber land some 12 miles out, which is owned by the Oregon Lumber Company, of which Mr. Eccles is a stockholder.

**Atlanta Notes Offered.**—Edward B. Smith & Company, Philadelphia, Pa., are offering \$2,500,000 two and one-half year 6 per cent secured notes of the Georgia Railway & Power Company, Atlanta, Ga., at 99½ and interest to yield 7.05 per cent. These notes, while issued in 1917 on account of additional

hydroelectric developments, are only now offered for sale.

**Tax Valuations Increased.**—The Corporation Commission of Oklahoma has fixed assessment valuations for taxation purposes of a number of public service corporations of the State of Oklahoma, including a number of interurban and city railway lines. In most cases there has been an advance ranging from 25 per cent to 33.1-3 per cent over the valuations fixed last year.

**First Mortgage Ten-Year Bonds.**—P. W. Brooks & Company, New York, N. Y., are offering at 96 and interest \$950,000 of first mortgage ten-year 6 per cent gold bonds of the Southern New York Power & Railway Corporation, Cooperstown, N. Y. The bonds are dated April 1, 1918, and are due in 1928. They are followed by \$500,000 of 7 per cent cumulative preferred stock and \$774,900 of common stock.

**New Trustee Under New Orleans Mortgage.**—The Hibernia Bank & Trust Company, New Orleans, La., has resigned as trustee under the refunding and general lien 5 per cent gold mortgage of the New Orleans Railway & Light Company, New Orleans, La., dated Dec. 6, 1909, and the Empire Trust Company has been appointed acting as successor trustee under said mortgage and supplemental mortgage, dated Nov. 1, 1909, and under the supplemental mortgage of the company.

**Must Present Bonds for Indorsement.**—In accordance with the terms of supplemental trust deed dated Dec. 31, 1918, as approved by the resolutions passed at the meeting of the first mortgage fifty-year bondholders of the Barcelona Traction, Light & Power Company, Ltd., on Dec. 19, 1918, the bondholders are requested to produce their bonds at the offices of the company in Toronto, Ont., or London, England, for the purpose of having indorsed thereon a memorandum modifying the

rights of the bondholders and of the supplemental trust deed executed in pursuance of such resolutions.

**Easy Tax Payments Proposed.**—The city attorney of Buffalo, N. Y., has suggested a plan to the City Council whereby the International Railway will be able to pay its back taxes amounting to almost \$300,000 in five installments. The property of the company was advertised to be sold at a public tax sale on May 28, 1919. The installments would be paid at the rate of \$71,000 on May 28; \$50,000 on June 30; \$25,000, July 31; \$150,000, Aug. 31, and the balance Sept. 30. The small amount is promised by the company in July because at that time the company must pay back wages to its employees.

**Note Issue Pays for Power Plant.**—Halsey Stuart & Company, Chicago and New York, are offering at par and interest three-year 7 per cent collateral gold notes of the Ironwood & Bessemer Railway & Light Company, Ironwood, Mich. The notes are secured by pledge of first mortgage 5 per cent gold bonds in the ratio of \$133½ par value of bonds for each \$100 par value of notes outstanding. The bonds pledged are secured by a first mortgage on all the property. The present issue of notes totals \$294,000. The proceeds of the new issue will reimburse the company for expenditures made in building the Superior Falls water-power plant.

**Oil Bonds Offered.**—Montgomery & Company, Philadelphia, Pa., and Bonbright & Company and H. M. Byllesby & Company, New York, N. Y., are offering for subscription at 95 and interest \$12,000,000 of Shaffer Oil & Refining Company first mortgage convertible 6 per cent sinking fund gold bonds dated June 1, 1919, and due June 1, 1929. The bonds are convertible at par into participating preferred 7 per cent cumulative stock of the Shaffer Oil & Refining

Company at 105. They are unconditionally guaranteed by the Standard Gas & Electric Company. The Shaffer Oil & Refining Company will acquire the oil interests of C. B. Shaffer and associates in the mid-continent field, as referred to elsewhere in this issue.

**Another City Seeks Valuation.**—The city of Alameda, Cal., following the example set by its neighboring cities—Oakland and Berkeley—has applied to the California Railroad Commission for a valuation of the properties of the San Francisco-Oakland Terminal Railways operating in the city of Alameda. The application is in connection with the company's appeal for a resettlement franchise, and the tentative plans of the east bay cities based on a determination to take over the properties of the railway upon the expiration of the present franchise provided the communities determine to do so. The valuation is required by the city charter of Alameda, and, in accordance with a stipulation filed by the railway, is to be of the date of May 1, 1917.

**Payment for Cars Authorized.**—The New Jersey Board of Public Utility Commissioners has approved of a chattel mortgage to secure a note of the Trenton & Mercer County Traction Corporation, Trenton, to the American Car Company for twenty-one-man safety cars and at the same time revoked a certificate issued by the board on Mar. 6 last approving an issue of \$121,000 of 6 per cent car trust certificates in part payment for the cars. The certificates have not been issued and the plan of a chattel mortgage and note has been substituted as a means of insuring payment for the cars. The board also rules that should it later appear that it is desired by the parties involved to cancel the chattel mortgage and issue the car trust certificates, application may be made to the board for approval of the issue.

## Electric Railway Monthly Earnings

### ATLANTIC SHORE ELECTRIC RAILWAY, SANFORD, ME.

Period	Operating Revenue	Operating Expenses	Operating Income	Fixed Charges	Net Income
1m., Mar., '19	\$12,198	\$10,644	\$1,554	\$342	\$1,212
1m., Mar., '18	13,036	9,668	3,168	494	2,674

### AURORA, ELGIN & CHICAGO RAILROAD, AURORA, ILL.

1m., Mar., '19	\$197,567	*\$161,731	\$35,836	\$39,205	\$3,639
1m., Mar., '18	168,693	138,511	30,182	36,093	15,911
3m., Mar., '19	563,585	*481,359	82,226	116,827	34,601
3m., Mar., '18	439,408	*410,158	29,250	107,399	78,149

### CHATTANOOGA RAILWAY & LIGHT COMPANY, CHATTANOOGA, TENN.

1m., Mar., '19	\$146,116	*\$115,800	\$30,316	\$21,771	\$8,545
1m., Mar., '18	151,533	*112,174	39,359	30,747	8,612
12m., Mar., '19	1,854,044	*1,450,521	403,523	276,874	126,649
12m., Mar., '18	1,467,675	*1,249,296	218,379	362,665	114,286

### COMMONWEALTH POWER, RAILWAY & LIGHT COMPANY, GRAND RAPIDS, MICH.

1m., Mar., '19	\$2,073,565	*\$1,314,376	\$759,189	\$540,083	\$219,106
1m., Mar., '18	1,756,688	*1,176,802	579,886	488,934	90,952
12m., Mar., '19	23,101,251	*\$2,127,337	7,807,914	6,210,565	1,597,349
12m., Mar., '18	20,093,014	*13,099,519	6,993,565	5,440,473	1,553,112

### CUMBERLAND COUNTY POWER & LIGHT COMPANY, PORTLAND, ME.

1m., Mar., '19	\$202,919	*\$156,083	\$46,836	\$56,434	\$19,598
1m., Mar., '18	245,270	*179,104	66,166	73,881	47,715
12m., Mar., '19	3,156,626	*\$2,177,275	979,351	813,436	165,915
12m., Mar., '18	3,077,458	*\$2,139,862	937,576	836,718	100,858

### EAST ST. LOUIS & SUBURBAN COMPANY, EAST ST. LOUIS, ILL.

Period	Operating Revenue	Operating Expenses	Operating Income	Fixed Charges	Net Income
1m., Mar., '19	\$369,786	*\$262,672	\$107,114	\$69,545	\$37,569
1m., Mar., '18	328,221	*250,282	77,939	67,281	10,658
12m., Mar., '19	4,351,502	*3,405,076	946,426	822,133	124,293
12m., Mar., '18	3,783,627	*2,668,891	1,114,736	792,345	322,391

### GALVESTON-HOUSTON ELECTRIC COMPANY, GALVESTON, TEX.

1m., Mar., '19	\$253,387	*\$189,323	\$64,064	\$33,537	\$30,527
1m., Mar., '18	215,591	*139,579	76,012	28,476	47,536
12m., Mar., '19	2,817,244	*2,002,774	814,900	357,943	457,047
12m., Mar., '18	2,210,888	*1,452,073	758,815	336,996	421,819

### HOUGHTON COUNTY TRACTION COMPANY, HOUGHTON, MICH.

1m., Mar., '19	\$29,429	*\$17,744	\$11,685	\$5,956	\$5,729
1m., Mar., '18	31,834	*17,356	14,478	6,018	8,460
12m., Mar., '19	311,553	*212,470	99,083	73,450	25,633
12m., Mar., '18	346,535	*217,364	129,171	73,877	55,294

### PHILADELPHIA (PA.) RAPID TRANSIT COMPANY

1m., Apr., '19	\$2,909,270	*\$1,936,255	\$973,015	\$820,090	\$199,467
4m., Apr., '18	2,588,151	*\$1,648,095	940,056	800,533	139,562
4m., Apr., '19	11,126,351	*7,818,631	3,307,720	3,202,155	128,251
4m., Apr., '18	9,814,091	*6,371,665	3,442,426	3,238,051	146,375

### PORTLAND RAILWAY, LIGHT & POWER COMPANY, PORTLAND, ORE.

1m., Mar., '19	\$736,167	*\$441,977	\$294,190	\$186,152	\$108,038
1m., Mar., '18	621,145	*\$372,058	249,087	178,148	70,939
12m., Mar., '19	8,005,241	*\$5,369,294	2,635,947	2,240,505	395,442
12m., Mar., '18	6,387,407	*\$3,855,196	2,532,211	2,139,509	392,702

\* Includes taxes. † Deficit. ‡ Includes non-operating income.  
 † In March, 1919, \$2,085; March, 1918, \$18,732; twelve months, 1919, \$549,363; twelve months, 1918, \$234,320, included for depreciation.

# Traffic and Transportation

## In a Sad Plight

### Subsidy Essential if Berkshire Street Railway Is to Resume Service on Abandoned Lines

The Berkshire Street Railway has officially notified Mayor William C. Moulton of Pittsfield, Mass., it can do practically nothing this year toward its share of the cost of the paving, amounting to about \$60,000, and that even with increased fares that went into effect last November is barely meeting operating expenses, to say nothing of city and town tax levies of between \$60,000 and \$70,000 and interest of \$75,000 on bonds issued before these properties were acquired by the present owner, the New York, New Haven & Hartford Railroad.

The payroll at the present time is between \$1,400 and \$1,500 a day. The men are seeking a 33 per cent increase. If granted this would mean an additional expense of between \$500 and \$600 a day or about \$187,000 a year. The new fare schedule which went into effect last November raised the gross revenue to substantially what it was before the war, but it has not made up for the 23 per cent wage increase granted the first of last June and 10 per cent the year previous and it does not make up for the enormous increase in cost of materials.

### FARE UNIT UNCHANGED

The Berkshire Street Railway did not increase the unit of fare last fall. That unit has remained at 5 cents throughout. As C. O. Richmond, the general manager of the railway, puts it:

There is a certain psychology in the nickel, which most everybody regards as the proper and just fare for a ride on a trolley car. We believe from the experience of other cities that if the unit is raised, say in Pittsfield and North Adams, it would set more people to walking and the company would actually gain nothing. We believe that keeping the unit a nickel and shortening the zones has been most satisfactory and fair to the traveling public.

So desperate is the case of the company that a conference was held at Springfield with L. S. Storrs, president of the Connecticut Company, owning the line, to discuss its future. Attention was given more particularly at one of the sessions to the matter of branches on which service was abandoned some time ago and which local interests are seeking to have resume now that summer is close at hand. Mr. Storrs said in part:

In order to enable the Berkshire Street Railway to continue operation of cars through the most populous portion of the territory which it serves it has been necessary to discontinue service over those portions of its lines that have not developed sufficient income to meet the actual costs of doing business, leaving out of consideration all question of paying any return whatever upon the cash invested in the

construction of the property. This entire investment of money appropriated to the public uses and all the energy and ingenuity of the officials and employees has been devoted to an effort to give to the public as efficient a service as could be produced with the use of every cent obtained on the cars.

This has not been merely a policy, but an absolute necessity, and in carrying it out the operation between Lee and Huntington has had to be discontinued, as has that between Leansboro and Cheshire, in which case the tracks have been torn up and the line permanently abandoned. On the line south from Great Barrington the loss was so marked that it was intended to discontinue that service also, and this would have been done had not the town made an appropriation of an amount sufficient to cover all loss from operation.

In connection with the specific case which has just been discussed, hearings were conducted over this line for two seasons, during the first year upon a schedule proposed by the company which did not require the approval of the communities; during the second season the service was operated upon a plan proposed by representatives of Lee, Huntington and Mr. Eastman of the Public Service Commission.

### PLEA FOR A SUBSIDY

Not enough interest was evidenced by the public in this operation at any time to produce a revenue sufficient to meet operating expenditures and maintain the property in safe condition; as costs have advanced materially since then there is no question as to the inability of the Berkshire Street Railway to start the service.

Briefly, this line is 23.86 miles in length and one of the best designed and constructed in New England, but there is not a sufficient sentiment locally to produce the revenue to pay the actual cost of operating the service, and the revenue upon the remainder of the system is not sufficiently profitable for funds to be diverted to make up the losses upon this line.

There is no question but that the continued operation of this line will be of great value. The Berkshire Street Railway is willing to devote this line to the public uses for the coming season, but must be assured of the full cost necessitated for operation of such service as may be required, together with a sufficient fund to place the trackage in safe operating condition. Under the law the townships of Lee, Otis, Beckett, Blandford and Huntington can contribute up to \$1 for every \$1,000 of assessed valuation, but as this entire tax would amount to only \$8,000, there will have to be other funds made available for such appropriation.

There is ample precedent for all this, as there are instances where towns have made direct contributions to take up losses incurred by operation of electric railway service, and also an instance in which the electric railway received a sum of money to place the trackage in safe condition.

## No Change in Coney Island Fare

Lewis Nixon, Public Service Commissioner for the First District of New York, has decided that the dual subway contracts did not intend that a 10-cent fare should be charged on three lines and a 5-cent fare on one and as a result there will be no reduction in the fare to Coney Island this summer. Commissioner Nixon finds that it would be impossible to force the Brooklyn Rapid Transit Company to cut its 10-cent rate on the New Utrecht line before the Culver line is completed to Coney Island as well, which will not be before the first of next year or possibly next summer. Commissioner Nixon rendered his decision in reply to the contention of a taxpayer.

## Favors "Measured Service"

### "Forum" at San Diego Results in Many Constructive Suggestions—Interviews Also Secured

In connection with the recent suggestion made by the San Diego (Cal.) Electric Railway for a 5 and 10-cent zone system with reduced-rate tickets, in the hearing before the California Railroad Commission, the company is now busily engaged in explaining the plan fully to the public. The zone suggestion was noted in the ELECTRIC RAILWAY JOURNAL of May 17.

Besides publishing a full page advertisement to present a general statement of the facts, the company is running in the morning paper a "Forum," which is made up of letters sent in from citizens who have suggestions to present. The company has stated that it is in a receptive mood, and the people are taking advantage of the opportunity. For some time now the company has had all the letters that space would permit it to print. The letters are answered frankly and fully, in order to acquaint the public with all details of the plan.

### INTERVIEWS ALSO SECURED

The company is also interviewing many prominent citizens to get their ideas as to the advisability of a flat-fare increase or a zone system. For example, there has been published an interview with Mayor Louis J. Wilde, in which he declares himself in favor of the company's suggestion. Mayor Wilde says:

I am a firm believer in "measured service." Pay for what you get; that is what everybody expects to do. The man who rides two or three times a day in the downtown districts is not supposed to be paying for somebody who lives 2 miles out in the country.

At first the idea of a zone system seemed to meet with a great deal of disfavor, especially and naturally among those living in the outer zone. As the situation is understood, however, the company finds that the idea of "measured service" is gaining in favor.

## Modification of Skip Stop in Dallas

Modification of the skip-stop plan of operating cars is to be ordered in Dallas, Tex., according to announcement from the office of Lynn E. Milam, supervisor of public utilities. The changes include elimination of all skip-stop regulations after 10 o'clock at night throughout the city, also on rainy days, and the installation of additional stops on certain lines where patrons petition for additional stops. All skip stops will also be abolished in the downtown shopping district, which includes Elm, Main and Commerce Streets from Harwood to Lamar. In connection with the skip stop, the Dallas Railway published a history of the skip stop in Dallas. This was displayed as a five-column advertisement in the various Dallas newspapers.

**Yonkers Fare Upheld**

The validity of the ordinance permitting the Yonkers (N. Y.) Railroad, included in the system of the Third Avenue Railway, New York, to charge a 5-cent fare within the city and another 5-cent fare when the city limits are passed, was upheld in the decision rendered on May 26 by Supreme Court Justice Joseph Morschauser, in chambers at Poughkeepsie. The ordinance was contested in the taxpayer's suit of Henry Koster.

The chief ground of his case was that the ordinance was passed by a scant majority of the Council instead of three-fourths. It had received only six votes. The court ruled that this simple majority was sufficient, and the ordinance valid. An appeal is considered almost certain.

The 10-cent fare has been charged since April 24. There are about 50,000 riders daily on the Yonkers Railroad, 20,000 of whom go beyond the city limits, and have to pay the double fare. About 15,000 of these riders go into New York city.

At Hastings-on-Hudson, where the service was abandoned altogether, the company has submitted a new franchise, which provides for operation on the Warburton Avenue line, a stretch of 1 mile of track, but does not provide for operation on the Uniontown line. The Uniontown line runs from the center of the village to the outskirts, and is 13 miles long. The residents living along this line held a meeting recently protesting against any franchise which did not give service on the Uniontown line.

The proposed franchise would charge 5 cents within the village. The Village Trustees may put it to a referendum vote.

**City Agreed on Fare Policy**

City Counselor Daves of St. Louis, Mo., has notified Thomas E. Francis, counsel for the United Railways, that the city will not object to a continuance of the 6-cent fare for a reasonable time. C. E. Smith, consulting city engineer, who was also at the conference, indicated that a reasonable period might be from May until next November, when it is expected that the valuation of the properties of the United Railways, which is being made by the Public Service Commission, will have been completed. Mr. Daves also suggested that the period might depend upon conditions which are found by Receiver Rolla Wells after he has been in charge of the property a sufficient length of time to determine what retrenchments can be made.

The conference was in advance of the meeting of the commission in St. Louis on May 19 to decide whether the 6-cent fare should remain in force after June 1. When asked, through Receiver Rolla Wells, what the company's attitude would be on the retention or increase of the fare, Mr. Francis said that the company would lay before the

commission figures of cost showing the most recent wage demands on the company.

**Ten Fare Districts for Eastern Massachusetts**

The committee on street railways of the Massachusetts Legislature reported a bill May 27 giving the Public Service Commission authority to fix rates of fare upon the lines of the Eastern Massachusetts Street Railway, formerly the Bay State Street Railway. Under the act of 1918 placing the road's operation in the hands of public trustees, the trustees were empowered to fix fares independent of the commission. The bill requires the public trustees to divide the system into at least ten fare districts, and in each district the commission is required to "determine the just and reasonable rates of fare for the service performed." At the end of each period of three months following the fixing of fares, the commission is required to report to the State treasurer whether the revenue received by the company has been sufficient to meet its operating expenses. If there is a deficit the amount is to be made up from the State treasury, to be assessed later in the form of a State tax upon the cities and towns in the fare district in which the deficit occurred. The proportion in which the municipalities in any given district are to contribute is to be determined by the commission.

**New Fare Terms Accepted**

On May 21 the Columbus Railway, Power & Light Company, Columbus, Ohio, filed with the city its formal acceptance of the terms of the ordinance enacted on April 21, which provides for an increase in fare from eight tickets for a quarter to six tickets for a quarter for a period of two years. A similar ordinance for the Central Market division of the road is before Council and will probably be passed.

Petitions containing more than 10,000 names have been filed, asking for a referendum vote on the franchise. Only 7200 are required for the matter to be put to a vote. If a sufficient number of valid names are found on these petitions, the question of an increase in the rate will go to a vote of the electors on Aug. 12.

While it is difficult to tell just how the voters will ballot on this ordinance, Charles L. Kurtz, president of the company, is said to feel that the measure will be approved. Mr. Kurtz some time ago expressed the opinion that the rate granted would not cover the needs of the company, but it is evident that the officers are willing to try it out before refusing it.

As a substitute for the ordinance accepted, Councilman A. E. Griffith had introduced a measure which gave Council additional control over the operation and provided that, if the service requirements ordered by Council were not observed, the old rate of fare would be resumed. It is believed that this ordinance will die in committee, now that the other one has been accepted.

**Fare Increase for Schenectady**

The Public Service Commission for the Second District of New York has authorized the Schenectady Railway to put into effect a 6-cent fare in Schenectady and to increase the rates of fare on the Troy and Ballston divisions. No increases are allowed on the Albany division, between Albany and Schenectady, and there will be no changes in commutation rates, and all such rates, school and special rates on the entire system will remain unchanged. The company operates 140 miles of line in Schenectady and between Schenectady, Warrensburg, Lake George, Glens Falls, Troy and Albany. Increased fares permitted on the Ballston division are:

Zone 1—Schenectady to Alplaus.....	From 5 to 6 cents
Zone 2—Alplaus to High Mills Road.....	From 5 to 7 cents
Zone 3—High Mills Road to Timesons.....	From 5 to 7 cents
Zone 4—Timesons to Brookline.....	From 5 to 7 cents
Zone 5—Brookline to Ballston Junction.....	From 5 to 7 cents
Zone 6—Ballston Junction to Leonards.....	No change
Zone 7—Leonards to Saratoga.....	No change

Interzone fares are increased as follows:

From Zone 1 to Zone 2.....	From 10 to 12 cents
From Zone 1 to Zone 3.....	From 15 to 18 cents
From Zone 1 to Zone 4.....	From 20 to 24 cents
From Zone 1 to Zone 5.....	From 25 to 30 cents
From Zone 1 to Zone 6.....	From 31 to 36 cents
From Zone 1 to Zone 7.....	From 37 to 42 cents

Other interzone fares are increased proportionally.

The increased fares on the Troy division are:

Zone 1—From Schenectady to Morgan Avenue.....	From 5 to 6 cents
Zone 2—Morgan Avenue to Niskayuna.....	From 5 to 7 cents
Zone 3—Niskayuna to Latham.....	From 5 to 7 cents
Zone 4—Latham to Boulevard.....	From 6 to 7 cents
Zone 5—Wiswasset.....	From 6 to 7 cents
Zone 6—Watervliet.....	No change
Zone 7—Green Island and Troy.....	No change

Interzone fares are increased as follows:

From Zone 1 to Zone 2.....	From 10 to 12 cents
From Zone 1 to Zone 3.....	From 15 to 18 cents
From Zone 1 to Zone 4.....	From 20 to 24 cents
From Zone 1 to Zone 5.....	From 20 to 24 cents
From Zone 1 to Zone 6.....	From 20 to 24 cents
From Zone 1 to Zone 7.....	From 26 to 30 cents

Other interzone fares are increased in proportion.

## Transportation News Notes

**Interstate Increase Allowed.**—The Bay State Street Railway's petition for increased fares between Fall River, Mass., and Newport, R. I., has been granted by the Interstate Commerce Commission.

**Eight Cents in Peekskill.**—Starting on May 23 the Westchester & Putnam Street Railway began charging 8 cents instead of 7 cents for fare. Fearing the company might suspend operations, the citizens petitioned for the increase.

**New Fare Tariff Filed.**—The Troy & New England Railway, Troy, N. Y., operating between Alvia and Averill Park, under a tariff filed with the Public Service Commission for the Second District, and proposed as effective on June 12, will make increases in one-way and round-trip fares.

**Increase to Seven Cents in Dubuque.**—The Dubuque (Ia.) Electric Company has been granted a fare of 7 cents, with four tickets for a quarter, this increase having been authorized by the City Council in order to allow the company to increase its wages and prevent a strike. Under the terms of the increase the company will continue to allow working girls to ride for 2½ cents.

**Five-Cent Fare May Continue.**—The April operating report of the Mahoning & Shenango Valley Railway, Youngstown city lines, indicates that the 5-cent fare may be retained there for several months longer than originally expected. The deficit under the service-at-cost plan was \$5,382 as against about \$9,000 each for the two preceding months and the stabilizing fund on April 30 was \$16,000 above the minimum.

**Service Satisfactory in Dallas.**—Electric railway service in Dallas, Tex., is apparently satisfactory. Mayor Wozencraft recently advertised a public hearing before L. B. Milam, supervisor of public utilities, and the Board of City Commissioners. Wide publicity was given to the hearing and all who had complaints to make regarding service were asked to appear and make such complaints known. On the appointed day only three minor complaints were received.

**One-Way Books Authorized.**—The Public Service Commission for the Second District of New York has passed orders directing George Bullock, receiver of the Buffalo & Lake Erie Traction Company, Buffalo, N. Y., to issue a twenty-six one-way family ticket book, valid only on the Hamburg Division, fares computed according to mileage, and a twenty-four one-way ticket book, the latter for \$1.44, between Dunkirk and Fredonia, the orders to become effective on June 1.

**Wants Fares Raised and Jitneys Abolished.**—At a mass meeting in Hutchinson, Kan., on May 18 to determine whether it was necessary to raise fares, a committee was appointed to bring two conditions before the City Commission, a raise of fare from 5 cents to 7 cents on the Hutchinson Interurban Railway and the abolishment of the 10-cent jitneys on the streets. This is in line with the demands made by President Carey, of the railway.

**Wants Jitneys Barred.**—The Morris County Traction Company, Morristown, N. J., has sent a communication to the City Council, of Summit, N. J., protesting against the operation of the jitney service between Summit and Maplewood in competition with the electric railway. The petition has been referred to the law and ordinance committee. The railway contends that the jitney service is neither a public convenience nor a necessity; that it is not remunerative to the city, and that the service is uncertain and unsafe.

**Improvements in Return for Increase of Fare.**—The City Council of Canton, Ohio, has received a communication from the Northern Ohio Traction & Light Company to the effect that it will make improvements and extensions amounting to \$120,269 if the city will allow it to charge a fare of 6 cents on the city line for the period of one year. The improvements are to be completed before the increased charge is put into effect. This, it is understood, complies with the terms of the city and means a settlement of the matter.

**Wants Seven Cents in Niagara Falls.**—The International Railway, Buffalo, N. Y., has applied to the Public Service Commission for the Second District, for permission to charge a 7-cent fare in Niagara Falls. The present fare is 5 cents, with transfer privileges. The railway says the 5-cent rate under existing conditions is confiscatory, unjust and unreasonable and not sufficient to give a reasonable average return upon the value of the property used in the public service with due regard for necessity of reservation of income for surplus and contingencies.

**May Designate Auto Routes.**—Because of chronic traffic congestion in Pittsburgh the city has been allowed the right by the Public Service Commission of Pennsylvania to designate the streets in the East Liberty and downtown districts over which auto bus lines may operate, and to change their terminal loops as conditions may dictate. This ruling was issued at a hearing recently on the applications of the backers of two proposed bus lines between East Liberty and the downtown district. The city and the Pittsburgh Railways opposed the granting of the permits on the grounds that the routes proposed lead through districts of great congestion.

**Suburban Fares Revised Downward.**—The Louisville (Ky.) Railway, which raised rates on its interurban lines in July, 1918, resulting in the case being

carried by country residents before the State Railroad Commission, has lost its fight. An increase of 20 per cent over the old rates was allowed, but the present rates, which were just double the ones in effect prior to July, 1918, have been ordered reduced to the 20 per cent figure. Under the new regulations all 15-cent fares are increased to 18 cents; 20-cent fares to 24 cents, figuring a 1-cent increase on every 5 cents under the old rules. Special rates were made on business books, school books, round-trip tickets, etc.

**New Zones on Wheeling Line.**—Five new 5-cent fare zones are permitted on three of the principal electric railways of the Northern West Virginia Panhandle, by a decision of the Public Service Commission of West Virginia. The decision was made following application of the Wheeling Traction Company for its own lines and for those of the Panhandle Traction Company and the Steubenville, Wellsburg & Weirton Railway, both of which are controlled by the Wheeling Company under lease. By the same decision the sale of commutation books containing fifty-two tickets for \$4.07 is ordered and the company is directed to make immediate improvements in service. The new rates are effective from May 29.

**Wants Streets Called in Houston.**—The city attorney of Houston, Tex., has drafted and presented before the City Commissioners an ordinance that would revive an old city ordinance requiring conductors on all street cars to call the names of the streets so that all persons on the cars may hear. The ordinance met opposition because of the fact that a number of one-man cars are in operation in Houston and it was claimed that the conductor-motorman could not operate his car with due regard to the safety of passengers and outside traffic and at the same time watch crossings and call the streets as they were crossed. Passage of the ordinance was delayed so that further investigation might be made.

**Maine Company Wants More.**—A. H. Ford, general manager of the Portland Railroad, which is controlled by the Cumberland County Power & Light Company, Portland, Me., addressed two meetings at South Portland recently in accordance with his promises made in February to report the condition of the Portland Railroad and how the new fare zone and ticket system had worked out. He stated that in four months the deficit of the Portland Railroad had amounted to \$112,000 due to large increases in wages, the expense of maintenance and equipment and other items and that the figures taken from the company's books indicated that the 6-cent fare was not sufficient to enable the company to render good service or meet its bills. Mr. Ford said that confronted by these facts the company was compelled to petition the Public Utilities Commission for permission to increase the rate of fare one-third of a cent per zone, making the fare for a three-zone ride 7 cents instead of 6 as at present.

## Personal Mention

### Mr. Delaney Construction Commissioner

John H. Delaney, Brooklyn, was named by Governor Smith on May 26 as Transit Construction Commissioner for New York City. Mr. Delaney is City Commissioner of Plants and Structures. The office of Transit Construction Commissioner was created by the 1919 Legislature in one of the bills reorganizing the First District Public Service Commission. In a statement announcing the appointment the Governor said he had believed the construction department should be presided over by an engineer, and accordingly had offered the post to William Barclay Parsons and J. Waldo Smith, both of whom had declined. After conferring with Lewis Nixon, commissioner in charge of the division of regulation, he had decided that there existed in the Public Service Commission sufficient engineering ability to carry the proposed subway routes to completion. In this connection he said:

What is really needed is a clear-headed, common-sense administrator with a knowledge of public office and an appetite for hard work.

Mr. Delaney's ability, energy and willingness to work came to my attention during the year that I sat in the Board of Estimate & Apportionment. In all respects, I regard the Commissioner of Plants and Structures as the best equipped man to take charge of this important work.

Mr. Delaney was Commissioner of Economy and Efficiency in the State government during the Sulzer and Glynn administrations. Governor Smith was active as Democratic floor leader in the Assembly in promoting legislation which abolished that department. Mr. Delaney received his appointment through Governor Sulzer after serving first on a commission to investigate the finances of the State, of which John N. Carlisle, an independent Democrat from Watertown, was chairman. As Commissioner of Economy and Efficiency, Mr. Delaney wrote a work on the "Organization and Functions of the State Government," which was issued as a text book, and accepted as a standard by the Constitutional Convention.

### New President of Chamber of Commerce

Homer L. Ferguson, president and general manager of the Newport News Shipbuilding & Dry Dock Company, Newport News, Va., has been elected president of the Chamber of Commerce of the United States. Mr. Ferguson succeeds as president Harry A. Wheeler, Chicago, who declined reelection.

Mr. Ferguson was born at Waynesville, N. C., on March 6, 1873. He was graduated from the United States

Naval Academy in 1892, and attended Glasgow University, Scotland, finishing there in 1895. For eleven years he was a constructor in the United States Navy, leaving the navy in 1905 to become general manager of the company of which he is now president. He is a member of the Society of Naval Architects and Marine Engineers, the Society of Naval Engineers, the Engineers' Club, New York, and the Army and Navy Club, Washington.

Charles J. Sibert has been appointed assistant master mechanic of the Grand Rapids, Grand Haven & Muskegon Railway, Grand Rapids, Mich., reporting to the master mechanic.

Donald Stewart, formerly vice-president of the Engineering Supervision Company, New York, N. Y., has been appointed general superintendent of the Ithaca (N. Y.) Traction Corporation.

W. R. Alberger, vice-president and general manager of the San Francisco-Oakland Terminal Railways, Oakland, Cal., has been elected president of the California Electric Railway Association.

Frank W. Matteson was elected president of the Providence, Warren & Bristol Railroad at the annual meeting of stockholders in Providence, R. I., on April 28. He succeeds Nathaniel W. Smith.

H. J. Musgrove, who was in the Signal Corps of the Army, has returned and has resumed his former duties of local superintendent of the Central Illinois Public Utilities Company, Marion, Ill.

Everett M. Sweeley, former Mayor of Twin Falls, a well-known attorney, has been appointed by Governor Davis as a member of the Public Utilities Commission of Idaho to succeed John W. Graham, resigned.

Ward S. Hubbard, superintendent of roadway and building of the Bay State Street Railway, Boston, Mass., has resigned and been appointed general manager of Turner Brothers Glass Company, Terre Haute, Ind.

Dr. E. A. Sommer has been appointed chief surgeon of the Portland Railway, Light & Power Company, Portland, Ore., effective June 1, succeeding Dr. E. A. Rockey, who resigned to devote his entire time to private practice.

Norman Oille, North Tonawanda, N. Y., has been elected secretary of the International Railway, Buffalo, N. Y., to succeed the late George W. Wilson. Mr. Oille has been serving as a clerk in the office of Edward G. Connette, president of the company.

Sir John F. Aspinall, formerly general manager of the Lancashire & Yorkshire Railway, has joined the board of

the recently consolidated English Electric Company, Ltd., of which railway electrification work at home and abroad forms one of the most important departments. The Lancashire & Yorkshire Railway was one of the pioneers of suburban line electrification in England.

A. A. Dunlap, division engineer at Tipton, Ind., of the Union Traction Company of Indiana, Anderson, Ind., resigned on May 5 to become associated with the Van Briggles Motor Device Company, Indianapolis, Ind. Mr. Dunlap became division engineer on the Union Traction Company in May, 1911, and for several years previous to that served as chief clerk of the way department of the same company.

C. A. Prentice, division engineer at Muncie, Ind., of the Union Traction Company of Indiana, Anderson, Ind., resigned on May 1 to become associated with a brother-in-law in road-building work in Michigan. Mr. Prentice has been connected with the railway at Anderson since Dec. 5, 1910. The employees of the company at Muncie clubbed together and presented Mr. Prentice with a gold watch as a farewell gift.

John T. Conway, superintendent of the Brockton district of the Bay State Street Railway, Boston, Mass., for twenty years, was surprised at the office of the company recently when the clerks and the union employees gathered to show their appreciation of the friendly relations that have existed between the superintendent and his helpers. The clerks presented Mr. Conway a handsome smoking set, with brass lamp attachment, and the members of the union presented him a purse of \$150 in gold.

David Curtin, for fourteen years chief engineer of maintenance and way construction for the Bay State Street Railway, Boston, Mass., and earlier prominent in steam railroad construction in the Far West and Rocky Mountain district, has become associated with the G. Ferullo Company, Inc., Boston, as president and manager. Mr. Curtin will make a specialty of electric railway construction and maintenance in his new capacity, and will also undertake a general public works engineering construction business.

Brig.-Gen. George H. Harries, a vice-president of H. M. Byllesby & Company and formerly president of the Louisville Gas & Electric Company, Louisville, Ky., has recently had conferred upon him two new honors. One of these was the American Distinguished Service Cross conferred by General Pershing in recognition of his services at Brest in the early part of the war. The other was conferred by the French General Dupont, General Harries being made a Commander of the Legion of Honor, also in recognition of his work at Brest.

George Newell, superintendent at the Everett works of the Stone & Webster interests since the construction of the



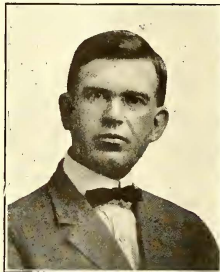
Seattle interurban nine years ago, succeeds D. C. Barnes as acting manager in charge of the Puget Sound International Railway & Power Company controlling the railway and light properties at Everett. Mr. Barnes, as noted in the *ELECTRIC RAILWAY JOURNAL* for May 24, has been transferred to Seattle. Mr. Newell has been in the employ of Stone & Webster for years. He entered their offices in Boston when a boy. Later he went to the Northwest and for a time was superintendent of the interurban lines at Seattle when they extended to Cedar Valley. Upon the completion of the line to Everett he was assigned to Everett as superintendent over the entire division.

John W. Belling has been appointed secretary of the New England Street Railway Club, succeeding George W. Knowlton, acting secretary for nearly a year past. Mr. Knowlton retires on account of the increasing pressure of his business interests. Mr. Belling is a native of Alma, Wis. He was graduated in electrical engineering in 1903 from the University of Wisconsin. He spent three years in the testing department of the General Electric Company, Schenectady Works, and during the last year of this service was occupied in testing electric locomotives for the New York Central electrification. The next three years were spent in the construction department of the General Electric Company, and included installation and operating supervisory duties on the Washington, Baltimore & Annapolis Railroad and the West Jersey & Seashore Railroad electrifications. In 1909 Mr. Belling was transferred to the railway department of the Boston office of the General Electric Company, and has since been active in sales engineering work in the traction field. He will continue his work with the General Electric Company. Mr. Belling is a member of the Boston City Club, and has a wide circle of friends in the New England field. He will also be editor of the *Street Railway Bulletin*, the official organ of the New England Street Railway Club.

Maj. John L. Retallack has been appointed by the government of British Columbia to be public utilities commissioner for the province under the new public utilities act, reviewed briefly in the *ELECTRIC RAILWAY JOURNAL* for May 3, page 876. Major Retallack is a returned soldier, having gone overseas as quartermaster of the Forty-eighth battalion. Later he was transport officer in the railway corps. He is a mining engineer and a member of the Canadian Mining Institute. The new commissioner was born in Quebec on Dec. 2, 1863, and was educated in England. He served for five years with the Royal Northwest Mounted Police before coming to British Columbia in 1890. The appointment of Major Retallack came after several days of public clamor, the government's first appointment of R. H. Gale, Mayor of Vancouver, having met with such opposition from the returned soldiers' organiza-

tion that Mr. Gale tendered his resignation. When the appointment of Mr. Gale was announced on April 17, gatherings in Vancouver denounced the move and Mr. Gale went to Victoria to consult the cabinet. On his return, on April 19, he announced that he had resigned. Mr. Gale had been active in opposition to the British Columbia Electric Railway and in addition to this fact being urged against him there was a general demand that preference to any vacant position be given to a returned soldier. The commissioners carry with it an annual salary of \$7,000.

E. F. Ramey has been appointed general manager and purchasing agent of the Goldsboro (N. C.) Electric Railway. Mr. Ramey was born and reared in Lexington, Ky. He entered electric railway work in 1904 as a conductor with the St. Joseph Railway, Light, Heat & Power Company, St. Joseph, Mo., but returned to his home city in 1910 and worked in various departments of the Kentucky Traction & Terminal Company. For the past eighteen months, Mr. Ramey has been



E. F. RAMEY

with the Columbia Railway, Gas & Electric Company, Columbia, S. C., as general storekeeper. He resigned from the company at Columbia to accept the appointment in Goldsboro.

W. O. Clure has been made assistant to A. W. Warnock, general passenger agent of the Twin City Lines, Minneapolis, Minn. Mr. Clure has been an instructor in the University of Minnesota, is editor and publisher of *The Progress*, a weekly paper, and has been secretary of the Republican State Central Committee. Horace Lowry, president of the company, announced that "at this time when the railway is dealing with the cities of Minneapolis and St. Paul, it seems advisable to add to our staff an additional man who can meet people informally at their various meetings to discuss the present crisis in the cities' transportation problem." Mr. Clure has for some years made a study of railway franchises and has concurred, temporarily at least, to assume the above work as assistant to the general passenger agent.

## Obituary

David Tod, president of the Youngstown & Suburban Railway, died at his home in Youngstown, Ohio, on May 14 from an attack of typhoid pneumonia. Mr. Tod was born at Girard, Ohio, in 1870. Besides his connection with the railway, Mr. Tod was director and vice-president of the Commercial National Bank, director of the Brier Hill Steel Company, director of the Bessemer Limestone Company, Stambaugh-Thompson Company and the Ward Nail Company, vice-president of the David Tod Land Company and trustee of the George Tod Estate.

Harry Allan Abbe died at Saranac Lake, N. Y., on May 22, after an illness of eight weeks. Mr. Abbe was born in New Britain, Conn., on Oct. 21, 1885. He was graduated from Yale College, Sheffield Scientific School, in 1905. He was employed by the Westinghouse Air Brake Company for several years, and later entered the employ of Peck-Shannahan-Cherry, Inc., Syracuse, N. Y., as superintendent of the Syracuse & Suburban Railroad. At the time of his death he was superintendent of the Syracuse Northern Electric Railway, Inc. He was married on Nov. 20, 1913, to Elsie M. Peck, daughter of Edward F. Peck, Hampton, Va. He is survived by his widow and two sons.

Henry A. Webster, master mechanic of the Manhattan division of the Interborough Rapid Transit Company, New York, died on May 14. Mr. Webster was born on Feb. 3, 1839, at Plymouth, N. H. He entered railway service in 1858 and continued in that work without interruption until just before the sickness that resulted in his death. From 1858 up to the time of his connection with the New York Elevated Railway in 1878 Mr. Webster served in various capacities on a number of railroads in New England and New Jersey. He served the New York Elevated Railway and its successor, the Manhattan Elevated Railway, from June, 1878, to March, 1899, as general foreman of the car department. From March, 1899, to June, 1899, he was master car builder of the company and from June, 1899, up to the time of his death he was master mechanic of the Manhattan Elevated Railroad and its successor, the Interborough Rapid Transit Company, New York. As master car builder of the Manhattan Elevated Railway Mr. Webster was in charge of all the cars in the steam service and the Ninety-eighth Street car shops. As master mechanic of the company he was in charge of all cars, locomotives and shops and when the locomotives were withdrawn from service on account of the change of power to electricity he had charge of the sale and disposal of all the locomotives and cars.

# Manufactures and the Markets

DISCUSSIONS OF MARKET AND TRADE CONDITIONS FOR THE MANUFACTURER,

SALESMAN AND PURCHASING AGENT

ROLLING STOCK PURCHASES

BUSINESS ANNOUNCEMENTS

## Storage Battery Car Market Brightening

Estimates Being Prepared on Sixty-One Cars for South America—Domestic Business Awakening

In the recent report of the Railway Storage Battery Company for 1918, an operating profit of upwards of \$8,000, instead of the customary deficit, was shown for a year of war conditions. Actual deliveries in 1918 consisted of eight cars, with one car and two chassis now awaiting delivery.

The export trade of the company was reported active with the promise of still greater activity. The company is now figuring on sixty-one cars for export to Latin America. Domestic business, suspended during the war, shows signs of awakening, says President S. C. Steinhart, and were government restrictions to be removed, it is felt that considerable business would follow.

An arrangement has been made for an exposition and demonstration of the Edison storage battery car at the Railway Master Mechanics' Association, Railway Master Car Builders' Association and Railway Supply Manufacturers' Association Convention at Atlantic City the week of June 18. The tracks of the Atlantic City & Shore Railroad from Atlantic City to Ocean City are to be used for this purpose.

## Pole Prices Steady

Buying Picking Up with Better Outlook for Improvement in Late Summer Months

Pole prices, according to advices from the Pacific Coast, have been very steady for a year and a half in spite of increased freight rates, increased cost of handling and other factors. Competition is very keen along the Coast, with its many forests and odd bits of timber land. The past quarter has witnessed a revival of former brisk pole conditions, for there are a number of jobs in sight requiring several thousand poles and many styles of insulators and pieces of pole-line hardware. Eastern business has picked up also.

Stocks of cedar poles in the shorter lengths while not large are sufficient, it is thought, to take care of any business that might come up this year. Large poles are not in such ample supply. Conditions last winter were not favorable to pole cutting and hauling and consequently large stocks could not be piled up.

Dealers look forward to better buying late this summer to take care of fall line maintenance needs.

## Transformer Market Improving

Both Domestic and Export Volume of Sales Are Better—Inquiries Also Improving

The transformer market is reviving under the stimulus of business expansion throughout many parts of the country. Orders from the Middle West are active, the Pacific Coast is buying somewhat more freely, and the East is falling into line with increasing inquiries and better sales. Within a month one Middle Western central station has ordered no less than 54,000 kva. in transformers. Foreign business, notably from Spain and Norway, shows healthy gains, these being due largely to hydroelectric developments. Although much more building is to be started later in comparison with the present low volume, central stations are increasing their line extensions in many localities; inquiries are coming into the factories at an unsurpassed rate.

## Record Westinghouse Year

Sales Billed During Fiscal Year Amount to \$160,379,943 with Unfilled Orders of \$76,248,000

Figures were made public on Monday showing the record business done by Westinghouse Electric & Manufacturing Company during the fiscal year ended March 31 last. Sales billed totaled \$160,379,943, against \$95,735,407 the year previous. Unfilled orders on April 1 amounted to \$76,248,000.

Sales billed include shipments by the New England Westinghouse Company and J. Stevens Arms Company from Jan. 1, 1918. After Sept. 1 the New England company's plants will be devoted to producing industrial motors and automobile starting and lighting apparatus.

A condensed comparative statement of operations for the past three years follows:

	Year Ended March 31—		
	1919	1918	1917
Gross earnings—sales billed.....	\$160,379,943	\$95,735,407	\$89,539,442
Cost of sales—Cost of manufacture, including depreciations of property and plant and all selling, administration and general expenses and all taxes.....	*144,667,402	80,225,937	72,077,752
Net manufacturing profit.....	\$15,712,541	\$15,509,470	\$17,461,690
Other income.....	1,623,262	1,323,263	1,386,547
Gross income from all sources.....	\$17,335,803	\$16,834,733	\$18,848,237
Less—Inventory adjustments, inactive apparatus and materials scrapped, bad accounts and extraordinary items of expense charged to income.....	†	†	†
Net income applicable to interest and other charges.....	\$17,335,803	\$16,834,733	\$18,848,237
Interest charges.....	2,276,795	1,429,052	768,548
Net income available for dividends and other purposes.....	\$15,059,008	\$15,405,681	\$18,079,889

† Included in cost of sales.

\* Includes \$15,395,846.16 Federal income and excess profits taxes.

## Wire Prices Follow Copper Upward

Rubber Covered Base at 21 Cents—Bare and Weatherproof 18½ to 20 Cents

Advances in the copper market of the past two weeks have had their expected effect on the prices of copper wire. The prices herein are as of May 28, but there is no telling how long they will last.

Copper started up about three weeks ago, and increased 1 cent to 16.37½ cents a pound. The first ten days showed heavy sales of the metal, but these have dwindled down to a rather quiet market. During this time there were reported large sales of wire rods for England, and domestic electrical manufacturers are reported to have satisfied their copper wants for a few months.

Certain kinds of wire follow the trend of the copper market more closely than do others. Rubber covered wire is least affected by small changes in copper and would hardly be expected to change on fractional changes of copper. When copper changes a cent or two then corrections may be looked for in rubber covered. On May 28 producers were quoting, for the most part, on a 21-cent base. Prior to that a 20-cent base had been holding for about eleven weeks.

Weatherproof wire and bare copper wire follow the copper market rather closely, and a change of one-quarter of a cent is likely to affect the price of these two wires. Bare wire base is around 18½ and 19 cents a pound. Weatherproof is reported on a 19 to 20-cent base. But a small change in copper is almost sure to change these prices.

The recent advance in cotton will probably be felt in the price of insulated wire if it has not already appeared. Stocks of cotton materials on hand may permit of a postponing for a short time of an added increment to

insulated wire price, but if cotton remains up any length of time this addition may be expected. There is better buying of weatherproof wire and a considerable increase in inquiries.

There has been found some increase in orders for signal wire for electric railway use, but in no sense anything like normal buying.

## Cotton Advance Reflected in Insulating Materials

**Cloths and Oils Show Sharp Advances  
—Tapes Holding Steady—Repairs  
Keep Up Demand**

Following the recent advances in cotton prices there have been found substantial advances in certain insulating materials. Insulating cloth and oils have been subjected to a decided increase in price. Non-metallic flexible conduit has advanced 20 to 25 per cent. So far as could be learned, however, there have been no advances in friction tapes and white cotton webbing.

The stability in price of these tapes is undoubtedly because of stocks of raw materials on hand sufficient in size to carry along production for some time. One manufacturer expects to see no necessity for a price change for three months.

There has been a better demand for insulating materials of late. The amount of repair work carried on in the railway shops is a factor in keeping a steady flow of this material in the market.

## Price Levels Expected to Hold for Some Time

The Electric Bond & Share Company, New York City, has sent out a circular letter under date of May 12 to its utilities that it would keep them informed from time to time on the tendencies of price changes. There was inclosed a copy of the address of Irving Fisher before the Conference of Governors and Mayors at the White House in March, wherein the continuance of the present price level was upheld. The company considers that this address ably presents this side of the subject and expects further reports of a more or less similar nature from possibly different angles as time goes on. These are to be forwarded in order to keep the utilities in touch with the generally accepted belief that the present price levels are to be permanent, and will decrease, if at all, only very gradually.

## Electric Railway Projected from Stockholm, Sweden, to Goteborg

According to Commercial Attaché E. W. Thompson, electrification of all the principal railroads of Sweden is most logical in view of the dearth of coal and the wealth of water power. The plan has been recently discussed in the Danish press for an electric road connecting Goteborg and Stockholm.

## Rolling Stock

Nashville Railway & Light Company, Nashville, Tenn., has been granted permission by the Tennessee Railroad and Public Utilities Commission to purchase ten new street cars, it is reported. The cost is estimated at \$57,980, and permission is granted the company to issue par notes for \$33,425 of this amount. The cars will be purchased from the American Car Company of St. Louis.

## Recent Incorporations

Levis (Que.) Tramways.—Incorporated as a reorganization of the Levis County Railway and to extend the service in the counties of Levis, Bellechasse, Dorchester and Beavie.

Miami Beach Electric Company, Miami, Fla.—Incorporated to construct an electric railway at Miami Beach. Capital stock, \$250,000. Officers: Carl G. Fisher, president; Arthur C. Newby, vice-president, and J. H. McDuffie, secretary and treasurer. [Apr. 26, '19.]

## Franchises

Los Angeles, Cal.—The Pacific Electric Railway has received a franchise from the City Council of Los Angeles for the construction of an electric line on Echo Park Avenue and portions of Sunset and Hollywoods Boulevards.

Jackson, Miss.—The Citizens' Public Utility Company has asked the City Council for a franchise to operate electric light and gas plants and an electric railway in Jackson. It is presumed that this company has been organized to take over the properties of the Jackson Light & Traction Company, which went into the hands of receivers recently.

## Track and Roadway

Pacific Electric Railway, Los Angeles, Cal.—Plans are being discussed for the rearrangement of the San Pedro and Seaside Park lines of the Pacific Electric Railway in Long Beach.

Pacific Gas & Electric Company, San Francisco, Cal.—Extensions and improvements involving an expenditure of \$3,400,000 are contemplated by the Pacific Gas & Electric Company during the current year.

Chicago, Fox Lake & Northern Electric Railway, Chicago, Ill.—The Public Utilities Commission of Illinois has ruled that the Chicago, Fox Lake & Northern Electric Railway has no right to build a suspended monorail road between Evanston and Palestine and ordered the company to discontinue issuing securities for financing the project. [May 4, '18.]

Illinois Central Railroad, Chicago, Ill.—The question of equipping the Illinois Central Railroad lines within the city limits for electrical operation is under consideration by the City Council of Chicago. Plans for carrying out the project will be submitted to the Council by the railroad and city engineers.

Pekin (Ill.) Municipal Railway.—The city of Pekin has been offered a quantity of second-hand street car rails for use in the extension of the Pekin Municipal Railway to the East Bluff under terms which are favorable to the building of the line. It is generally conceded that the line should be extended to the East Bluff as soon as possible as there is a wide range of territory to be served there and the public demand for the extension is marked.

West End Street Railway, Medford, Mass.—The Board of Aldermen has granted the petition of the West End Street Railway, the lines of which are leased to the Boston Elevated Railway, for the relocation of its tracks on Main Street from the Somerville line to Mystic Avenue and on Salem Street, from Medford Square to the Malden line.

Mexico (Mex.) Tramways.—While details of the arrangement by which the Carranza government has turned back to the Mexico Tramways company the electric railway system of the City of Mexico and the Federal District have not been made public, it is reported that the conditions require the early carrying out of the company's original plans for the construction of interurban lines between Mexico and Pueblo and Toluca. These two lines were under construction at the time the revolutionary period was inaugurated nearly nine years ago. At that time the company also had its plans well advanced for the building of a scenic railroad up the slopes of Mount Popocatepetl. This road was to have been of the cog-rail type for the last few thousand feet of the ascent.

Perry, Mo.—It is reported that I. S. Fisher of Moscow Mills, Mo., proposes the construction of an electric railway from Perry to Mexico.

Cumberland Railway & Power Company, Fayetteville, N. C.—Construction has been begun by the Cumberland Railway & Power Company of its line in Fayetteville.

Tulsa (Okla.) Street Railway.—Work has been begun by the Tulsa Street Railway on its Pearl Street extension from Hodge Street to the Lowell school.

Guelph (Ont.) Radial Railway.—The city of Guelph plans to issue bonds to pay for the reconstruction of an extension of the Guelph Radial Railway from Hespeler Street north to Mount Forest Street.

Berlin & Northern Railway, Kitchener, Ont.—The Ontario Legislature has authorized the Berlin & Northern Railway to change its name to the Waterloo-Wellington Railway, and has granted an extension of time for three years within which to extend its line

from Bridgeport, its present terminus, to Elora and Fergus, Ont.

**Montreal (Que.) Tramways.**—It is reported that plans are being made by the Montreal Tramways for double-tracking 10 miles of its line on Lawrence Street to Gouvain Boulevard and through the village of Bordeaux to Park Avenue.

**Charleston Consolidated Railway & Lighting Company, Charleston, S. C.**—The Charleston Consolidated Railway & Lighting Company is reconstructing its track on the east side of the Meeting Street road from the plant of the Tuxbury Lumber Company to the Five Mile House.

**Sudbury-Copper Cliff Suburban Electric Railway, Sudbury, Ont.**—The Ontario Legislature has granted the Sudbury-Copper Cliff Suburban Electric Railway a three-years extension of time within which to complete the construction of its proposed extensions.

**Montoursville (Pa.) Passenger Railway**—The Montoursville Passenger Railway reports that it will reballast and lay new ties on 1 mile of track. The company states that it would like prices on bituminous binders for 1 mile of track.

### Power Houses, Shops and Buildings

**Iowa Southern Utilities Company, Centerville, Ia.**—Construction of a 20-mile extension is planned by the Iowa Southern Utilities Company of its transmission line from Diagonal to Shannon City and Tingley.

**United Railways & Electric Company, Baltimore, Md.**—A contract has been awarded by the United Railways & Electric Company to the Singer-Pentz Company, Baltimore, for the construction of a shelter station at Sparrows Point, to cost \$10,000.

**Morris County Traction Company, Morristown, N. J.**—This company reports that during the next four weeks it expects to place contracts for the construction of a small dispatcher's office at Summit, N. J., and contemplates the construction of a substation at Denville.

**London & Port Stanley Railway, London, Ont.**—A report from the London & Port Stanley Railway states that it has awarded a contract to John Hayman & Sons, London, Ont., for the construction of a stone and brick passenger station at St. Thomas, Ont.

**West Virginia Traction & Electric Company, Wheeling, W. Va.**—The West Virginia Traction & Electric Company has recently completed the installation of new coal handling equipment in its Morgantown power house to facilitate operations.

**Wheeling (W. Va.) Traction Company.**—The Wheeling Traction Company contemplates the construction of a two-story carhouse and shops at a cost of about \$75,000.

### Professional Notes

**Hubbel & Meaden** is the name of a new firm of tax and accounting consulting experts which will have offices at Room 306 Hickox Building, Cleveland, Ohio. Charles H. Hubbell, one member of the firm, was formerly with the Illinois Utilities Commission and later was federal tax consultant of the First National Bank of Cleveland and author of "A Story of the Income Tax" and "A Story of Liberty Bond Interest." Douglas S. Meaden was formerly statistician of the Illinois Public Utilities Commission.

**John F. Vaughan**, engineer, 185 Devonshire Street, Boston, Mass., has resumed his engineering practice. His resignation of his position as district manager (New England) for the Emergency Fleet Corporation became effective on May 1. Mr. Vaughan had been associated with Stone & Webster and with the late Col. N. H. Heft in the pioneer electrification work of the New York, New Haven & Hartford Railroad on the Nantasket Beach and other lines.

**Major George F. Sever, Engineers, U. S. A.**, has been honorably discharged from the United States Army after a service of fifteen months and will make his headquarters in New York City for consulting engineering practice. Major Sever, during his service, made extensive and detailed investigations of the electric power conditions in New England as well as on the Pacific Coast from Seattle to Los Angeles. His investigations covered careful analyses of the production of power by coal, oil and water, and the comparisons of these different methods.

### Trade Notes

**A. N. Hargrove**, foreign sales manager of the J. G. Brill Company, located at the company's Philadelphia office, has resigned his position.

**W. B. Conwell** has been elected president of the Safety Car Heating & Lighting Company to take the place of E. M. Dixon, who died a few months ago.

**J. P. Alexander**, formerly purchasing agent Wheeling (W. Va.) Traction Company and later representative of the General Electric Company at Trenton, N. J., is now connected with the power and mining department of the General Electric Company in New York City.

**Walter A. Zelnicker Supply Company, St. Louis**, has appointed F. X. Meehan advertising manager. Mr. Meehan was connected with Fairbanks, Morse & Company for six years; the Santa Fé Railroad for two years; and the St. Louis Smelting & Refining Works for two years.

**Massey Concrete Products Corporation, Peoples Gas Building, Chicago**,

announces the appointment of P. E. Longstreet as resident manager of the Western district, in charge of all sales in that territory, with headquarters at 925 South Sixth Street, West, Salt Lake City, Utah.

**Elwell Trolley Supply Company** has arranged for representation on the Pacific Coast in Portland, San Francisco, and Los Angeles through the Eccles & Smith Company. An office has also recently been established at 332 South Michigan Avenue, Chicago, Ill., with M. O. Payne as manager.

**Ohmer Fare Register Company, Dayton, Ohio**, announces in "A Record of Recent Business" that twenty-seven different companies adopted Ohmer registers since January, 1918, while forty-nine companies renewed their existing contracts. In addition to these contracts, ninety companies increased the number of registers used on their lines.

**R. W. Van Pelt**, for the past two years in charge of Western sales of the insulated wire department of the B. F. Goodrich Company, Akron, Ohio, with headquarters in Chicago, has been promoted to charge of Eastern sales, insulated wire department, New York City headquarters. Mr. Van Pelt for a number of years was connected with the American Steel & Wire Company in a sales capacity for its insulated wire and cable department both in the Chicago and the Pacific Coast offices. He joined the B. F. Goodrich Company in 1912.

### New Advertising Literature

**Van Dorn Electric Tool Company, Cleveland, Ohio:** Descriptive folder of the company's portable electric grinders.

**Joseph T. Ryerson & Son, Chicago, Ill.:** Bulletin 20,145 describing the Riley universal elliptic spring forming machine.

**Union Switch & Signal Company, Swissvale, Pa.:** Bulletin 92, describes the single and double-pole types of "Union Vane Relays."

**Locomotive Superheater Company, New York:** Bulletin T-2 of the Elesco superheater. Designed originally for a superheater of locomotives, this superheater has been adapted to stationary boilers, where it possesses many advantages.

**Allis Chalmers Manufacturing Company, Milwaukee, Wis.:** Bulletin No. 137 entitled "Works and Products," presenting in condensed form a description of the company and its capacity for production of prime movers and electrical machinery.

**Roller Smith Company, Bethlehem, Pa.:** Bulletin sheets Nos. 73 and 74 on "Standard" type alternating current and direct current circuit breakers, both overload and under voltage types, and Bulletin No. 550 on "Imperial" type direct current relays.