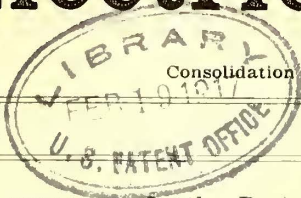


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TWO FEATURES AT MID-YEAR MEETING

In the Boston meeting two features may be said to have been paramount. One of these relates to the industry itself—the purpose of the gathering—the other to the subject of the national defense. As is clearly evident from the program, which may be assumed to reflect the best thinking of the industry, the relation of employer and employee transcends in importance all other matters excepting only that of the relation of the electric railways to the public. The necessity for basic knowledge of fundamental principles of wages, costs of commodities, living conditions and the like, is clearly seen in the reports and papers presented. The old order of affairs was graphically described in the introductory remarks of James O. Fagan, the tower signalman, whose magazine articles have made his name well known. The new order was well illustrated by the report of the committee on social relations upon methods of securing the economic independence of the employee, increasing his habits of thrift, and caring for him and his family in case of death, incapacity or old age. The topic is a modern one, and many theories are being advanced as alleged remedies for this and that condition. In these circumstances the value of a scientific consideration of the subject such as that given by the committee on social relations cannot be overestimated.

ELECTRIC RAILWAYS BEHIND THE PRESIDENT

The patriotic resolutions adopted at Boston and forwarded to President Wilson are significant in several particulars. The backing of an industry so important as ours cannot but be appreciated by the President in this hour of stress. Not only can the railways be of help in a material way in assisting in the transportation of troops and supplies, but in the matter of men, also, they are in a position to be of prompt and effective service. Their men are under discipline somewhat analogous to that in the army. They are accustomed to learning and following rules, to work of a routine nature necessary to the public service, to responding to emergency calls of various kinds and even to the wearing of uniforms. If needed for service they will, no doubt, respond to their country's call as their brothers did so freely in Great Britain before conscription was resorted to. The committee on national defense, as it is now called, has done well to utilize the opportunity afforded by the mid-year meeting for focusing attention upon the patriotism and enthusiasm of the electric railways. We expect them to be an important factor in any eventualities which may result from the present international tension.

GIVING THE EMPLOYEES A CHANCE

Do you, as an electric railway employer, look outside your organization whenever a man is needed for a more or less advanced position, or do you endeavor to find among your own employees one qualified for the work? This point has been brought to our attention with special emphasis through a recent advertisement in the *Denver Tramway Bulletin* for an engineer to do certain work, it being stated therein that it is the policy of the company to make appointments from within the organization if the right man can be found. Such a policy is immeasurably preferable to that first mentioned, which cannot but result unfortunately for both employees and the organization. When outside men are persistently brought in to fill vacancies without consideration of the qualifications of any existing employee, the practice tends to undermine the ambition of the employee or else eventually leads him to seek work where his future is not so narrowly and unjustly restricted. In either case the company is harmed. What present-day employees want is a fair chance and this should be insured by the management. In this connection we were struck by a recent remark of President Brush of the Boston Elevated Railway, who said: "My job is to make my fellow employees make a success of theirs."

A NEED FOR SPECIALISTS EXISTS

In the case of individuals that have been engaged in electric railway work there appears to be a relatively large opportunity for specialized service during war. For example, electric railway operators are especially well fitted to deal with the problems of detailed distribution which seem to form so important a factor in modern warfare. According to report, it is quite frequently the practice on European battlefields, where troops are deployed over a wide front served only by steam railroads at right angles to it, to construct light railways behind the trench lines and thus maintain a steady stream of munitions along the front. Here should be much for the electric railway man to do in the way of operation—whether steam or electricity happens to be the motive power. In construction work, the services of those who have had experience with maintenance of way on interurban properties should be literally invaluable. All of them have dealt with the laying and repair of track in the open country under conditions that should be more nearly comparable to the rough-and-ready methods of war time than the principles of elaboration and permanence that have become standard for steam railroad practice. In case this nation should take the field there would probably be a great need for specialists along this line and many others.

HALF A LOAF BETTER THAN NONE

Such a maxim may be appropriately used in describing the financial nourishment which, as noted in last week's issue, has been recommended for the Boston Elevated Railway by the special legislative commission appointed to investigate its needs. It was perhaps too much to expect that out of this short investigation any radical departures in the way of revenue increases would be advocated. The investigating commission did well in making a thorough beginning and in frankly going on record as to a disposition to meet fairly the company's immediate and most pressing needs. The management of the Boston company, both present and past, has reason for congratulation in the clean-cut endorsement of its work which may be read between the lines of the full report. The declaration made by the commission that no "water" exists in the Boston Elevated securities will surprise no one familiar with the company, but this statement, with other straightforward comments upon the conditions which handicap the road, will be of value in insuring a wider public appreciation of the company's problems and honest endeavors to perform its duty to the mutual benefit of itself and the public.

The commission feels that the immediate needs of the company will be met by the sale of the Cambridge subway and bridge approach (costing about \$9,000,000) to the State, by the return of a \$500,000 guarantee fund, by the institution of further prepayment areas where practicable, by the abatement of a portion of the so-called compensation tax and by other steps outlined in last week's abstract. It considers, however, that a more thorough investigation of the efficiency and earning possibilities on the system would be helpful and recommends such a study by the Public Service Commission during the next twelve months. Moreover, the commission believes that a comprehensive investigation of future subway development at Boston may well be undertaken by the Boston Transit Commission in conjunction with the broader inquiry into the net earning power of the company. It recognizes the fairness of the municipality's sharing in the expense of high-cost transit facilities, but it is not yet ready to advocate a positive subsidy or taxation abatement. Fare increase and transfer charge plans must await further investigation, including operating experience under present fares.

"So far, so good," is doubtless a fair characterization of such findings. In trying to reconcile two elements which to it seem opposed—*i. e.*, the company and the riding public—the commission has set up a dividing line between recommended present relief and possible future relief. In other words, it advocates now only such relief to the company as will impose no additional burdens upon the public, but it is fair-minded enough to leave open for future decision the question of the necessity of more direct contributions from the public.

The moral value of the report, even with its limited findings, should be great, for it gives official recognition to public responsibility for successful utility operation.

It is to be hoped that the material value of the report will also be realized. If the recommendations of the commission are enacted into law at the present session, the company can serve the public better than is at present possible under the limitation of not being able to issue further securities, and it will, we trust, make at least a close approach to a fair dividend. The latter must be assured in the long run if the scheme of private ownership of a great city traction system under public regulation is to succeed.

PENSIONS FOR ELECTRIC RAILWAY EMPLOYEES

The sub-committee on social relations of the American Association, it will be recalled, began its vitally important work at the last October convention with a comprehensive report on the three elements of "protection" for employees, *i. e.*, life, health and accident insurance. At the mid-year meeting in Boston this week the committee, which has been separated from the committee on public relations and is now a full committee, made further commendable progress in a report to which the greater part of the day was devoted.

In brief, the report contains, first, a discussion of pension theory and practice, with which the committee concludes the "protection" part of its study. It then begins the second part of its work, or that dealing with "betterment" of employees through such means as the best form of wage payments, minimum wage laws, education, thrift, profit-sharing, etc. Along the line of social relations electric railways have probably done as much as any industry in the country, but the scattered plans in use have not before been collated and analyzed in a thorough-going way. In doing this very thing the committee is performing a most valuable service to electric railways, and we hope that appreciation of its efforts will find expression in a careful study of its work as a guide for the future.

To take up the present section of the committee's report, it may be noted that pensions for employees have not been adopted so widely in the electric railway field as have other parts of the "protection" program. Only twenty-five companies have such systems, whereas 118 companies have benefit associations which provide sickness and accident disability benefits, medical supervision and death benefits. The industry, however, is well advanced when compared to other pension agencies. Only four out of 110 trade unions profess to pay superannuation benefits, social insurance evidently being considered by them a matter of secondary importance. Moreover, underwriting agencies for pensions are limited, and their policies are not taken largely by the employees most in need of pensions, and are generally costly. State subvention for indigent old age—as popular as it is abroad—has not been adopted here and would in any event, on account of its comparatively greater cost, probably be limited to real charity cases.

All this, we think, simply tends to show that electric railways have a wide opportunity for constructive work along pension lines. Without going into the technical details of terms, recessions, deaths, etc., it seems to us

that any company in undertaking to establish a pension system must settle two points. Firstly, it should be certain that its plan is actuarially sound. The curse of many municipal and state pension systems has been the necessity for great modifications or even abandonment on account of poor advice and improper determinations of probable cost. The committee has presented an able summary of the cost factors to be considered, but it would, we are confident, be the first to deprecate the lack of expert advice covering the future working of any particular pension system.

Secondly, a railway must decide whether or not its pension plan is to be co-operative—that is, whether it shall finance the whole system or accept voluntary or retain compulsory contributions from the employees. All electric railway pension funds now in operation are sustained by the companies. The theoretical discussion pro and con on this general question is voluminous, and it will not begin to approach the end until there is much more pension experience in all industries. The co-operative feature, however, means complex accounting and elaborate contractual relations between employer and employees, and we are not certain that its conceded merits are worth the trouble of applying it to all parts of employee protection. If we understand the committee correctly, it feels that the preferable protection system would embody a minimum pension plan financed by the company as at present but supplemented by a voluntary contributive plan to provide insurance and promote thrift. On the other hand, Edward E. Rice, in his written discussion of the committee's report, suggests that insurance be handled under the group plan entirely by the employer, and that the co-operative feature be secured through accumulation of pension funds by joint contributions of employers and employees. Alike in principle, therefore, as to the partial use of the contributive feature, these proposals apparently differ as to the part of the social program to which this feature should be applied. Without many experience data on this point, it will be unwise to predict definitely which scheme is more practicable, but it would seem that the burden of proof should be on the plan proposed by Mr. Rice, inasmuch as the proposal of the committee to a greater extent leaves undisturbed the practices already in existence.

On the subject of minimum wage laws, we desire simply to emphasize the point made by the committee that, although as yet the existing acts of this character do not touch electric railways, they may be so extended and are at least a sign of the times. Already public thought is turning even further to the subject of state regulation of utility wages. The outcome, of course, cannot be accurately forecasted, but we believe that there is an awakening of public interest of all phases of utility operation, including labor, that will result in increasing discussion and demands for innovations. It rests entirely with electric railways whether they shall do their own thinking and broaden their social relations work through efficient use of approved methods or leave the industry in large part open to the possible imposition of sociological experiments.

SELLING TRANSPORTATION—AND IDEAS

It is difficult for many to visualize a railway man as a merchant. The merchant deals in tangible goods; the railway in intangible service, yet both have something to sell to the public, and equally need to prove the attractiveness of the offering made. Undoubtedly, each will do some business even without any special sales effort. People have to ride to some extent, just as they have to purchase a certain amount of dry goods and groceries. But to ignore the beneficial effort of salesmanship is to overlook an important factor in the success of every enterprise, whether transportation or department store.

The steam railroads pay a great deal of attention to the business of selling transportation in spite of the fact that most of their business comes from freight instead of passengers, and the opportunities for increasing business in freight, under most conditions, is less than that of increasing business among passengers. One reason for this is that the shipment of freight is largely a matter of necessity while passenger travel is largely a voluntary act and can be developed as a habit. Another reason is that a piece of freight, as a rule, is shipped only once. When it reaches its destination, it is set permanently in place or consumed. With passenger travel, there is no end to the traveling which a person can do except the span of his life. Hence, railways whose business consists largely of passenger travel have greater inducements to develop the traveling habit in their public than those whose business consists largely of freight.

But the sale of transportation is not the only way in which a transportation manager can exercise that talent which consists of being able to convince others that they should accept his ideas. As Mr. Frothingham said in Boston yesterday, the manager has to sell to his trainmen the idea that service with his company is a desirable one as regards hours, wages, working conditions and permanency of employment, when compared with other lines of work in the same town in which they might engage. He has to sell to the authorities of town and state the belief that the service which he supplies is as good as is warranted by the fare paid or, perhaps, that the fare is not an adequate compensation for the service given. He must sell to the public directly served the thought that the local transportation system should be encouraged to make such extensions and other improvements in the service as necessity requires from time to time.

In most of the sales transactions of this kind which the manager has to conduct, he is obliged to meet his patrons by proxy, just as the dry-goods merchant has to conduct his business through salesmen and saleswomen. In transportation service, the sales are conducted largely by the trainmen, and, as Mr. Frothingham says, "there is just as great an opportunity for good salesmanship between the operating men and the public as there is between a merchant and his customer. The principle is the same in both cases, only you, perhaps, have never thought of it in just that same way."

Pensions and Minimum Wage Laws*

Survey Presented to American Electric Railway Association to Show Present Pension Practice, with Analysis of Cost Factors—Terms and Conditions of Industrial Pensions—Corporation Support of Pensions—Types of Minimum Wage Laws, with Results and Future Tendencies

By JAMES D. MORTIMER, Chairman

HENRY C. BRADLEE

EDWIN W. RICE, JR.

Composing the Committee on Social Relations of the
American Electric Railway Association

APENSION has been defined to be "a stated allowance to a person in consideration of past services," or "a payment made to one retired from service because of age, disability or other cause." Pension systems have been designed for every purpose from rewards to poor relief. Industrial pensions—that is, pensions to retiring employees—belong in the former rather than in the latter category. Among the various pension plans of electric railways the purposes are described as "in recognition of long and faithful service" or "fidelity and endeavor to advance the interests of the business," "to encourage employees to remain in the service a sufficient time to develop capacity and acquire experience," etc. The purpose of corporation pensions is to finance the retirement from active service of employees who have devoted their productive period to the service, so that efficiency may be maintained, promotions facilitated and employment made more attractive. The idea of securing the greatest permanence of service is perhaps the most important motive. The veterans are an asset to any institution. The purpose is far removed from any desire to be charitable to the "jobless, helpless, homeless, incomeless and propertyless old man of fifty," as Rubinow defines it.¹ Industrial pension systems now in operation in the United States do not limit the pension to those who are in need, but grant it to every employee who retires after the specified term of service at the designated pension age, without reference to the financial condition of such employee, his income, dependence or his family's needs.

SURVEY OF PRESENT PENSION PRACTICE

Available data as to the expansion of the pension movement are impressive. A review of the field² indicates a definite tendency to more liberal pension provisions, but unfortunately, also an utter disregard of the first principles of financing such plans.

*Abstract of a report presented before the American Electric Railway Association at Boston, Mass., Feb. 16, 1917.

¹Rubinow—"Social Insurance," page 302.

²A chronological survey of pension movement may be obtained by reference in order to Twenty-Third Annual Report, 1908, United States Commissioner of Labor; "Workmen's Insurance Benefit Funds in the United States"; Senate Document 427, Sixty-first Congress, second session, March 11, 1910, "Pension Funds for Municipal Employees and Railroad Pension Systems in the United States"; Lee W. Squires—"Old-Age Dependency in the United States," 1912; I. M. Rubinow—"Social Insurance," 1913; Tenth Annual Report—The Carnegie Foundation for the Advancement of Teaching, 1915, and "The Problem of Pensions," as presented at the sixteenth annual meeting of the National Civic Federation, January, 1916.

While no state has enacted any law for a general system of old-age pensions, many have passed enabling acts under which municipalities may pay pensions to certain employees.

Generally these are the members of fire, police and water departments, teachers in public schools and employees of public libraries, etc. Senate Document 427, dated March 11, 1910, outlines 219 pension systems for municipal employees, comprising forty-eight teachers', eighty-six firemen's, eighty-one policemen's and four miscellaneous funds, covering thirty-one states and ninety-nine cities. According to data furnished by the commission on pensions of the city of New York to the National Civic Federation and contained in its 1916 report, such plans are now in operation in 228 cities. The essential features of these plans are thus summarized by Leonard Blakey in this report:

"For the funds for firemen, seven of the first eighteen cities of the United States do not require contributions, while eleven require from 1 per cent to 2½ per cent, ranging from \$8.70 to \$29.94 per year. Thirteen of the cities fix the pension at one-half the final salary. In twelve the age of retirement is not stipulated. In the others it

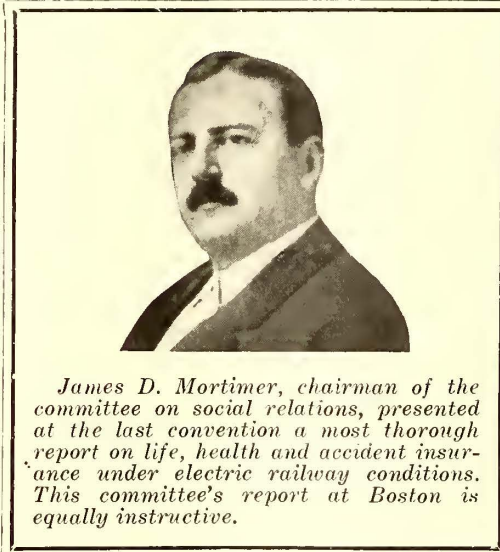
ranges from fifty to sixty years. The required length of service for retirement ranges from fifteen to twenty-five years, it being in twelve cities fifteen years; in eight, twenty; in two, twenty-two, and two, twenty-five. Except in Pittsburgh, widows and dependent children uniformly share in this pension.

It is maintained by many actuaries that the larger number of municipal pension plans in force in the United States have been established without expert advice and proper actuarial determination of the probable cost, and that these systems will have to be either greatly modified or altogether abandoned. Frederick L. Hoffman in a paper on "American Public Pension Systems and Civil Service Retirement Plans," read before the Seventh International Congress of Actuaries, says:

"It is evident that American military and most of our state and municipal systems have been developed with an entire disregard of actuarial and general insurance considerations. As a result an enormous liability has accrued, which must needs constitute for years to come a serious financial burden on the people at large."

A similar conclusion is reached by Henry L. Rietz in a paper before the American Institute of Actuaries.³ Evidence of the very substantial liabilities accruing in municipal pensions plans is forthcoming from various actuarial examinations.

George E. Buck, actuary for the pension commission



James D. Mortimer, chairman of the committee on social relations, presented at the last convention a most thorough report on life, health and accident insurance under electric railway conditions. This committee's report at Boston is equally instructive.

of New York,' states with respect to pension systems in New York City:

"The valuation of each fund has now been completed and the total liability of the entire system determined. In round numbers such liability is \$216,000,000. Of this amount \$9,000,000 is provided by employees' contributions, and there remains a deficiency of \$203,000,000 after deducting the funds in hand. Possibly \$30,000,000 will be available from the indirect contributions of the city to cover this."

A report to the Massachusetts commission on pensions by Herbert D. Brown, dated March 16, 1914, and covering an actuarial examination of the pension funds of Boston, discloses a deficiency as of Jan. 1, 1914, of \$1,312,687, according to H. L. Rietz. The permanent school pension fund of the same city is reported to have a deficiency of \$3,728,095 as of the same date, and the firemen's pensions fund a liability of \$3,657,100. All of these estimates represent the present value of obligations assumed which should have been provided for through the creation of adequate reserves.

Out of 110 national trades unions only four pay a superannuation benefit.⁵ In general, only about 11 per cent of the total benefit payments is spent for purposes of sickness and less than 2½ per cent on superannuation benefits.⁶

Corporation Pensions

The so-called corporation pension plan, providing for retiring allowances financed by the corporation after a certain attained age and years of service, is being adapted by an increasing number of companies. It was first placed in effect by the Baltimore & Ohio Railroad in 1884. Where less than twenty such plans are mentioned in the 1908 report of the United States Commissioner of Labor, fifty-eight pension systems are outlined in the 1915 report of the Carnegie Foundation for the Advancement of Teaching, while fifty-five are contained in the National Civic Federation report of January, 1916. These lists are evidently incomplete.

There is some similarity in these various corporation plans. A period of service is required of from fifteen to twenty-five years. The age of retirement ranges from sixty to seventy years. The amount of pension is based upon a percentage ranging from 1 per cent to 2 per cent of the average wage at time of retirement multiplied by the number of years in service.

Electric Railways

Tabulated returns of the electric railway industry disclose twenty-five companies in the United States with pension systems. Of these thirteen provide compulsory retirement at the age of seventy, one at the age of sixty-five and the remainder at the option of the management. Thirteen likewise provide optional retirement at the age of sixty-five and five at the age of sixty. Of twenty-one pension systems reporting period of service required eight require twenty-five years, eleven twenty years and two fifteen years of continuous service prior to receipt of pension. The amount of pension varies over a wide range. Six plans specify a fixed monthly amount ranging from \$20 to \$35. Five specify a varying monthly amount conditional upon term of service and other factors, ranging from \$15 to \$25 and from \$20 to \$40 a month. Nine systems provide a pension equal to a percentage of the salary for the last ten years, for each year of continuous service. Of these nine, in four instances the percentage is 1 per cent, in one instance 1¼ per cent, in two instances 1½ per cent, and in two instances 2 per cent. Five systems

provide a pension as a percentage of the average wage for the last ten years irrespective of years of service. This percentage ranges from 20 to 50 per cent. In all instances the pension plan is financed exclusively by the employing company.

COST FACTORS IN PROVIDING PENSIONS

Just as the most important factor in the cost of life insurance is the chance of death at future ages, so the probable length of time of survival at the retiring age is the important factor in the cost of providing annuities or pensions. According to the American experience table, out of 1000 persons at the age of twenty, 625 will attain the age of sixty, 532 the age of sixty-five, and 416 the age of seventy. At the age of sixty the expectation of living will be 14.10 years, and at the age of seventy the expectation will be 8.48 years. It is frequently claimed that the American experience table assumes a higher rate of mortality than obtains in practice, and accordingly in the valuation of annuities it is usual to employ the McClintock table. This table provides an expectation of life at the age of sixty of 14.64 years. While it is undoubtedly true that the American experience table overstates the probability of death, it appears to err on the side of safety.⁷ It has accordingly been used in the cost estimates presented in this report.

Without interest a life annuity of \$1 a year payable at the age of sixty and thereafter would cost \$14.10 under the American experience table. Interest will considerably reduce this obligation. If payment is made at the end of each year the present value of the pension liability when the age of sixty is attained will amount to \$10.44 with interest at 3 per cent, \$9.65 with interest at 4 per cent and \$8.33 with interest at 6 per cent per \$1 of pension. The latter percentage has been used in calculating the pension premiums in this report. A pension of \$300 a year would require an outlay, if the age of sixty is chosen as the year of retirement, of \$1 less than the convenient figure, \$2,500. A pension of \$600 a year would require a saving at sixty of about \$5,000.

On the assumption that a pension of \$300 a year corresponds with an average wage of \$800, the total reserve required for the pension would be more than 20 per cent of the wages for the preceding fifteen years of service. This does not mean that 20 per cent of the payroll during the fifteen-year period is required for the pension reserve. Interest would again reduce the amount of annual computation; a number of employees between the ages of forty-five and sixty years would die, and some would retire from service before attaining the pension age. This latter factor of retirements or recessions is most important in effecting a saving in cost in the usual pension system.

Finally, as is the case with all enterprises, there are administrative or overhead costs necessary to operate the plan. Where these consist only of an additional pension payroll, the costs are necessarily less than where costs of agency and solicitation must be added to the net premium rate.

Any consideration of the total net cost of a pension system requires a definition of the character of the plan. The pension plan may be financed entirely by the employer. It may be financed wholly, or in part, by the employee. In the former case there would be no ques-

⁵H. L. Rietz—"The Status of Certain Current Pension Funds," American Institute of Actuaries, Vol. III, No. 7, June, 1914.

⁶George E. Buck—"Valuation of Pension Funds, With Special Reference to the Work of the New York City Pension Department," Proceedings of the Casualty, Actuarial and Statistical Society of America, Vol. II, Part 3, No. 6.

⁷Andrews Commons—"Principles of Labor Legislation," 1916, page 397.

⁸Rubinow—"Social Insurance," 1913, page 391.

⁷The combined experience table used by J. D. Craig as a pension cost basis in his report on "Actuarial Analysis of the Cost of Maintaining Various Forms of Insurance Relationship"—Appendix A, report public policy committee National Electric Light Association, 1912 Proceedings, assumes a life expectancy at the age of sixty of 13.77 years. The British Institute of Actuaries' healthy male table has a life expectancy at sixty of 13.81 years and the Northampton table of 13.21 years. The Bureau of Census United States life table, based upon federal census returns in 1910 in the registration area, shows an expectancy at the age of sixty of 13.95 years for males and 14.90 years for females.

It is usual to express the cost of pensions as a percentage of the active payroll. Just how large this percentage will be depends upon the liberality of the pension provisions. Less than 2 per cent of the employer's payroll is frequently stated as the extent of liability under the usual corporation plan. Very likely this represents out-of-pocket expenses at the present time, but it is very doubtful whether an adequate accumulation of reserves rather than a "pay-as-you-go" plan can be financed with so modest a contribution. Recession plays a very important part in cost, but the added stability which the pension system is designed to give to employment carries with it increasing burdens. Two railroad pension funds in France, established in the sixties, with contributions of 4 per cent of the active payroll, had increased to 12 per cent and 15 per cent in the nineties.⁸ The London Metropolitan Police Force shows an increase in the ratio of pension roll to active payroll from 8.5 per cent in 1854 to 29.3 per cent in 1915. In Berlin the pension roll of all civil service employees, excluding police, amounted to 36.92 per cent of the total payroll in 1914. In France in 1912 the pension roll of the national civil service cost 17 per cent of the active payroll, and in Austria the pension roll of the civil service list was 33 per cent of the active payroll.⁹ These experiences point to the necessity of accumulating adequate reserves and of valuing the liability for pensions in the method suggested.

TERMS AND CONDITIONS OF INDUSTRIAL PENSIONS

The problems of successful administration of the pension system are of an importance equal to if not greater than the consideration of cost. They may be discussed under suitable heads, as follows:

Voluntary, Compulsory and Contributive Plans

The provision made by the employer for the care of retiring aged employees may be in the nature of an annuity to which the employee himself may have in part contributed, or of a pension paid wholly by the employer with no specific contribution by the employee. If contribution is made by the employee, the amount may be compulsory or voluntary on his part.

There has been endless discussion of the question whether pensions should be contributory or non-contributory. It is argued that the employee who will most need the pension—that is, the one receiving the lowest wages—is wholly unable to make contributory payment. Furthermore, few employers deem it advisable to require that such payments shall be compulsory, and experience has shown that in a system of voluntary payments many if not the great majority of employees will fail to join. Most prudent men safeguard the welfare of their families by life insurance, but they are willing to omit any insurance as to their own subsistence after their working period is ended. They undoubtedly cling to the hope of accumulating property by which they shall maintain themselves in old age, and there is the feeling that the hour of incapacity is far away and that through disease or accident it may never be reached. There is the further difficulty that a contributory scheme of pensions is complex, as it involves extensive accounting and contractual obligations for the return of contributions in case of termination of service, default in payment or death of the employee before the pension age arrives, thus further complicating already perplexing problems as to wages and service. Moreover, all contributory systems, whether administered by employers or em-

ployees, have difficulty in resisting appeals for assistance for employees reaching the pension age who have neglected to make adequate contribution for a pension, thereby discriminating in favor of such employee.

The objections usually raised to the payment of non-contributory pensions are that they remove the incentive to thrift; that they encourage extravagance and want of forethought as to the future, and that they do not, to say the least, contribute to the self-respect of the employee. It is even alleged that such systems will exert a depressing effect upon wages and will tend to the disintegration of the family.

In this respect it is significant to note the proposed change in the Carnegie Foundation pension fund for college teachers from an endowed to a contributory plan. This plan was established in 1905 by Andrew Carnegie to provide retiring allowances for college professors in the United States and Canada with a permanent fund of \$10,000,000 and an approximate annual income of \$500,000. In 1908 the benefits were extended to State universities, and \$5,000,000 was added to the endowment. The claims upon the fund have increased very materially since its inception. Whereas in the year 1906-7 the amount paid in pensions was \$135,687, the amount had increased in 1914-15 to \$554,121. The ultimate obligation, based on actuarial computations, is placed "somewhere between \$1,000,000 and \$1,750,000."¹⁰ The report states:

"The fundamental defect in the existing pension system lies in the assumption that free pensions for college teachers would be permanently justified. In the light of ten years of experience and in the light of the experience of European pension systems this assumption seems to rest upon a defective social philosophy. No permanent advantage will accrue to any calling or any profession by lifting from the shoulders of its members a load which under moral and economic laws they ought to bear.

"The man of sixty-five unexpectedly presented with a pension has received a gracious gift. The man of thirty who looks forward over an interval of thirty-five years to its acceptance will pay for it in one way or another before he receives it, and it is in every way to his advantage that there shall be no obscurity as to the question of responsibility or financial certainty. It is further to his advantage that the question of salary shall be entirely separated from the question of pension."

It is proposed to establish a system of life insurance and annuities at cost and broaden the scope of the plan, the Foundation assuming the cost of administration, the cost of invalidity and widows' pensions and taxes, besides guaranteeing a return of 4½ per cent upon reserves. The Carnegie plan contemplates larger pensions than obtain in industrial enterprises, and it has been said that the beneficiaries have a better appreciation of these obligations to provide for the future and the character and working of insurance contracts. While the contributory plan has its drawbacks, there is no gainsaying its popularity, and it is possible that further developments of present pension plans will include some provision in a manner similar to that contemplated by the Carnegie Foundation.

Age of Retirement

Incapacity due to old age is usually assumed to exist at the age of seventy years for males and sixty for females, though numerous plans adopt earlier ages. It is customary to provide for optional retirement when incapacity occurs at an earlier age than that of compulsory retirement, such optional period being five years. Certain existing plans permit retirement at any age after a fixed term of service, usually twenty or twenty-five years. European pension plans usually provide for retirement at seventy, although recent tendencies have been to lower this limit to sixty-five. Sixty

⁸Rubinow—"Social Insurance," page 326.

⁹Pritchett—"A Comprehensive Plan of Insurance and Annuities for College Teachers—The Carnegie Foundation for the Advancement of Teaching, Bulletin No. 9." Data furnished by New York Bureau of Municipal Research.

¹⁰Pritchett—"A Comprehensive Plan of Insurance and Annuities for College Teachers," Bulletin 9, the Carnegie Foundation for the Advancement of Teaching.

years may be safely assumed as the minimum or voluntary age of retirement except in cases of disability.

Prior Disability

If the employee is incapacitated before reaching the pension age, provision is made in many pension plans for the payments of pension. Employee liability laws frequently provide for limited annuities in the case of disability sustained during employment, and in such cases the pension supplements this compensation. Permanent incapacity operates to reduce the usual life expectancy, and accordingly a pension for the expectancy assumed at the age of sixty or 14.10 years is sufficient to care for this benefit.

Term of Service

Much the larger number of non-contributory industrial pension plans provide for a minimum of twenty years' service to entitle the employee to payment of a pension. A few provide for payment upon fifteen years' service, and others require a minimum of twenty-five years of service. As the pension is based theoretically upon long and valuable service, there is a tendency to restrict the employment of persons of advanced age, many corporations refusing to take on as a new employee any person of more than forty-five years of age. It is provided that service must be continuous, and service is held to be continuous when the employee has not been discharged or has not voluntarily left the service of the employer. In cases of absence of duty through illness or layoff because of reduction of force, no deduction is made when such absence does not exceed six consecutive months. If this kind of absence exceeds six months, the period of absence is deducted from the total term of service. It is usually provided that employees of subsidiary concerns shall be classed as employees of the parent company in respect to eligibility to receive pensions. Provision is also usual in such plans that pensions may be suspended or terminated for gross misconduct, or may be paid to some member of the employee's family rather than to the pensioner himself.

Amount of Pension

The usual basis of payment in non-contributory plans is 1 per cent for each year of service of the average wage for five or ten years prior to retirement; *e. g.*, an employee whose average wage had been \$1,000 a year and whose term of service had been thirty years, would receive annually 30 per cent of \$1,000 or a pension of \$300 a year or \$25 a month. Some pension plans provide for payment of a higher percentage, and others have a varying percentage dependent upon the term of service of the employee. Most such plans provide for a maximum pension, the most common limit being \$100 a month. The recently adopted plan of the Great Northern Railroad has a maximum of \$75 per month or \$900 a year. Many pension plans have a minimum varying from \$12 to \$20 a month.

In recently commenting upon the adequacy of minimum allowances provided in corporation pension plans,¹¹ Miles M. Dawson states:

"In enterprises where low wages rule a minimum of at least \$10 per month, or even \$12 to \$15 per month, should be fixed. While these amounts may suffice for the bare support of superannuated low-wage employees, especially women accustomed to serve themselves in matters such as cooking, chamber work and laundry, about \$20 per month is the lowest subsistence figure for superannuated male employees.

"In considering minima it is well to bear in mind that, when old-age pensions come to be provided by law, whether out of the public treasury or joint contribution, they will be fixed at some generally recognized minimum. In Great

Britain this is 5s. per week, *i. e.* about \$1.25, roughly equivalent here in purchasing value in ordinary time to \$2.50 a week. Our standard of living is higher as well as our retail prices and rents. Probably \$20 per month will be the figure here. Larger minima in service pensions or pension funds might cause a larger minimum for old-age pensions, already recognized to be reasonable, to be demanded. The minimum for total disability in workmen's compensation laws is in most states \$5 a week or full wages, whichever is smaller."

If the plan contemplates a small non-contributory pension supplemented by a contributory plan under definite contract with specified surrender values in case of retirement, provision may be made for uniform minimum allowances irrespective of years of service or average salary.

CORPORATION SUPPORT OF PENSIONS

Both the contributive and non-contributive forms of pension require the financial support and supervisory assistance of the employer. In the case of contributive pensions this may take the form of contribution of a portion of the premium, contribution of the overhead cost if the contributive pension system is handled by the employees' mutual benefit association, guarantee of interest, etc.

The objections to a pension plan supported by a single industry touch largely upon the social rather than the practical aspects of the problem. It is urged that the mobility of labor is hampered, that the possibility of the pension has a tendency to tie the employee to the job and that mobility is necessary to secure higher wages or more favorable conditions of employment. It is even urged that the corporation pension plan is "an obstacle to a concerted action of labor." It is also asserted that corporation pension plans are too arbitrary and their security not absolute.

All of these objections are critical rather than constructive. While the corporation pension is only a partial solution of the old-age problem, it appears to be the only system which is being conducted on economic and business-like lines. It is designed, it is true, to decrease the annual turn-over of labor and make employment more permanent. But there can be no question that the permanence of employment is desirable from an economic standpoint for both the employee and the industry. The idea that mobility is necessary to secure higher wages and more favorable conditions of employment may have applied in an era of competitive handicraft, but it cannot be said to apply in an age of specialized industry on a large and economic scale. It clearly does not apply to the public service business. Where returns are limited, as is the case with regulated public utilities, there is no other incentive for the employer than to pay the highest possible wages afforded by the industry. In addition, it must be noted that state supervision, already concerned with prescribing conditions of labor, is now expanding its regulatory function to embrace a determination of fair wages as well as reasonable returns.

It is true that the non-contributory pension, carrying with it a cessation for the provision of old age when employment ceases before the pension age is attained, does not provide the maximum security and permanence desired by the individual employed. This is the strong argument for a contributory pension plan on a contractual basis, which will assure the return of the reserve value if and as employment is terminated.

STATE SUBVENTION FOR INDIGENT OLD AGE

The United States is the only large nation which does not provide some form of pension in the case of indigent old age. European state pension plans cover a wide and varied range of experience with state sub-

¹¹Miles M. Dawson—"Service Pensions and Pension Funds," Conference on Social Insurance, Washington, December, 1916.

vention.¹² Voluntary plans have been tried in France, Belgium and Italy. Compulsory plans have been tried in Germany, Austria and France, and straight pensions without direct contribution by employer or employee have been tried in Great Britain and Denmark.

The most important voluntary plan is a French national old age pension fund which provides a retiring allowance of \$38.42 without return of premiums in case of death, and \$25.89 with return of reserve in case of death, for a deposit of \$100 at the age of thirty. This plan was subsidized by providing the machinery of administration free of cost and guaranteeing the rate of return, this guarantee beginning at 5 per cent and being reduced on successive occasions to 3½ per cent with direct subsidies for pensions of less than \$68.49. Belgium has tried the same plan, and Italy has recently attempted a plan of direct state subsidiaries to minimum contributors. Even with the substantial backing of the state, experience has proved the failure of these measures to meet the general problem of old age relief. The middle rather than the poorer class of people avail themselves of the opportunity, the amount of lapses is high and the pensions provided have been very small. Rubinow estimates that only 8 per cent of the working class in France, or 4 per cent of those gainfully employed, have been so insured.¹³ In Italy the number of the insured is estimated at 2 per cent.

Somewhat better success has been achieved by the compulsory plans adopted in Germany, and recently in France, but the pensions are unusually small when measured by American standards. The German pension scheme provides, with the contribution of from 4 to 11½ cents a week by both the employer and employee, a pension ranging from \$26.18 to \$54.64 a year. The age of retirement is placed at seventy. These pension payments include direct subsidies by the state of \$11.90. Employees receiving more than \$476 a year are not required to insure, and payments for 1200 weeks are required to secure this pension. The French compulsory plan requires contribution of \$1.80 a year by males and \$1.20 by females, is limited to wage earners with income of less than \$579 a year, and requires thirty annual payments. The pension age is sixty-five, and the pension amounts to \$78.78 a year if contributions begin at twelve years of age, and \$46.28 in the case of men and \$34.71 in the case of women, where contributions begin at the age of thirty.

Great Britain provides straight old age pensions of \$1.25 a week for persons over seventy having an income of less than \$157.50 per annum. It is evident that such pensions would not be acceptable here with American standards of living.

Some estimate of the pension bill to the United States government, if it undertook to pay such pensions, may be made. According to the 1910 census there were 6,216,674 persons of sixty years and over out of a total population, exclusive of the island possessions and Alaska, of 91,972,266. According to the estimates of population in 1916 as disclosed in the Census Bulletin 133, this number has been increased to 102,017,312. A bill introduced by Victor L. Berger, socialist Congressman, in 1911, provided a pension of \$4 a week or less on a sliding scale to all persons of sixty years or over who did not possess an income of \$10 a week. Mr. Berger estimated in his speech before the House that the population affected would be 2,675,000, or 2.9 per cent of the total population in the 1910 census. With an average pension of \$150 a year, or less than \$3 a week, the subvention would amount to more than \$440,000,000 a year.

It is apparent that any form of state subsidy in the United States as a mere measure of poor relief will require a far more substantial contribution by the government than that afforded by European countries. There is at present a demand for such pensions as more economical and a more humane public policy than institution relief.

This tendency has already made itself felt in legislation in Alaska and Arizona and in the provision for mothers' pensions, these being state subsidies to the mother on condition that she provide a proper home for the child. Nearly thirty American states have enacted pension plans of this kind during the years 1912 to 1915. It is apparent that any state subsidy plan because of its expense must be limited to the most meager form of charitable relief, and that such plans must in any event be supplemented by co-operative action on the part of the industry and its employees to care for adequate protection and a comfortable old age. This will preferably take the form of minimum pensions financed by the corporation, as is now the case, supplemented by some voluntary contribution plan which will provide insurance and a secure method for accumulating and investing savings.

MINIMUM WAGE LEGISLATION

In the United States minimum wage laws have, as yet, been applied only to women and minors and are of little direct interest to the street railway industry, because comparatively few women and minors are employed in this industry and such as are employed receive in nearly all cases more than a minimum wage. The first law of this character in the United States, however, was enacted as recently as 1912, and it is reasonable to assume that similar laws applicable to men will follow if the present laws yield satisfactory results. The inclusion of telegraph and telephone female employees under minimum wage laws suggests that the subject is of general interest to all public utilities and particularly those where opportunities for the employment of women now exist or may occur in the future under the stress of shortage of male labor. Some street railways have already recognized the tendencies of the times and have established a minimum wage for female employees; others are working toward the same end.

The steam railroads during September, 1916, experienced the partial regulation of wages by law. Massachusetts has enacted legislation limiting the number of working hours and spread of duty for street railway trainmen, and similar legislation has been proposed in other States. Publicists state that the public has a financial interest in all public utilities as long as a utility enjoys the right of eminent domain or operates under a public franchise. They urge that the utility business is different from the ordinary industrial or commercial undertaking and may properly be subjected to special laws. Accordingly greater freedom is felt by legislators in dealing with all the parts of a public utility, and one need not be surprised if minimum wage legislation is next extended to the electric railway business.

Existing minimum wage laws, shown in summary form in the table on page 288, are of three distinct types as to method of enforcement, as follows:

(a) Where the specific minimum wage is fixed by the Legislature and embodied in the statute, as in Utah and Arkansas.

(b) Where the minimum wage is fixed by the minimum wage commission, upon the investigations and recommendations of advisory wage boards made up of representatives of employers, employees and the public, and where the commission is given powers of enforcement, and a penalty of fine or imprisonment or both is provided for in case of

¹²An adequate analysis of the pension plans of foreign countries is contained in Rubinow, "Social Insurance," 1913, and Frankel and Dawson, "Workingmen's Insurance in Europe," 1910.

¹³Rubinow, "Social Insurance," page 342.

violation of the law by payment of rates less than the minimum fixed. States having laws of this class are California, Colorado, Minnesota, Oregon, Kansas, Washington and Wisconsin.

(c) Where the minimum wage is determined as in (b), above described, but where the only power of enforcement is such as results from the power of the commission to publish the names of those employers paying less than the minimum rate. States having laws of this type are Massachusetts and Nebraska.

In some of the early decisions by wage commissions wages were fixed on an hourly or daily basis, and in California a decision which went into effect as recently as April 14, 1916, is on an hourly basis for certain workers and a piece work basis for others. It is clear that this law gives no assurance to the worker that he or she will receive a living wage. The provision for a living wage is more nearly met by a limit on the minimum amount to be paid weekly or monthly, and these are the limits adopted in many recent decisions. To provide for a reasonable living wage, employment by the year, with a prescribed minimum amount to be paid for the year's work, would seem to be necessary. Apparently, this has never been attempted.

RESULTS OF MINIMUM WAGE LAWS

Of the six States in which wage determinations are actually operative, those in force in California and Kansas are of too recent date to admit of any inferences as to their working. This leaves four States, which illustrate the workings of the three principal

the findings of the commission is well illustrated in the case of Massachusetts (type "c"). This State has proceeded very slowly in the work of establishing a minimum wage, and so far its efforts have not proved very successful, as where the employers have been opposed to the schedules adopted by the commission they have simply failed to comply with them.

FUTURE TENDENCIES AND PROBLEMS

When legislation concerning wages and calling for a large extension of the police power of the State is proposed, the creation of a commission to ascertain facts and enter orders based thereon seems to be the tendency of the time. This procedure appears better than attempting to fix wages by statute.

When a State wage commission attempts to fix wages for a given industry, it is confronted with the following considerations:

- (a) Testimony of employees that their wage is insufficient, either to
 - (1) provide them with the bare necessities of life, or
 - (2) provide them with the necessities of life and such small luxuries as they feel entitled to;
- (b) Testimony of the employer that he is paying wages as high as the profit of his business permits and that to increase wages would cause him great loss;
- (c) Opinion of the publicist that increased wages and shorter hours mean lower production costs;
- (d) The natural desire of all to receive a larger share of the world's goods;
- (e) The differences in ability between individuals.

SUMMARY OF ESSENTIAL PROVISIONS OF EXISTING MINIMUM WAGE LAWS

Findings of Commission how enforced:	Utah	Arkansas	California Washington Wisconsin	Oregon Kansas	Minnesota	Colorado	Massachusetts Nebraska
Industries covered:	All industries.	Certain industries employing more than three females.	By law. Practically all industries.	By law. All industries in which substantial number women employees not paid living wage.	By law. All industries in which one-sixth or more women employed not paid living wage.	By law. Practically all industries.	By public opinion. All industries in which substantial number women employees not paid living wage.
Factors to be considered in fixing minimum wage:	Same standard for everybody throughout state. Fixed by law.	Same standard for everybody throughout state. Fixed by law.	Living wage.	Living wage.	Living wage.	Living wage and condition of business.	Living wage and condition of business.

types of law. For example, the commissioners believe that the enactment of minimum wage legislation in Utah (type "a") has secured these results:

(a) The law has been instrumental in raising the wages of a number of women and girls.

(b) It has not increased the pay roll in establishments employing any considerable number of women, more than 5 per cent.

(c) It has not caused the minimum to become very nearly the maximum wage. A much larger number of employees are drawing a wage in excess of the highest minimum than is paid the legal wage itself.

(d) Most employers admit that they have obtained increased efficiency since the law came into effect.

(e) The law has tended to equalize the cost of production or of selling among the various manufacturers and merchants.

As a result of an investigation the following inferences with regard to the working of the law in Washington (type "b") seem to be fairly conclusive:

(a) That while in the mercantile establishments, laundries and telephone exchanges 60 per cent (50 per cent in the stores) of the women employed were receiving less than the minimum wage prior to the application of the law, the wages of practically all of these workers have been raised to the minimum without serious opposition and without injury to the industries.

(b) That there has been no leveling down of wages, but, on the contrary, a larger number than formerly are receiving in excess of the wage fixed as the minimum.

(c) That the women workers have been neither dismissed nor displaced by cheaper employees, and the number replaced by apprentices or minors is reported to be so small as to be a negligible factor.

How far minimum wage legislation is successful where public opinion is the only influence to enforce

(f) Competition in selling prices in the general market for the output of the employer;

(g) Differences in the plants and methods of operation of various employers;

(h) Widely varying opinions respecting the cost of the necessities of life making up the individuals living budget and the entire absence of reliable data applicable thereto;

(i) Absence of any definite standards of living;

(j) Variations in wage paid the same occupation in other states and in different parts of the same state;

(k) Differences in skill of different employees as managers of their homes;

(l) The fact that some employees accumulate savings while others earning the same wage and supporting no larger families accumulate debts;

(m) Variation in duration of employment with season of year and condition of general business activity.

The fixing of a reasonable wage seems to be no less difficult a question of fact, opinion and judgment than is the regulation of rates and service of utilities; in point of fact, the problem now appears much more complicated. Whether minimum wage legislation will be extended or whether experience so far obtained with it has shown that it is of so little real importance in improving the status of the industrial class as to cause the sociologists to look in other directions, cannot now be predicted with any accuracy.

Under the ideal system of compensation of wage earners, the setting of minimum wages by law or regulation should be unnecessary.

[A section of the foregoing committee report on the subject of employees' thrift was presented in tentative form only and this will be published after it has been put in final form by the committee.—EDS.]

Salesmanship and Its Effect on Electric Railways*

Companies Should Really Sell Jobs to Employees and Train Them as Salesmen of Personal Service—Railways Must Appeal to the Public's Self-Interest to Enlist Its Sympathy

By ROBERT FROTHINGHAM
New York, N. Y.

PRACTICALLY every business has a peculiar lingo of its own—expressions which frequently originate in slang and are finally adopted as fundamentals in sales talk. The advertising field has two of these expressions, of comparatively recent origin, which have come into almost universal use, *viz.*, the words "selling" and "sold" as applied to a convincing argument or sales talk.

Most of us can recall the time when the expression "sold" was identical with a swindle and the word "sell" was used as a noun to express the same idea. In these days of specializing, however, where the personal equation counts so heavily and salesmanship has become an art, the advertising salesman realizes more thoroughly than the salesman in any other commercial line known to me, that in order to sell his space he must first sell himself to his prospective customer. This requires unusual intelligence, tact, judgment and discretion, and a considerable knowledge of human nature. These are the qualities that differentiate a salesman from a mere order-taker. While they hold good in any commercial line, they are absolutely vital to the success of an advertising salesman, because he has nothing to sell but an idea, a plan, a scheme, sometimes sinfully characterized as mere "hot air."

Thus the able advertising salesman, first of all, convinces his prospective client of his own mental integrity, and then if his advertising plan matches up with it we say he has "sold" his man—that is, convinced him. His next and most important job is to keep his man "sold" so thoroughly that no competitor can "unsell" him. These terms have become so current between advertisers and advertising men that we frequently hear an advertiser say he is either partially or completely "sold" on a certain plan or that he is not "sold" at all, which is equivalent to his saying that he either does or does not believe in its effectiveness and apportions his advertising appropriation accordingly.

THE LABOR LEADER IS A SALESMAN

History has failed to record when salesmanship first made itself felt in shaping the world's civilization. Numerous examples from the past and present in various fields might be cited, but perhaps one will suffice to bring the idea closely home to electric railways: The

labor leader who makes his appeal to your trainmen, your linemen or your engineers and firemen is ordinarily classed as an agitator—he is accused of attempting to stir up strife. I ask you to look at him as a salesman, even though you may feel that the word out-classes his real personality. The labor leader, in organizing a group of men for the purpose of forming a union, first endeavors to attract them through offering shorter hours, higher wages and the intangible advantages of collective bargaining.

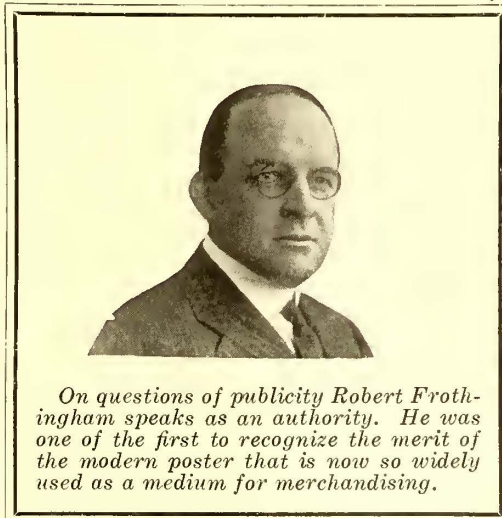
His fundamental appeal is necessarily made to the men's own self-interest, as in any case of salesmanship. If you will stop for a moment and look at the matter in the spirit of salesmanship, you cannot but be impressed with the extent to which you are subjected to competition in employing skillful men, and the extent to which the management of your industry fails to employ a similar art in combating such competition.

In the last national election, the National Democratic Committee sold President Wilson to the American people on the basis of "He kept us out of war." The Republicans tried to sell Mr. Hughes to the American people

on a number of different issues, such as "America efficient," "America first" and "Protective tariff," but the idea struck the public as too remote and too complicated. It lacked the personal appeal. The current political issues of the day are always sold to the people. The most successful salesman-politician puts his issue over and thereby becomes a statesman. Politics was formerly regarded as a sort of a smiling and hand-shaking business, the building of fences in the dark of the night, and the practice of militarism in the marshalling of votes, but the business of politics has changed of late.

For years I have urged corporations to partake freely of paid publicity. I have prescribed such publicity, not so much to have companies submit their briefs in public, but with the idea that corporations have, in addition to their manufactured products, good-will and favorable opinion to sell, and that publicity is one of the most direct means of accomplishing this object.

Business corporations marketing a commercial product spend millions of dollars annually to sell their products to the consuming public. The amounts of money thus expended by such corporations are, as a rule, comparatively insignificant when contrasted with



On questions of publicity Robert Frothingham speaks as an authority. He was one of the first to recognize the merit of the modern poster that is now so widely used as a medium for merchandising.

*Abstract of a paper presented before the American Electric Railway Association at Boston, Mass., Feb. 16, 1917.

the amounts of money they spend on productive labor in the manufacture and sale of their goods. Yet a few corporations have spent many thousands of dollars in selling jobs to their workmen. For instance, Mr. Schwab is generally regarded as one of the best steel men in the world. Nobody ever accused Mr. Schwab of being to-day the best steel chemist, the best metallographist, or the best engineer in furnace or mill design. But they have accused Mr. Schwab of being the best salesman. Mr. Schwab not only sells steel and the other products of the Bethlehem Corporation to the consuming public, but he also makes an effort to sell jobs to his workmen.

We all remember how universally Mr. John D. Rockefeller was execrated throughout the country a few years ago for his abnormal acquisitiveness. He tried to change the tide of public opinion by hiring a crafty press agent to write interesting stories of his widespread benefactions and his interest in golf, but the public wouldn't "buy" his stuff—it wasn't a salable article. Then he started in to endow various educational institutions, only to have his money turned down as "tainted." He was a very unhappy man because the public had his "number" and there was none so poor as to do him honor. But when he established the Rockefeller Institute for the purpose of scientific investigation and checking the ravages of disease amongst poor, suffering humanity, he sold himself "hook, line and sinker" to the public. The public bought him at his own valuation and promptly forgot all about the mean things they had said of him, which demonstrated after all that he was a first-class salesman. Then our kindly and paternal government stepped in and, by dissolving his big company into its component parts, increased the value of his stock 400 per cent, thus proving that "virtue is its own reward."

We find another eloquent instance of winning the public's sympathetic support by clever salesmanship in the action of the Interborough Railways of New York during the recent strike, when they appealed to the public from the blatant proclamation of the Amalgamated Association that they would "tie up every car line between Yonkers and Coney Island" unless the Interborough acceded to their demands. That was a trifle too much like "the public be damned." No swollen fool will ever say that again.

ELECTRIC RAILWAYS NEED TO KNOW SELLING GAME

The electric railway industry, as I am told, is confronted with the most serious problems of its history. You have in city service a fixed fare and rising costs of operation, costs that increase far more rapidly than the best engineering skill can overcome by improvements in the art. You all want an increase in fares, but I think I am safe in saying that very few of you know how you are going to get it. I am told that the mathematics of the subject is thoroughly understood and that almost any electric railway accountant is capable of figuring the paying haul, the cost of extending the transfer privilege and the gradual decrease in rate of return upon utility capital. I have no doubt that all of you believe these facts to exist, but from my casual inspection of the literature of the industry I have not seen in print any method offered by an electric railway man describing how he expects to "bring the rabbit home."

I am not going to offer you a solution, because the problem is rather too technical for my hands, and there are others who are paid large sums of money annually to know just these things. I feel certain that they are working on the problem with might and main. If I could, however, offer them a suggestion derived from my experience in commercial business and my

contact with public opinion which would give one new idea toward the solution of the problem, it would give me unbounded pleasure.

JOBS SHOULD BE SOLD TO EMPLOYEES

I am of the opinion that the first thing which the industry should do is to sell the jobs to its employees. This selling cannot be made effective or accomplish its fixed purpose by the adoption of the so-called welfare plans, the organization of company sections, the publication of company magazines or bulletins, or the various things which are being currently done by all of you. All these matters will help, but they lack that fundamental appeal which is so essential to success in salesmanship—they lack the appeal to the employees' own self-interest. Not until you have worked out some plan by which you can make such an appeal effective every hour of the day and every day in the year, can it be said that you have really and successfully sold the jobs to the men.

The day is not far distant when the managements of the electric railway industry in the country will grasp the possibilities of salesmanship as applied both to the employees and to the public. Their analysis will carry them sufficiently far to show that they must train all of their employees to be good salesmen. They will first have to sell the jobs to the men. They will develop some plan which will appeal to the employees' own self-interest.

At the risk of suggesting something impossible, it has flashed through my mind that you will work out a plan of compensation for motormen and conductors which will give the trainmen a participation in the increased earnings obtained by the company, say per car-mile, a participation in improved schedule speed, a participation in the saving of expenditures for personal injuries and damages, and a participation in the saving in power consumption for the operation of cars. If such a scheme as this can be developed, it will automatically give your motormen and conductors increased earning power when times are good. Conversely, when times are bad there will be a decrease through the lower earnings of the company.

In order to get the maximum benefit of such a plan, it will be necessary that the scheme be sold to the men. They must thoroughly understand it and appreciate that they are in business with the company, that their co-operation with the management in serving the public is essential to their own well-being, and that whenever they incur additional expense through either lack of attention or carelessness, they are paying a portion of such increased costs. After the jobs have been sold to the men and a fairly permanent organization of street railway service salesmen is developed, your industry will then be in position to go to the public and offer something for the increased fares or shorter hauls which you now feel the industry requires if it is to be maintained on a sound financial footing.

APPEAL MUST BE MADE TO SELF-INTEREST OF PUBLIC

Mere advertising that you are losing money is not going to give you higher fares or shorter hauls. You will have to develop some idea or principle in connection with your railway operation upon which can be made a sound appeal to the self-interest of the public. This may be along the lines of offering the public better service, more frequent operation of cars, more comfortable cars, faster service, more courteous motormen and conductors, more prompt settlements of accident claims, more comprehensive street railway systems or any one or more of the many other things, some tangible and others intangible, which go to determine in the minds

of the public whether the car service is good, bad or indifferent.

Your legal department may be able to advise you respecting the law governing the right of the company to procure an increase in fares or a reduction in the length of haul. It may be able to present the economic facts upon which a regulating commission should improve your financial position. But your legal department, as such, will never be able to procure for you by argument the real goal to which you all aspire. This is a job for the salesman manager, supported by an organization trained in and appreciating the art of salesmanship.

MAKING EMPLOYEES SALESMEN

In regard to the previously mentioned point of making salesmen out of employees after their jobs have been sold to them, it may be explained that there is an increasing demand on the part of the public for a more personal service. In the eyes of the public, the conductor and the motorman are the company's representatives. If they are liked, the company is liked. If they are offensive, the company is offensive. Imagine a conductor saying "thank you" for a 5-cent fare, and yet what an asset such a man would be to his company, and to himself. If he were "sold" on the idea, he would be more inclined to regard his car as a coach instead of a "way freight," and the public would be less inclined to regard it as a flat-wheeled vehicle run by two "roughnecks." Never mind whose fault it is that both parties are misled—the fact remains that they both must be "unsold" on their wrong conceptions if you are ever going to get higher fares or shorter hauls. And it should be remembered that financial participation of some sort will go a long way to make your employees real intelligent sales representatives.

The inculcation of the worth-whileness of this personal-service idea will develop in the men more self-respect, more self-confidence. It can be made the stepping stone to an efficient salesmanship beyond your wildest dreams. There is just as great opportunity for good salesmanship between your operating men and the public as there is between a merchant and his customers. The principle is the same in both cases, only you, perhaps, have never thought of it in just that way.

SELLING WORK SHOULD NOT BE SPASMODIC

It should not be imagined, of course, that an electric railway selling campaign can be successfully carried out in a short time or in a hit-and-miss fashion. It is hard enough for big manufacturing concerns with the most complete distribution of goods and a big annual advertising appropriation to keep the public "sold" on their product and thus prevent a competitor from walking away with their trade. Nothing short of "eternal vigilance" is the price of such liberty. They do not let the public or the retail trade forget them for an instant. The wheels of salesmanship never cease revolving. National and local advertising, window trimming and store cards, sampling to the customer and incessant work with jobbers and retailers by salesmen specially trained not only to sell goods but the advertising policy of the house as well, are all means persistently used until at last the trademark or container becomes synonymous with the product itself and the advertising becomes institutionalized. And all this on behalf of a business the capital investment of which is a negligible quantity when compared to the amount of money tied up in your roads.

Sustained salesmanship pays. For example, if it were known in Philadelphia that to-morrow morning there would be a mob gathered in front of John Wana-

maker's store in that city for the purpose of destroying it, you would find an infinitely larger number of people on the spot ready to protect and defend it. Forty years of consistent, truthful advertising has transferred the moral ownership of the Wanamaker store to the citizens of Philadelphia. It is their store as much as it is his. In other words, John Wanamaker has been steadily "selling" himself to the citizens of Philadelphia for nearly a half century. Can you imagine a competitor making any serious headway against him in that big town? If John Wanamaker were the active head of the Philadelphia electric railways, he would have done practically the same thing, because he is a good salesman.

SPEAK THE PUBLIC'S LANGUAGE AND SPEAK IT EARLY

Too many of our big industrial leaders have only grown peevisish at bursts of public unfriendliness. They have charged the hostility to demagogues, to muck-rakers. The cause lies much deeper than that. Industrial leaders have never appealed to the self-interest of their own employees or the public, neither of whom believe they are getting their money's worth. They are foreigners to the public—these great captains of industry. They speak another language or no language at all. When confronted by trouble or suspicion they fly into long interviews, which the public discounts, if it ever reads them. Or they employ a crafty press agent, whom the public spots, or they buy columns of newspaper space to explain, when it is too late.

After public suspicion gets in the saddle, it is too late to do anything except go and hide for years until the world forgets. The only sure way to enlist the public sympathy is by appealing to its self-interest, and the biggest corporation has to take the same thoroughfare to the public confidence that is used by the humblest merchant.

Leaders of men from time immemorial have built their leadership upon the interests of the men they led. Max Stirner, the great German individualist, expresses the idea in a nutshell: "Every idea, every system, every sacred cause, no matter how great, is outrivaled and modified by each man's personal interests." This is a truism which we all recognize. We know that man is interested in himself first, that his ills are larger than the remedy, that desire is always greater than satisfaction. Trust us to get "ours" in any proposition where a definite advantage is involved! And do you, therefore, blame your employees for taking a similar view? They have never been able to get "theirs" individually, and so they combine and "beat you to it."

The remedy is in your own hands. You must awaken your men to the fact that the job you offer is really worth while, and that they can play their own game most successfully by playing yours. When they are "sold" on the fact that such a plan works both ways, they will be your enthusiastic salesmen with the public. And the most significant development of the whole proceeding will be that you will have successfully "sold" yourselves on a plan which has already proved itself in the history of every successful advertiser in the United States.

The electric railways of the country constitute no exception to the rule. They must pay and pay well for the right men who will, in turn, render that "personal service" which will constitute a bond of sympathy between the railways and the public—a bond to which the railways can tie in the time of trouble. This is salesmanship in its most effective form, for it is the kind that will crystallize and bring to the surface a human sentiment in your behalf which shall be for your industry an indestructible asset.

A Co-operative Insurance and Pension System*

Features of Suggested System Are Its Encouragement of Thrift Among Employees and Its Incentive to Continuous Employment—Employers' Average Contribution Would Not Exceed 3 Per Cent of Wages—Old Established Insurance Company Should Carry the System

By EDWARD E. RICE
Boston, Mass.

THE term "social insurance," like the term "socialism," is open to wide variations as to meaning. To some it may signify a purely gratuitous state system administered by governmental agencies. To others it may denote a compulsory contributory system between employer, employee and state. Others may regard it as a program which must be worked out in the course of time along individualistic lines through a method of co-operation between employer and employee. The latter view is more in accord with the nature of our government and institutions, as well as the character of the people and the conditions under which they live. This interpretation offers to the employer a twofold opportunity: (1) To demonstrate that the benefits included under the term "social insurance" can be adequately provided by the employer as an adjunct to the wage contract; and (2) to prove to himself that the adoption of such a system will in great measure and in due time solve the employment and wage problems with their correlative issues.

BUILDING FOR THE FUTURE

Under the present abnormal labor conditions, manufacturers feel impelled to pay any price for labor regardless of future conditions. This has an unfortunate effect on industries whose business has remained normal but is bound to become disorganized when the readjustment comes, as it surely must. This brings up the query as to whether the present era of prosperity is not the proper time to build plans which seek to conserve the present earnings of the employee for future use. While it is true that the average employee desires cash in hand in preference to future benefits, this does not justify the employer in granting his wishes, particularly when he knows that it may serve simply as a pretext for demands in future.

The opinion of the average workman is largely formed by others whose interests are counter to the interests of the employer. This influence can only be overcome by the education of the employee as to what really constitutes his own interest. As the cash nexus is to-day the strongest tie between the employer and the employee, the only way to build for the future is through an elaboration and extension of the wage principle. As an illustration, many employers are to-day offering liberal cash bonuses to their employees as a

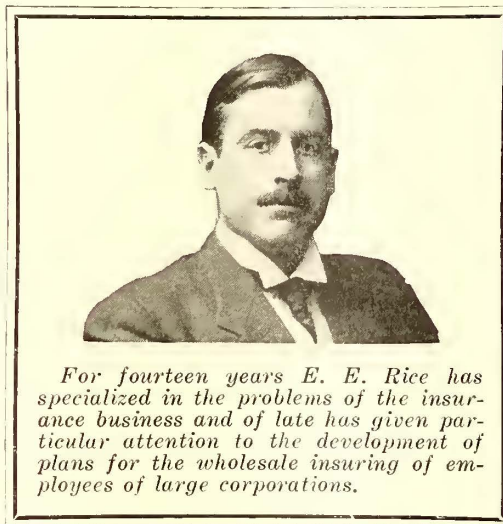
means of holding them to the employment. Others have adopted profit-sharing plans. Both have merit from the standpoint of present value. How much better would it be if, instead of the entire allowance being made in cash, part of it could be conserved and accumulated in a fund to provide future benefits for the persistent employee. It is admitted to-day that the working man does not as a rule provide for the future. He has been taught to spend every cent partly because in the past he may have been obliged to spend every cent, and when he secures an increase in wages, the amount which he can save seems so small that he does not take the trouble to save it.

WORKMEN CAN BE TAUGHT TO SAVE

But the working man can be taught to save. The experience of England to-day furnishes a splendid example of education in thrift. The working man and every member of his family have seized the opportunity presented by the government's small 5-per cent war certificates to save for the future. Prior to the war, the British working man saved nothing. He has now developed a real mania for saving, and

why? Simply because the right method was discovered and the right argument applied. While it is true that in the United States to-day there are many open doors for saving, there has not been developed any widespread program of education in persistent saving, and the banking agencies have not as yet offered the right plan or method to induce the small saver to conserve his savings. Records show that only a very small percentage of accounts in banks are in the persistent class. The money is withdrawn and either spent or invested, and, in the latter case, quite often lost in "get-rich-quick" schemes. A form of certificate requiring weekly or monthly payments and convertible into full paid interest-bearing certificates would meet the needs of the situation.

The element of thrift is one of the most valuable features of a co-operative pension and insurance plan between employer and employee. There are many different agencies for thrift besides those included under a general insurance and pension system, and these plans can rightly be considered entirely separate from such a system, but any plan which induces employees to save money, and to continue to save not only while in the employment but thereafter, must be considered as part of a general thrift program. Every employer knows



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that the thrifty man is the better workman because he is steadier and less likely to jump over the traces to gain a temporary advantage elsewhere. The great advantage of a co-operative insurance and pension system lies in establishing a goal for the accumulation of savings, and also in giving the employee evidence from year to year of the progress he is making. To avoid any taint of paternalism, the employee should be taken into the confidence of the employer and shown the real reason for the employer's interest in the adoption of the plan. He should be made to realize that the employer is desirous of his services on a permanent basis, and that the contribution of the employer is one which is contingent on service; that it is not charity but reward for persistent effort.

To make an insurance and pension system fully co-operative, all features should be placed before a committee of employees representing every department, and this committee should act as a working organization to bring the plan to the attention of fellow workmen and to make its details thoroughly understood. The first step naturally is the decision on the part of the corporation as to the plan and the amount of participation. The next step is the selection of a working committee among the employees. This committee may consist of the directors of the local mutual aid association, supplemented by representatives from each department of the industry. This committee would advise with the management as to the carrying out of the details of the plan. The next step is the drafting of a circular announcement furnishing full details of the plan, with card attached requesting the expression of opinion.

The work of the committee then commences in earnest. This consists of the explanation of the plan by open forum held in each section. After the meetings, each member of the committee will individually see the men in his department or section who have not already enrolled and secure their answers. In many industries it is not possible to make the plan compulsory, owing to certain labor conditions, but a non-compulsory plan through efficient work on the part of the committee can be made to include a larger percentage, sufficient to create a strong influence throughout the industry in favor of stability.

ACCIDENT AND HEALTH INSURANCE

The first provision should cover not only injuries received as a result of the employment, these injuries being now covered by the compensation acts in the various states, but also injuries outside of the employment and sickness of every kind and nature.

A form of group accident and health insurance now provides benefits for employees as follows: Coverage for twenty-six weeks, fifty-two weeks or longer periods providing indemnity for all injuries not included under compensation acts, and for all sickness at a definite price per \$5 a week indemnity, or for a definite percentage of payroll equal to, say, one-half or two-thirds of the average compensation received by employees. A group contract covering such benefits may be issued to the corporation, giving the names of all employees covered, the amount of indemnity in each case and the insuring provisions. This contract is held by the employer. The employee receives an individual certificate stating his own particular coverage under the contract. All settlements of claims under such a contract are made through the corporation, and by the corporation handed over to the employee.

The cost of a benefit equal to two-thirds compensation under the above plan, not covering the first week's disability, providing indemnity for all accidents not now covered under the compensation act, and for sick-

ness up to a limit of fifty-two weeks may vary, according to employment, from 1 per cent to 1¼ per cent of payroll. I recently received a quotation of 1.08 per cent to cover a medium grade manufacturing plant. This low cost would indicate that group accident and health insurance, on account of the low expense rate, may offer a solution for many industries of the problem of health insurance protection as an extension of the present compensation acts.

This form of coverage is also written by several companies under an individual form of policy, but at a blanket rate. The employee in this case receives an individual policy and has the right to continue the insurance after leaving the employment at the same low rate.

There is a substantial saving in cost of disability insurance under individual policies owing to the elimination of a considerable percentage of underwriting expense, especially the expense of procuring the business and of making the collections. A large, responsible insurance company, while making its rates on a basis to yield a profit, is also prepared to accept a loss and still continue to furnish insurance according to contract. In other words, the insurance feature is guaranteed without possibility of extra assessment. Furthermore, an insurance company possessing a nation-wide organization can carry out the continuation of insurance after termination of employment without any embarrassment in the handling of claims. Moreover, such a company is in a position to give first-class service in the handling of all details of administration. Adjustment of health claims requires experience and tact. An insurance company whose organization has been built up to give intelligent service is equipped to co-operate with employer and employee and to give satisfaction in settlement of claims.

LIFE INSURANCE

It is admitted that the working man in this country carries practically no life insurance outside of a mere burial benefit. The life insurance companies writing the industrial form of insurance do not pretend to cover the ground, and the average amount of insurance written by these companies per person is no more than a burial benefit. The prime reasons for the lack of adequate life insurance among working people are: (1) Its high cost, due principally to cost of procuring the business and cost of collection; (2) the fact that any method of individual solicitation reaches only a fraction of the working class; and (3) the general indisposition of the working class to look out for other than actual present-day needs.

Within the last five years, a new form of life insurance known as group life insurance has come into being. Under this plan employers may arrange to cover all of their employees or all employees of a certain class for a definite amount of life insurance under a group or blanket contract issued to the concern. In this case, as in the case of group accident and health insurance, the contract contains a list of the names of all employees covered, the amount of insurance in each case and the insuring provisions. These provisions include payment of the full amount of life insurance immediately in event of death of the employee while in the service, and also payment of the full proceeds in instalments yearly in case the employee becomes totally and permanently disabled from accident or disease prior to reaching the age of sixty. This form of insurance is designed to be paid for entirely by the employer, and, according to its terms, the insurance under the group plan terminates when the employee severs his connection with the concern.

Several companies offer a conversion feature in con-

nection with group life insurance which permits the employee to convert insurance under the group policy to any individual life or endowment policy issued by the insurance company within a certain brief time, usually ten days, after terminating his employment. This feature may be adopted by the employer, since the employee in certain circumstances may well wish to avail himself of its advantages.

Group life insurance, on account of the fact that the rate increases with each individual as his age increases, does not lend itself so well on the co-operative or contributory plan. A prominent concern, however, provides for group life insurance on a contributory basis whereby the increase in the rate from year to year is assumed by the employer during the length of service. On leaving the service the employee is then obliged to pay the rate for his age.

As a further adjunct to this plan, this concern offers to refund to the employee, on reaching the age of sixty-five, all payments that he has made for group life insurance in the meantime. This provision is not a part of the policy contract offered by the insurance company, but is a guarantee of the employer.

Inasmuch as the inclusion of all employees or all employees of a certain class precludes the possibility of adverse selection of risks, this insurance is to-day written without medical examination. Furthermore, new employees may be included without medical examination, according to the terms of the group contract. Each employee receives a separate individual certificate stating his particular coverage. This coverage may be a stated amount for all employees or may be a graded amount in accordance with length of service. A popular form furnishes employees of one year's standing with \$500 of life insurance, with an increase of \$100 for each additional year of service up to a maximum of \$2,000 of life insurance per employee. Another plan makes the amount of insurance exactly equal to one year's or two years' compensation. The former plan, however, seems to be more popular and is more in accordance with the purpose of co-operative insurance plans, namely, to be an incentive to continuous service.

The rates for group insurance when issued on the non-participating plan vary in accordance with the risk of employment. The cost is based on the combined ages of all employees to be covered. The rate for a certain group, however, is not the rate for the average age of that group, for the reason that the rates naturally increase faster at the older ages than at the younger ages. The probable cost per \$1,000 of life insurance varies from \$8 to \$12, depending upon the variation in ages and the character of the employment. The accompanying table shows individual rates simply by ages.

As to the advantages of group life insurance from the standpoint of the employer, these have been recognized by an increasing number of concerns throughout the country which have adopted this form of insurance. The principal advantage lies in the continuing benefit dependent upon the employment. The award of a cash bonus, equal to what the insurance cost would be to the employer, while perhaps appreciated by the employee at the time, would have no value from the standpoint of retention in service. The possession of a \$1,000 life insurance certificate, however, particularly to the married man, not only has value to himself but is also appreciated by his wife and immediate family. The influence of the family can usually be counted upon when the question of change of employment comes up.

Other advantages which have been cited in connection with group insurance are as follows:

Stability of labor.

Reduction in the cost of overturn.

Solution of the transient problem.

Establishment of good shop spirit.

Attraction of good operatives.

A publicity value to the employer.

A philanthropic method of alleviating distress among employees and their families.

CONTRIBUTORY PENSION PROVISIONS

I have now come to the consideration of a plan which embraces the co-operative feature. Group life insurance, as previously stated, is a plan which works out more satisfactorily when the employer pays the entire premium. It was not designed primarily for joint participation. The plan which I shall outline here is one which combines life insurance with the accumulation of funds to provide a pension or life income commencing at the age of sixty-five, the cost to be provided for by joint contribution between employer and employee.

Many corporations now provide a non-contributory or gratuitous pension for long-service employees. This provision usually takes the form of a payment equal to a certain percentage of average salary earned during the ten years previous to retirement, the percentage being based on the number of years of continuous service. Some employers prefer to treat each case individually, having no definite established pension system. These private pension plans are undoubtedly most beneficial in their value to older employees. It is questionable, however, whether they actually accomplish anything from the standpoint of retention in service of the younger employees. The average young man does not look ahead as far as the age of sixty-five. If he thinks at all about it, he is likely to feel that he will probably not be in his present berth when he reaches that age. Most working men like a change in employment. Many of them also are suspicious of a purely gratuitous plan offered by the employer. They are likely to think that if they do not leave the service of their own accord, some reason will be found later for dispensing with their services before they reach the retirement age. Furthermore, inasmuch as the payment of pensions means an obligation extending for many years into the future, the argument of financial responsibility is one which should naturally be considered in the handling of a private pension system.

The joint contributory plan herein outlined meets these objections squarely by furnishing to each employee a contract by a responsible outside financial institution showing his cash accumulations from year to year and his increasing interest in the contract. He does not have to wait until he reaches the age of sixty-five in order to secure a benefit from the arrangement. He receives a benefit at all times proportionate to his years of service. Participation means appreciation on his part of the benefits which he receives, and when he makes payments periodically, he receives a constant reminder of the benefits which he is receiving to-day as well as the benefits which he will receive to-morrow, provided he persists. While in most employments it is probably not advisable to make a contributory plan compulsory, it is believed that provisions can be placed before the employees in such a manner that eventually the majority will become enrolled. One of the most essential, if not the most essential provision of any joint contributory plan should be the continuation feature, that is, the privilege given to the employee to continue the contract after termination of employment at the same rate in whatever new employment he enters. Any arrangement which will entail an increased premium after leaving the service is one which is sure to be frowned upon by the employees.

A large concern, which has adopted a profit-sharing system, is considering a plan which will offer each employee in the profit-sharing class an accumulative bonus

equal to the same amount which the employee contributes, provided the employee contributes at least 50 per cent of the cash received from the profit-sharing account each year. The concern places the limit on a contribution of 5 per cent of the annual compensation received by the employee. After ten years, the employee owns full control of the proceeds of the contract, the funds being invested under a combination of life insurance and pension. If the employee terminates his employment before the expiration of ten years, the employer guarantees to return all deposits which the employee has made with 4 per cent interest, the employee having been insured in the meantime for amounts ranging from \$500 to \$3,000. Where the employee holds the contract under a definite agreement and can see the increase in his accumulation from year to year, there is offered a strong offset to outside influence.

A SPECIMEN PENSION CONTRACT

The following pension provision contract is offered by one of the larger insurance companies to-day:

1. A pension or life income commencing at the age of sixty-five from \$100 per year up, with provision for payment of at least ten payments of \$100 each in event of death before receiving that number of payments. In event the pensioner lives beyond ten years, the pension is continued for life.

2. Life insurance commencing at \$500 from the start and increasing after the accumulation with interest exceeds \$500 up to \$1,083 at the age of sixty-five, the latter being the final cash value of the contract.

3. Non-forfeiture cash, loan and paid-up values for every year commencing with the second, these values being available under agreement between employer and employee.

4. Waiver of payments by both employer and employee in case the employee becomes totally and permanently disabled before reaching the age of sixty-five, the insurance in this case remaining in full force and the cash accumulations being also available for use.

The employer is to offer to contribute up to 5 per cent of the average compensation earned by the employee, as shown by the previous year's earnings—provided the employee subscribes an equal amount. The employee is to receive possession of the pension contract showing the cash values accumulating from year to year, and also is to receive an agreement from the employer relating to the application of the proceeds of the contract in event of termination of employment.

In event of termination of employment, two courses are open to the employee: (1) To receive the cash value of his part of the contract, or (2) to continue his part of the contract by payments direct to the insurance company. In event of termination of employment, three courses are open to the employer: (1) To give the employee full benefit of accumulations to date in consideration of his years of service; (2) to receive a refund of the employer's full share of his accumulation or (3) to receive a refund of his share of the accumulation less the part which the employee has earned through his years of service.

To illustrate the last, assume that an employer agrees to give the employee full ownership of the accumulations after ten years of service. In event the employee should leave before ten years, he would receive one-tenth of the employer's share of the accumulations for each year of service. This latter plan would entail a forfeit on the part of the employee of a definite amount of cash which might have certain value from the standpoint of retention in service. The employee would, of course, lose the contribution of the employer in the future under any plan in case of termination.

For the purpose of illustrating the amount of insurance and pension which definite contributions would purchase at various ages, assume an employee at the age of twenty, earning \$600 per year, contributes 5 per cent. This amount, together with the employer's contribution, would purchase a life pension of approximately \$500 per year commencing at the age of sixty-five, with life insurance of \$2,500 from the start, increasing in the later years up to more than \$5,000 at the age of sixty-five. An employee aged twenty-five earning \$700 per year, on the basis of 5 per cent contribution by employer and himself would purchase a pension of approximately \$480 per year commencing at the age of sixty-five, combined with life insurance of \$2,400 at the start, increasing up to more than double this amount at the age of sixty-five. An employee aged thirty, earning \$800 per year and contributing 5 per cent yearly, and the employer a like amount, would purchase a life income of approximately \$450 per year, commencing at the age of sixty-five, with life insurance of \$2,250 from the start, increasing up to more than double this amount at the age of sixty-five. An employee aged forty, earning \$1,000 per year and contributing 5 per cent, would, with the employer's contribution, purchase a life income of \$330 per year commencing at the age of sixty-five, combined with approximately \$1,650 of life insurance from the start, increasing to more than double this amount at the age of sixty-five.

The contract, although providing for definite values at the age of sixty-five, permits the use of cash at any time prior to that age. It may occur that an employee through no fault of his own is thrown out of employment and needs the use of funds. It is possible for the employer to utilize the cash value of the contract in his behalf, arranging for payment at a later date in small installments. It is not believed advisable to utilize the cash value of the contract except in rare instances. Loss of time through disability and sickness should be provided for by a separate form of contract for the employee.

ESTIMATE OF COST

It is difficult to estimate in advance the exact cost of a pension or life insurance provision until the number participating is known and their compensation received. If the employee has the option of making his contribution from 1 per cent to 5 per cent of his wages and the employer contributes a like amount, the employer's contribution would depend upon the choice of the employee. It is probable that a considerable number of employees will enroll for the minimum amount. I believe as an estimate that the average contribution would not exceed 3 per cent of wages, and would more nearly approximate 2 per cent of wages. With an average wage of \$700 per annum, this would mean a contribution of \$14 to \$21 per year per man. This, however, would be the outside cost, for if the employer should in accordance with the plan receive a refund in case of terminations of service within ten years, these refunds would reduce the cost considerably. According to the cash value of the contract within the first period of ten years, the employer would draw back, in case of terminations, anywhere from 10 per cent to 80 per cent of the total deposits made within ten years. On the assumption that probably most of the changes would be in the earlier years of the contract, as usually happens, the employer would draw back approximately one-half of his deposits in cases of termination, which would reduce the net cost in these cases by about 50 per cent. The reduction in the total cost would then depend upon the percentage of terminations within a period of ten years. This, of course, is largely guess work, but I believe that on a

conservative basis the cost would probably be reduced at least 25 per cent through the refund provision.

CONTRIBUTION PLAN USED BY LARGE COMPANY

Other methods of contribution may be suggested, and the plan outlined below is one which has been adopted by a large concern employing between 5000 and 6000 men. Under this plan each employee who had been in the service for one year or more had the opportunity to subscribe to a pension combined with life insurance as follows:

\$500 life insurance combined with \$100 pension at the age of sixty-five.

\$1,000 life insurance combined with \$200 pension at the age of sixty-five.

\$1,500 life insurance combined with \$300 pension at the age of sixty-five.

Contributions of the employer were on the following basis:

From beginning of second year's service to end of fifth year's service, 10 per cent.

From beginning of sixth year's service to end of tenth year's service, 15 per cent.

From beginning of eleventh year's service to end of twentieth year's service, 20 per cent.

From beginning of twenty-first year's service to end of thirtieth year's service, 25 per cent.

More than thirty years' service, 30 per cent.

Under this plan the average amount contributed was not in excess of \$5 per man per year, the contribution here being based on total payments required at various ages. This naturally offered the older man a larger contribution for the reason that the cost of a pension and life insurance combined naturally increases as the age increases. This feature, however, was regarded as desirable inasmuch as it permitted the older men to enter the plan and assist in providing for their own retirement. In connection with this plan, the corporation allowed the employee on leaving the service to carry with him the contract without any deductions on account of termination of service. This left no string on the proposition as a whole, and accounted for its ready acceptance by the employees.

USE OF ESTABLISHED INSURANCE COMPANIES

In advocating an old established insurance company as a carrier for contributory pension insurance, I wish to call attention to the following points:

1. Insurance and pensions call for the payment of funds years and years in the future, even up to forty and fifty years as a limit. This presupposes the existence of an institution large and strong enough to weather all storms and to guarantee the payments without question.

2. Private pension funds have, in many cases, proved disastrous by holding out more at the start than they can ultimately fulfill—the funds not having been based on actuarial practice.

3. A contract in a standard life insurance company has certain values in the eye of the employee not possessed by any other financial document. It represents to him an absolute guarantee entirely separate and distinct from the business under which he operates.

4. Continuation of the contract at the same rates after leaving the service is an important factor in any plan, and the organization of an insurance company lends itself most readily to the complete service of the employee at all times.

5. Life insurance is a necessary part of a complete system, and can best be offered by a standard old line life insurance company accustomed to the rating and acceptance of risks and to administration details.

6. The rates under pension forms of insurance are such as to provide a fair interest return with absolute guarantee of principal. While it is possible that a fund may be conducted showing higher interest returns, it is questionable whether this higher return is equal in actual value to the greater security, flexibility and practicability of a plan administered by an old established insurance institution. The contribution of the employer to the deposit is a better method than that of increasing the interest rate, for the employee has concrete evidence of the actual cash going to his credit from year to year.

SUMMARY

The foregoing constitutes a general outline of a plan which may be varied in its details to suit the conditions of a particular employment. It is not necessary that all parts of the plan be placed in operation at any one time. In one employment it may be desirable to provide sick and accident benefits as a starting point. In another employment it may be desirable to supplement the sick benefits now provided through the local association by life insurance benefits, either paid for by the employees or paid for jointly by employer and employee.

The feature which appeals to most employers in the adoption of a contributory system to provide pensions in the encouragement to thrift which such a plan offers. The employee is made to do something which he would not otherwise do, and he has a continuous incentive to keep saving from year to year. It is, of course, difficult to estimate the exact return to the employer as regards long service, but I believe I am safe in saying that there is a return, and that return is much greater than would be possible under any system of pure cash payments from year to year.

The contribution of the employer need not be as high as 3 per cent or 5 per cent of the compensation of the employee. It need be only such an amount as is necessary to enlist the enrollment of a considerable portion of the employees. As previously stated, the entire plan is one which must be taken up in a co-operative spirit between employer and employee, through the appointment of a committee of representative employees from each department who will act as interpreters in placing the proposition squarely before the men.

GROUP INSURANCE RATES FOR \$1,000 OF INSURANCE			
Age	Annual Premium	Age	Annual Premium
15	\$6.38	50	\$13.51
16	6.41	51	14.56
17	6.45	52	15.72
18	6.49	53	16.95
19	6.53	54	18.23
20	6.56	55	19.62
21	6.61	56	21.14
22	6.64	57	22.77
23	6.68	58	24.63
24	6.73	59	26.73
25	6.76	60	29.17
26	6.81	61	31.96
27	6.84	62	35.11
28	6.88	63	38.60
29	6.90	64	42.44
30	6.92	65	46.63
31	6.95	66	51.17
32	6.98	67	56.06
33	7.03	68	61.30
34	7.09	69	67.12
35	7.16	70	72.30
36	7.25	71	78.24
37	7.37	72	84.64
38	7.51	73	91.63
39	7.68	74	99.20
40	7.89	75	107.46
41	8.15	76	116.31
42	8.47	77	126.09
43	8.89	78	136.56
44	9.38	79	147.85
45	9.92	80	160.19
46	10.50		
47	11.13		
48	11.82		
49	12.62		

The Human Side of Industry*

The Humanity Now Exhibited Generally in Individuals Must Become Characteristic of Groups If Industrial Problems Are to Be Solved

By JAMES O. FAGAN
Waverley, Mass.

A FEW months after my arrival in America in the year 1882, I found myself stationed at East Deerfield, Mass., as a telegraph operator on the old Fitchburg Railroad. As a mere youth I had been spending several years in South America and South Africa, for the most part amid very strenuous and savage surroundings. Consequently, at East Deerfield, for quite a while, my mind was too busy thinking about the humanities and inhumanities in life to care much about my physical occupation. I was then in search of the human side of our civilization, and I am sorry to say I found myself a little further away from it at East Deerfield than I had been in Africa among the Kaffirs, the Bushmen and the baboons. In those savage regions they didn't exactly warn you beforehand that they intended to shoot you at sight and throw your carcass to the vultures, but when I first struck the railroad business in America the officials who hired the freight brakemen, for example, were in the habit of asking the applicant for work three leading questions: First—How old are you? Second—Where do you live? Third—What shall we do with your remains? And remember, you must not blame the railroad officials for this state of affairs. As a matter of fact, neither the government nor the social conscience of the nation in those days cared a snap for the living railroad man and of course still less for his remains after an accident.

For a great many years I have been trying to figure out the relationship between my job and society, and I have come to the conclusion that the paramount interests of social order and social well-being demand that the problems of industry, economic and otherwise, be thought out and worked out, as much as possible, from the human and personal points of view. I spent ten of the best years of my life studying the conditions and the prospects on American railroads and the all-impending industrial problems with which the railroads (and the people of this country for that matter) were, and still are, surrounded. From time to time during that period I visited many railroad and industrial centers. Periodically, I worked in mills and I have lived in corporation boarding houses and in the slums of American cities where so many of the problems of society are festering. And after this educative experience, I want to say that industry in this country, both as it is to-day and as it is going to be after the war, calls for the very serious and practical attention of every thinking man.

There are many other ideas for the conservation of American industry and for its adjustment after the war besides the route to which I am going to call your attention. These other considerations are political, mechanical, economical, social and psychological. It is true these several points are factors in the game of American industry, but they are not the game itself. The game itself is preeminently a human game, and humanity and not politics or economics is to be the

helmshman of its destinies. Humanity in America to-day has the biggest job on its hands in all its history. It is being called upon to humanize industrial relationships. Believe me, industrial peace is going to be the great big after-the-war problem in America. And neither politics nor the expansion of payrolls is going to bring about this much-desired result. If political influence and satisfactory payroll and working conditions were alone sufficient to germinate good-will you would have industrial harmony on your railroads to-day instead of a hornet's nest of political and industrial intrigue.

After the war, industry in Europe is going to be humanized and harmonized to the limit. From this point of view, and it is vital, industry in Europe will have industry in America beaten from the start. After the war, unless all signs fail, industry in America is going to be handicapped by the clashing of classes. Why not look this situation squarely in the face right now? I tell you, the people of this country to-day are living in a fool's paradise. They do not seem to hear the babel of sound in the world of industry. Antagonisms seem to be multiplying in the ratio of laws that are being put over by those who do not work on to those who do. In order to regulate industry authority in this country seems to be getting it into its head that it is necessary to clip the wings of enterprise, to tax surplus profits, surplus brains, surplus initiative, and surplus democracy. The people to-day are putting their trust in commissions. The commissions can stand it, but God help the employee, the employer, the manufacturer and the consumer when industry has time to take account of its stock under normal conditions, after the war. From a political point of view the biggest business in America to-day is the "canning" business. Political interference usually resolves itself into a bull fight, with industry as the bull, and where industry is not the bull it is the Jonah.

There is a way out of all this muddle, and democracy in America does not yet despair of its handiwork. A new, a healthier attitude of mind toward good business from one end of the country to the other is the one thing needful. The same kind of human policy that is being consistently promoted in so-called big business in this country transferred to the propaganda and policies of the state and federal authorities would introduce a new form of human relationship into American industry. As a matter of fact, the world to-day is splendidly disposed toward industrial workers of every description. Healthier and better conditions, expanding payrolls, permanency of employment, consideration for old age, everywhere you hear the same story, slowly but surely on the way. Consequently, a better feeling, closer and better relationship between employers and employees should be the new gospel of Industry. It is the all-important industrial issue of the times. All kinds of readjustments after the war will depend absolutely on this new human propaganda. To expect employers and employees to settle their differences in an atmosphere

*Abstract of paper read at mid-year meeting of American Electric Railway Association, Boston, Mass., Feb. 16, 1917.

of sensationalism is all wrong. To expect them to do it in a political atmosphere is also all wrong. So it is actually up to the people all over the country to provide the atmosphere in which these adjustments of wages and conditions can be made, and this atmosphere must not be sensational or political but widely considerate, human and square. This is the only way out. It is the key to the problem of industrial unrest. It is the educative process that is absolutely necessary for the protection of the worker and for the conservation of American industry after the war. Its root is Humanity, its name is Good-will.

Good-will in industry then toward industry is a business proposition. It is a three-cornered proposition. It is an attitude of the employer's mind, it is an attitude of the employee's mind, it is an attitude of the public mind throughout the length and breadth of the country. The situation admits of no compromise. This three-cornered proposition must work together or fall together. How are we headed, what kind of mental attitude toward industry are we putting into our jobs and into our politics? That is the great consideration.

So I consider it my business, my privilege, to say to this audience, to ask every audience that I am privileged to address: What is your philosophy of industry? What is your mental attitude toward your fellows, toward your business, toward your employees or toward your job? Have you a cheerful, a co-operative, a personal interest in your work, whatever it may happen to be? If so, I tell you, it is well with you and the society you represent. But if you do not have this co-operative spirit, this partnership idea, this human side, no other plans or economic arrangements on earth will keep industry in America from drifting on to the rocks. It is the human side of industry that has done so much to straighten out the safety situation on railroads, and it is the human side, the appeal to common sense, common interests and common humanity that must now save industry in America from the fate of social and political Europe. I repeat, a better feeling, closer and better relationships between employers and employees, this is the new gospel of industry.

In the next place, I want to give you just a few words of homespun philosophy. Amid all the turmoil of the world's discordant as well as its benevolent activity, I want to remind you that we are not running the universe. The universe is running us. The route from chaos to Christianity is a link in a mighty plan. It is for us to study the symptoms, the tendencies of universal progress, to get the main features of this plan into our heads and as best we can, to become a part of its grand, Christian spirit.

Now, if we will only take the trouble to let our minds dig down deep into the problems which society to-day is being called upon to work out, we shall find ourselves confronted with a great primal proposition or tendency, namely a God-given mission to widen the range and extend the operation of human brotherhood. This brotherhood side of our civilization is its enduring side as well as its primal feature. The brothers and the sisters of the races live forever in the hearts of the people. The names of Plimsoll, Shaftesbury, Florence Nightingale, Dorothy Dix, Phillips Brooks, David Livingstone and Abraham Lincoln are reminders of this great human fact.

We find this brotherhood tendency, I say, working itself out in every trunk line of American progress at the present day; in religion, in art, in education, in science, and most persistently and thoroughly, perhaps, in American industry. Industry in this country is now being humanized from cellar to garret. For every day that passes, work in the mills, in the shops and on

the railroads is becoming safer, pleasanter, more healthful, more secure and more remunerative. Furthermore, never in the history of the world have individuals as human beings and neighbors been so kindly disposed towards each other in personal and social relationships, and yet, at the same time, never have the groups of these same individuals been so restless in their industrial relationships, and never, perhaps, has society been so menaced by different political and industrial problems. What is the reason for this seemingly inconsistent situation? Why is it that from the beginning of historical times your group, large or small, in its relationship to other groups has nearly always been savage? From the beginning, I say, your political groups fighting among themselves, as it were, have always been making trouble for society, and now your industrial groups are very busily playing the same game. In the past the human individuals in any given group have seldom been sufficiently numerous or plucky to dominate the group machinery. In Europe to-day the spirit of humanity and righteousness is engaged in a life and death grapple with group machinery. An industrial struggle of the same desperate nature is now under way in America. Happily, however, the eyes of the people are beginning to open to the real nature of the situation. In other words, there is a revolt to-day in this country against group savagery, regardless of its nature or interest. For example, a railroad brotherhood must demonstrate that it is an American brotherhood, and if the right to strike means the right to inflict suffering on millions of innocent people, the contempt of public opinion will very quickly crush that kind of railroad brotherhood. A railroad strike is a savage, inhuman, unpardonable proceeding. And the public feeling in regard to it at the present day points to the fact that the great brotherhood plan of the universe is slowly but surely working to the surface in America and before long it will come into its own.

In any movement for the spreading of good-will in the industrial world, the first thing necessary is to talk it up and work it up in our local interests as well as in the name of the national welfare. In many respects we live in a very queer old world, and for the most part progress has actually to be driven into people. As a rule we have to be pursued and persuaded, and cornered sometimes even, to serve our best interests.

Again, in order to propagate this good-will faith in American industry we need a lot of courage, the courage of our convictions. Industry to-day in this country has many enemies, the most harmful, perhaps, being legislators of the sensational type. Some of these men look upon an industry as a political experiment station. Industry baiting in America to-day is getting to be a sort of profession.

It seems to me that industry in America is fast lapsing into the condition in which its heart is all right, but its body is being battered to pieces by too much political attention of the football variety. So I commend to everybody the come-back and get-back spirit of that game.

In a word, industry in America needs to put on the whole armor of its administrative and operative humanity. Peace and good-will in industry, peace and good-will in society and in the home—this is the combination that cannot be divorced. Not a rainbow vision or a star dream, but a healthy Christian interest in the conservation of American industry by the human route. This is the good word to all the people in every land; it is the gospel of the Galilean sifted down through the centuries and focused in all its penetrating significance on American industry, on American civilization at the present day.

Proceedings of A. E. R. A. Mid-Year Meeting in Boston

Attention of the Delegates Was Taken Up by Social Relations Report and Papers on Wage Arbitration, Salesmanship as Applied to Electric Railway Operation, and Similar Topics—Association Indorsed Universal Military Service—Large Attendance at Banquet in Evening

THE feature of the program at the mid-year meeting of the American Electric Railway Association at the Copley-Plaza Hotel in Boston, Mass., on Feb. 16, was the report of the social relations committee, together with the written discussion thereon. Important and interesting papers, however, were presented on other and somewhat allied topics, such as wage arbitration and contracts, salesmanship and the human side of industry. Practically no floor discussion was carried on in spite of the large attendance, but it was believed that most members realized the importance to the industry of the work accomplished.

The meeting was opened at 10.30 a. m. with L. S. Storrs, president The Connecticut Company, New Haven, Conn., in the chair. The first order of business was the presentation of resolutions that had been approved by the executive committee. One of these, presented by W. Caryl Ely, New York, N. Y., past-president of the association, covered the sending of a telegram of support to President Wilson in the present critical period. This resolution, adopted by the delegates, resulted in the following message being dispatched to the White House by President Storrs:

"The American Electric Railway Association assembled in annual mid-winter conference in Boston presents respectful greetings. Its gathering in Washington two years ago was made memorable by the splendid address with which it was honored by you. Now in the midst of what may be a national crisis, and when responsibilities rest upon the President that are well-nigh crushing in their momentous character, the association tenders to you, the President of the United States, this expression of its confidence, and pledges its patriotic support of all measures which you may take in upholding the dignity and honor of our country, and the rights, property and persons of its citizens on land and sea."

The other resolution, read by Secretary Burritt and likewise adopted, pledged the association to the principle of universal military training and service in the following words:

"Whereas, The future peace and prosperity of the United States depend upon its ability to defend its rights and its shores against invasion, and

"Whereas, Two years of war overseas have shown to us the need of a citizenry trained to arms, and

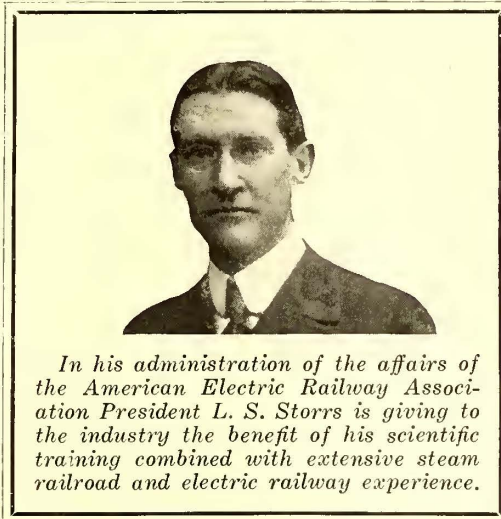
"Whereas, Our own history has demonstrated the folly of depending for defense upon raw or untrained troops, therefore, in the interest of public safety and for the protection of our homes, be it

"Resolved, That it is the sense of this meeting that legislation should be immediately enacted providing for universal military training and service, thereby placing the burden of defense equally upon all men of military age regardless of their social stations, which is in accordance with the true principles of democracy."

The report of the committee on social relations was presented by its chairman, James D. Mortimer, president North American Company, New York, N. Y. The two sections of the report on old age pensions and minimum wages are abstracted elsewhere in this issue, while the one on employees' thrift, which was presented in tentative form only, will not be published until it has been put in final form by the committee.

In general, however, it may now be said that the section on thrift summarized data from government and other sources showing the relative expenditures of employees for various necessities, and outlined the general principles seeming to underlie the disposition of wages. The report also described in detail the various means that have been used to promote thrift, such as industrial insurance, savings banks, building and loan associations, the postal savings system and the Morris Plan banks. The report then developed a method for ascertaining the tendency in thrift, finding this to have increased, but only in the case of the one-quarter of the workers who earn more than a living wage. There is nothing absolute, it was said, about the relationship between a fair wage and thrift, for thrift is simply a habit of the mind. Yet as a general proposition it seems that the benefits of thrift will not be secured until the financial surplus possessed by the workers is increased by means of some productivity basis for wages.

President Storrs congratulated the association upon having a committee willing to give time for such a serious study as the whole report involved, and then a written discussion on the report was read by E. E. Rice, Boston, Mass. This is presented elsewhere in abstract form. Theodore F. Green, trustee Rhode Island Company, Providence, R. I., amplified previous references to the Morris Plan banks by stating that



In his administration of the affairs of the American Electric Railway Association President L. S. Storrs is giving to the industry the benefit of his scientific training combined with extensive steam railroad and electric railway experience.

these sell installment investment certificates as well as lend on credit and approved indorsers. In view of the work of these banks in restricting loan shark frauds, the investment feature has not been emphasized, but it exists.

Matthew C. Brush, president Boston Elevated Railway, and P. F. Sullivan, Bay State Street Railway, welcomed the delegates to the city and placed the local properties at their service. The scheduled paper on "Wage Arbitration and Contracts," prepared by Bentley W. Warren, Boston, Mass., was then read by W. F. Ham, vice-president Washington Railway & Electric Company, Washington, D. C. One query raised by this paper was as to whether or not the time has come for the enlarging of the jurisdiction of the public service commission to include the adjustment of wages and working conditions of employees.

Mr. Warren traced the development of the principle of control of utilities by bodies created by the state legislatures, and showed how it had resulted in the application of many restrictions to these properties. While the utilities had thus been restricted, they were criticised for not making suitable provisions for depreciation. The regulative bodies, at the same time, paid little attention to such matters as the expenses of the business and the control and reduction of these, as well as the relations of the carriers to their employees. They considered the quality of the service and the public safety, but not the cost of the service. Attention might well be given to labor matters, so that the carriers could get the best possible employees at the minimum permissible wages. On account of the public interest in this field, there are greater difficulties in regulating wages than in other industries.

In general, Mr. Warren said, the public approves collective bargaining and efforts to improve conditions of employment, but takes no part in these matters. In time, however, it must pay the increased cost. The system of contracts has been developed to meet present conditions, but with only two bargaining parties, both at a disadvantage. One wants to get more, the other to keep costs down. Obviously contracts should insure consideration for all of the three parties concerned. In early days the employer had the advantage in making contracts, but under present conditions the reverse is true. At present, the concessions made by employers in some contracts interfere with discipline.

Mr. Warren did not claim that wages are too high, but merely that the rate of fare is not only relatively but is absolutely lower than it was, measured in terms of service. He also urged that contracts should prohibit strikes, which are still brought on sometimes through infractions of discipline. Both parties agree to the difficulties of drawing suitable contracts, but have not found a way to gain the assistance of the public. Arbitration is usually resorted to, but is not a complete solution. There are difficulties in the selection of points to be arbitrated and later in instructing the third arbitrator, who is often unfamiliar with the technique of the business. The findings are not binding on the regulating bodies, and where the wages are raised the companies must pay without the right to increase the rate of fare. The natural tribunal for wage adjustment seems to be the public service commission, which is qualified to pass upon the points involved as it is familiar with the operating details of the companies. Its decision regarding discipline would be accepted by the carriers.

After Mr. Warren's paper a recess was declared until 2.30 p. m. Then the delegates listened to a paper on "The Human Side of Industry," by James O. Fagan, Waverley, Mass., and one on "Salesmanship in the

Electric Railway Business," by Robert Frothingham, New York, N. Y. These are abstracted elsewhere. Without discussion the delegates then adjourned until the reception and banquet in the evening.

A. E. R. A. Executive Committee Meeting

Col. T. S. Williams Resigns as Vice-President at the Meeting in Boston—Report on Co-operation with War Department

THE American Association executive committee met at the Copley-Plaza Hotel on Feb. 15, and transacted the following business:

After the approval of a number of applications, reinstatements and resignations the secretary reported that there are now in good standing 356 railway company members, 213 manufacturing company members, 1289 individual members and 1732 company section members.

Among other items of interest the secretary stated that the proceedings of the 1916 meeting are practically ready for distribution, that a special committee on protection at grade crossings has been appointed, that there have been 100 requests for data on sixty subjects which have been supplied by the information bureau, that sixteen publications of miscellaneous character have been issued, and that the association is now represented in Washington by S. S. Perry.

An estimated budget of expenses and receipts was presented by the secretary and appropriations to the affiliated associations were approved as follows: Accountants' Association, \$1,500; Engineering Association, \$4,500; Claims Association, \$1,200; Transportation & Traffic Association, \$3,000.

General George H. Harries explained the plan and purpose of the committee on co-operation with the War Department, the name of which was changed to "committee on national defense." A resolution was adopted for reference to the association at the mid-year meeting, pledging support to the government. A resolution was also discussed and adopted preparatory to presentation at the meeting, favoring universal military service.

Progress reports were received from the committees on federal relations, valuation and compensation for carrying United States mail. It was also decided to appoint a special committee on co-operation in the use of special libraries. A suggestion received from J. K. Choate, looking toward a plan for securing a general increase in rates of fare, was referred for consideration to the appropriate committee. Other routine business included authorizing the president to appoint the usual convention committees and empowering the convention location committee to select the convention city. A report of the sub-committee on relationship of manufacturing companies to the association was received, discussed and referred back to the sub-committee for further consideration.

The resignation of Col. T. S. Williams as vice-president of the association was received and accepted with great regret. In explaining the necessity for this action Colonel Williams states as follows: "I understand that it is customary for the association to promote its first vice-president to the presidency. The president and other members of the executive committee have known for some time I could not consider assuming the duties of president even if the association should do me the great honor to promote me to that office, and with this in mind I preferred not to be elected first vice-president at the last annual meeting. I was pre-

vailed upon, however, to accept this office with the understanding that I would resign during the present year. Inasmuch as the mid-year convention presents an opportune time for this resignation, I therefore resign as first vice-president, effective Feb. 15, 1917, so that my successor may be chosen at the time of that meeting."

In attendance at the executive committee were: L. S. Storrs, Richard McCulloch, J. H. Pardee, R. E. MacDougall, J. J. Stanley, George H. Harries, M. R. Boylan, C. L. Henry, W. Caryl Ely, Thomas Finigan, H. C. Donecker, E. B. Burritt.

To fill the vacancy created by the resignation of Colonel Williams each of the other three vice-presidents of the American Association were advanced ad interim in order, and Matthew C. Brush, president Boston Elevated Railway was appointed fourth vice-president ad interim.

Mid-Year Meeting Banquet

Patriotism the Keynote of Several Speeches—President Wilson Replies to Message Pledging Support That Was Sent by the Association During the Convention

ABOUT 600 members and guests attended the annual banquet at the Copley-Plaza Hotel on Feb. 16. Chairman M. C. Brush presided before and during the dinner, before the serving of which an impressive flag-raising ceremony was held. In one corner of the hall a tall pole had been erected with the base banked in palms. Through the hall, which was darkened save for spotlights thrown upon them, two marines, two sailors and two coast artillerymen marched to the foot of the pole. At a bugle signal they raised the flag and the audience sang the national anthem. The dinner was interspersed with unusually hearty singing, in stimulating which Chairman Brush had the assistance of an excellent male quartet. Afterward the quartet sang the "Toreador Song" from Carmen, "The Rosary" and the quartet from "Rigoletto." Mr. Brush then turned the meeting over to President L. S. Storrs, who in assuming his duties as toastmaster referred to the fact that it had been twenty-one years since the association had met in Boston.

The first speaker was Lieutenant-Governor Calvin Coolidge who brought a message of welcome from the governor and on his own behalf emphasized the need for sound and rational methods of control of public utilities. Quoting an early writer on the subject of electric railway transportation he referred humorously to the large profits formerly possible in this business while at the same time the utility was promoting the public welfare. He thought there was a need to get back to first principles along these lines.

James M. Curley, mayor of Boston, the next speaker, congratulated the association that it had elected Matthew C. Brush a vice-president of the organization. Mr. Brush, he said, recognized the trend of the times and the necessity for publicity in corporation affairs. The speaker believed that the public did not realize that the expenses of railway operation and taxes had increased while fares remained as they were twenty years ago. The report of the commission to investigate the Boston Elevated situation had been of great help in clearing up the matter. In conclusion, Mayor Curley said that if other electric railway companies followed the practice of the Boston Elevated in taking the public into their confidence they would do well.

The third speaker was Martin W. Littleton of New York whose address was of a highly patriotic nature, with the ideals of democracy as the basis. He said that

the men who are advocating preparedness will pray for peace with those who expect peace on the condition that the latter help in preparing for war. "We will thank God for peace if it comes, but they will thank us for preparedness if war comes." Mr. Littleton emphasized that we are called upon to defend the ideals on which our constitution is based, the individualistic rights of our citizens. Among these is the right to possess property which is the material sign of liberty. In this country the Supreme Court stands between the people and the government to prevent the transgression of the rights of the individual, in marked contrast to the condition in Germany. He closed by expressing the belief that in the defense of its ideals this country is safe.

After Mr. Littleton's address President Storrs outlined briefly the efforts which had been made by the committee on co-operation with the War Department under the direction of Gen. George H. Harries. This is explained in detail elsewhere in this issue in the reports of the executive committee meeting and the general meeting. Mr. Storrs read the following telegram received from President Wilson in response to one sent him earlier in the day:

Washington, D. C., Feb. 16, 1917.

"L. S. STORRS, President American Electric Railway Association, Boston, Mass.

"Please present to the members of the American Electric Railway Association my very warm and grateful thanks for the message of confidence and support they have been gracious enough to send me and convey to them my warmest and most cordial greetings. Messages such as theirs make the task easier to carry.

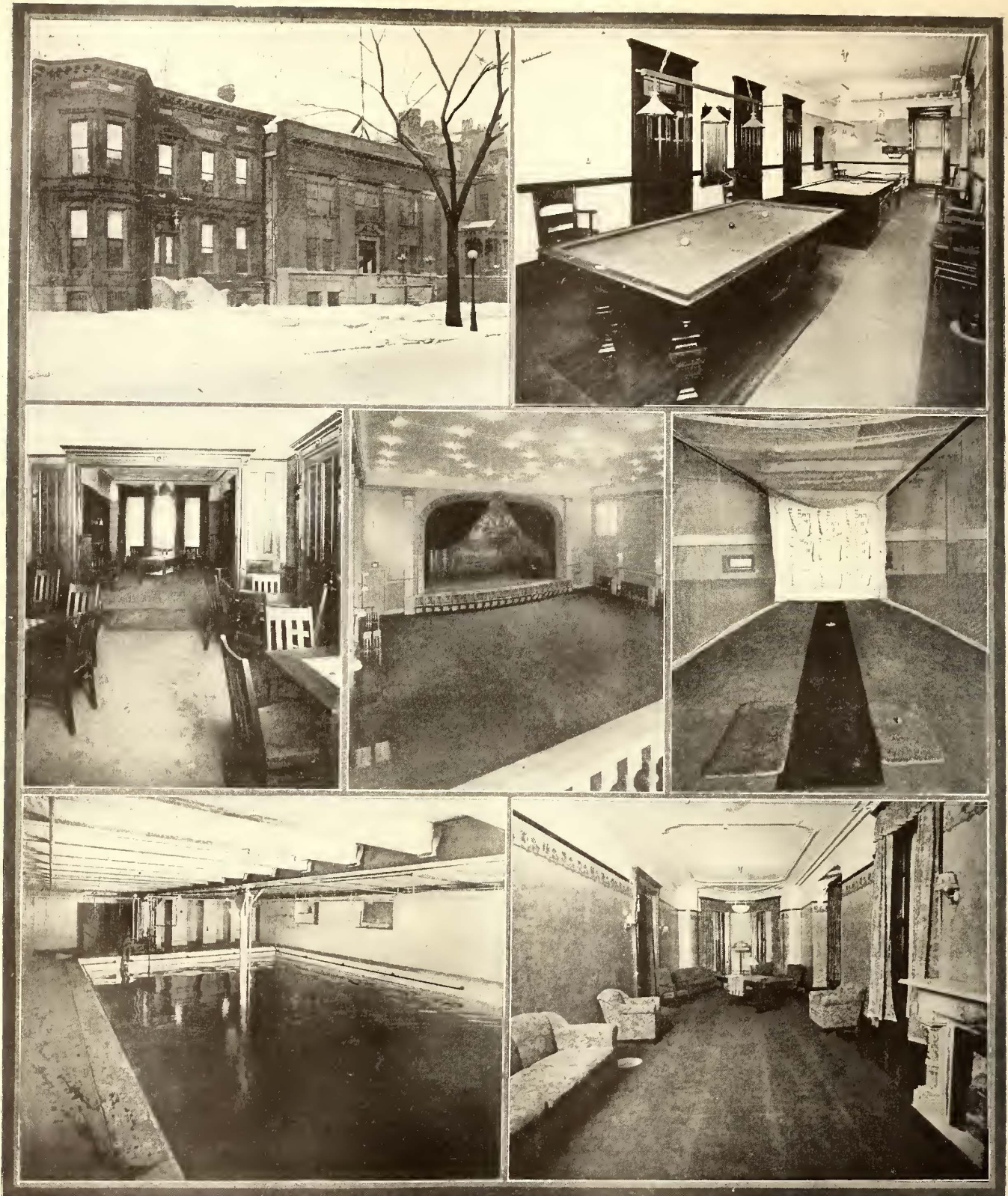
"WOODROW WILSON."

The final address was by Job E. Hedges of New York. Mr. Hedges referred to the day as being about midway between the birthdays of Lincoln and Washington and said that the great lesson to be derived from their lives was that they believed they had a mission to protect that for which this government stood. Mr. Hedges spoke about the condition of foreign affairs and also the present steam railroad situation and said we must protect ourselves against both foreign attack and indifference at home. His speech contained many epigrams. A typical one, relating to the present situation was: "It is a great thing to have the mind and spine synchronize."

The banquet closed with "America," sung by those present.

Handling Passengers at Stations

A report on a proposed rapid-transit plan for Sydney, Australia, made after extended studies of rapid-transit operations in cities of the United States and Europe, contains a chapter on the subject of passenger movement. In this the conclusion is drawn that elevators, as a means of handling dense railway passenger traffic to and from stations, are out of date. They have been superseded by moving stairways, which, when 4 ft. wide, are capable of handling 10,800 passengers per hour. Passages and ramps can accommodate thirty-five to forty persons per minute per foot of width, and stairways can accommodate thirty persons upward and eighteen persons downward per minute per foot of width. Entrances to stations can be less in width than the exits because passengers arrive at a station intermittently, while they are unloaded in great numbers. With regard to station design, the report states that a dead-end station (unless of a special design, which is not always possible on account of the expense) reduces the train capacity of a railway by about 20 per cent. Modern terminal stations are being constructed where possible with loops and such stations have the same train capacity as the railway.

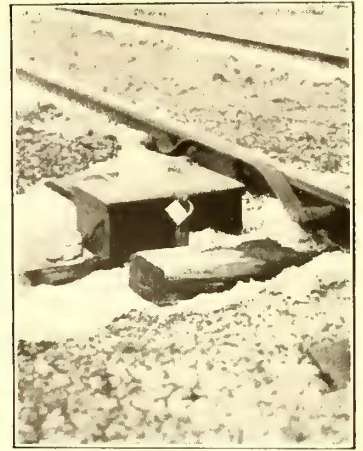


Chicago Surface Lines New Clubhouse

The employees of the Chicago Surface Lines are enthusiastic over their new clubhouse which was opened last month. The illustrations show the external appearance of the building, the pool and billiard room, the chess and checkers room with adjoining library, the auditorium, which has a seating capacity of 600, a large stage and an excellent floor for dancing, the indoor golf course, the swimming pool and the attractively and comfortably furnished lounging room. The building was described in the *ELECTRIC RAILWAY JOURNAL* of Feb. 3, 1917, page 202, in the account of the

opening reception. The membership of the club includes a women's auxiliary of eighty members, and it is planned to reserve the swimming pool and bowling alleys for the ladies one evening a week.

The Chicago Surface Lines Club is only two years old, but it has done much in fostering the feeling of good fellowship and common interest among the employees. The activities will probably be extended later to include educational features, and it may eventually become a section of the American Electric Railway Association.



NORTH SHORE GRADE-CROSSING PROTECTION—CROSSING GATES PAINTED IN STRIPES TO ARREST ATTENTION; CONTACT DEVICE FOR WIG-WAG CROSSING SIGNALS

Eliminating Crossing Accidents

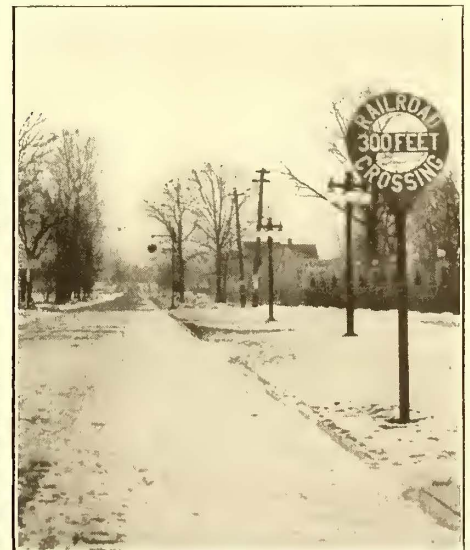
The Chicago, North Shore & Milwaukee Railroad Has Invested Over \$20,000 in Wigwag Signals and Gates to Protect Grade Crossings on Thirty-three Miles of Line

PRACTICALLY the first official act of Britton I. Budd when he became president of the Chicago, North Shore & Milwaukee Railroad was to instruct the chief engineer, B. J. Fallon, to protect the crossings along the north shore so that the safety of pedestrians and vehicles might be assured. The Illinois Utilities Commission had previously ordered the former management to protect certain crossings, but after study of the conditions; Mr. Fallon installed protection not only on the crossings specified by the commission, but also for every crossing from the Evanston terminus to Waukegan, a distance of 25 miles, and included also in the work the 8-mile branch line to Libertyville. The south end of the North Shore line passes through the rather thickly-populated suburban residence section of Chicago, and the crossings are therefore numerous and the traffic over them is quite heavy. This condition, together with headways of fifteen minutes and less, in both directions on the double-track line, warranted special protection for every crossing from an economic as well as humanitarian consideration.

In this 25 miles of route there are forty-eight grade

crossings and six overhead crossings. Protection has been given by automatic flags at twenty-five crossings, by crossing gates at fifteen, by electric bells at three and by flagmen at five. Four auto-flags are installed also on the Libertyville branch. The flagmen are used at crossings where the village authorities would not allow gates or auto-flags. In one location the residents objected to the crossing bell, and rather than lose this much of the safeguard, the company replaced it by a flagman. These flagmen use the white enameled disk on which the word "stop" is boldly painted as a more effective means of stopping a vehicle than the old-time cloth flag, which has been misinterpreted on some occasions.

Another feature of the safety measures in addition to the flags and crossing bells is the placing of warning signs either side of the right-of-way at all crossings except those equipped with gates. On the east side, and 300 ft. from the track, a large round iron sign painted red, with the printing cast in raised letters and silvered to reflect the light from automobile headlights, is mounted on a steel post set in concrete and reads "Railroad Crossing 300 Ft." The right-of-way is paralleled on the west side by the Chicago & North Western Railway, with only a narrow strip between these tracks and those of the electric line. In order to give added warning to traffic approaching the electric right-of-way from across the steam tracks, a round warning sign similar



NORTH SHORE GRADE-CROSSING PROTECTION—AUTOMATIC WIG-WAG SIGNAL AND SIGN INSTALLED AT CROSSING AND WARNING SIGNAL INSTALLED 300 FT. AWAY

to the 300-ft. sign is placed at the electric right-of-way, reading "Railroad Crossing, Danger."

The wigwag signals installed are the auto-flags furnished by the Bryant Zinc Company, Chicago. They are equipped with a combination of three warnings, the swinging disk, the red light in the center of the disk and the electric bell, each of which operates independently of the others. The wigwag is motor driven by a 600-volt motor and the signal is controlled from a track box designed by the engineering department of the railway company. These track boxes are built for high-speed operation, and while a few failures have been registered in snowy weather, these failures have always been on the side of safety—that is, the signal was not cut off and kept on operating continuously. The track boxes are located to give a thirty-second warning in advance of the cars, and this has governed the installation from 2400 ft. from the crossing, where the speed is 60 m.p.h., to 1400 ft., where the trains approach slowly. An indication lamp is placed 200 ft. from the starting box which tells the motorman the wigwag is working. There is also a green lens on each side of the wigwag light cylinder which serves the same purpose.

All signals are set in concrete and the posts painted black and the disk red. The crossing gates are set on creosoted wood posts and painted red and white in alternate stripes.

Other work done in the general move to eliminate the crossing accidents included the clearing away of shrubbery and weeds, trimming of trees, moving of stations in a few instances and generally cleaning up a triangular space each way from the crossing of all obstructions to the clear view of the motorman or the driver of a crossing vehicle. In some instances this clean-up program met with great opposition, but generally by telling the owners the purposes of the move, it was possible to gain their permission to pull up good shrubbery. The crossing planks were rebuilt in many instances and filled in with crushed stone and planks laid the full width of the road, instead of the customary one set in the middle, to eliminate the possibility of an automobile becoming stalled on account of the irregularity in the roadbed at the crossing.

The maintenance on the various crossing protection devices and the labor charge for twenty-four-hour flagman service on this 33-mile southern section of the Milwaukee line adds about \$35,000 a year to the operating expenses of the company. With the installation, during the coming spring, of twelve more gates and twelve more auto-flags on the remaining north section of the line, this operating expense for protecting crossings will be approximately \$45,000 annually.

Snow-Fighting Organization in Denver System Developed to Cope with Heavy Snowfalls— Whole Personnel of Tramway Can Be Used if Necessary

IN common with other railways operating in climates in which heavy snowfalls are frequent, the Denver Tramway has developed schemes for preventing interruption to traffic based upon immediate action coincident with the beginning of a storm. On this property the first action taken depends upon prevailing conditions, viz., time of year, hour with reference to peak load of traffic, condition of the ground, quality of snow, accompanying wind and probable duration of storm as reported by the Weather Bureau. The different departments plan their activities after considering the above conditions.

In the event of an ordinary snowstorm in mid-winter, men of the track department first clean and salt all

switches in operation. If the storm begins at night the dispatchers first notify the heads of departments and foremen at their homes. The transportation department has men assigned to each sweeper, and these crews take the sweepers out before the regular track men can be called. If the men of these crews are taken from their regular runs extra men are substituted, or if they are not working they are notified by telephone or by messenger. Each crew proceeds to put its particular sweeper into good working condition by inspecting brooms and seeing that machinery is well lubricated. The dispatcher, being informed by the several car crews or inspectors as to trouble with snow on certain lines, reports to the superintendent, who orders out the sweepers. The transportation department has charge of the operation of all sweepers and plows.

A crew and relief crew each consists of four trainmen. The shops send a man to assist with large plows and to observe their action under working conditions. The dispatcher orders sweepers to follow regular routes, according to one of several predetermined plans which are designated by letters. Plan A outlines the routes of four sweepers for cleaning up the paved streets in the four main divisions of the city. Plan B directs the work of six sweepers sent out to clean up the entire system. Plan C specifies the routes in all sections of the city for all sweepers and plows owned by the company when ordered out during a more severe storm. Plan D is resorted to as the lines cease operating and a partial or complete tie-up seems unavoidable. It urges concentration of the equipment on one line which serves a large portion of the traveling public and gives access to the shops. In this circumstance continuous operation is not attempted, and cars are taken in so as not to hinder the snow-fighting equipment. Plan E, used in conjunction with plan C, gives a schedule of routing plow-cars for "winging" out snow after a heavy storm, each plow to be followed by a sweeper and a car with men from the track department to clean switches. Plan F gives the route and names of men in the crew and relief crew for each sweeper and plow.

Whenever operation is suspended due to an extra heavy fall of snow, six main arteries are opened first to give a basis of operation and to provide partial service for each portion of the city until the situation can be further relieved. The snow-fighting organization then consists of fourteen gangs, each following a predetermined schedule and composed of foreman, sub-foreman, timekeeper, waterboy, 100 laborers, sweeper and four-motor car for men and tools. A team and plow is used if at all advantageous. Four gangs are made up of trainmen from the four transportation divisions, while those remaining consist of men from the track department reinforced to the extent of 1,000 men from any available source. The timekeepers assign tools, make out daily payroll proration sheets, and provide for identification and transportation of the men. The car with each gang affords a portable shelter, and food is either provided for the men on the job or the men are fed at restaurants.

All work is directed by the planning bureau, which co-operates with the foremen, employment bureau and purchasing agent. It sees that the routes named in the plans mentioned above are followed as closely as practicable and attends to the deliveries of salt and car sand and the distribution of equipment, tools and men.

For the three years ended Dec. 31, 1916, the Mahoning & Shenango Railway & Light Company, Youngstown, Ohio, carried 147,040,186 passengers, a total distance of 22,415,077 miles, without a death or fatal injury in transit.

Companies' Attitude on Strike Restriction

New York Lines Doubt Effectiveness of Commission Plan for Providing Fair Wages and Preventing Service Interruption

IN connection with a general account of hearings before the Public Service Commission for the First District of New York on its tentative strike restriction plan for electric railways in New York City, the *ELECTRIC RAILWAY JOURNAL* of Feb. 10 mentioned in brief the objections raised by railway representatives at a meeting on Feb. 8. Before noting in this issue the comments of other representatives at later hearings, it will undoubtedly be of interest to describe in more detail the attitude of the railways in New York toward the commission plan, the text of which was published in the issue of Jan. 27.

MR. MAHER'S STATEMENT

The only official of the leading city companies who was able to attend the hearing was E. A. Maher, Sr., president Third Avenue Railway. Mr. Maher's opinion of the proposed plan was expressed in a previously prepared statement which was in part as follows:

"Any interference with service in the nature of a strike must necessarily cause all three of the parties involved, the public, the employer and the employee, to suffer, so that it is practically needless for us to say that we are interested in any legislation that will remove the possibility of, or make less likely the occurrence of, a strike. We are heartily in favor of some method of collective bargaining between the employees and the corporation. We do not believe, however, that any method which necessitates bringing into the situation, interests and individuals outside of the regular body of employees would result satisfactorily. The dealings should be directly between the men and the company, and no interests outside of the men, the company and the public should be permitted to intervene.

"We have within our organization a Mutual Benefit Association, in which practically 100 per cent of our employees are members. We also have a plan of life and accident insurance system which covers practically 80 per cent of our employees. We also have a pension system which applies to all of the employees. It is our present purpose to broaden the scope of our mutual benefit association, so that its members in the various divisions of the company will elect their own representatives to take up with the management any question affecting wages and working conditions and looking to the improvement of the service and the satisfaction of the demands of the public and of the employees. We believe that such an organization within the company, properly administered, would practically eliminate strikes and internal dissension between the men and the company. We are firmly convinced that any plan which left to any bodies outside of the organization the question of adjustment of differences, would not successfully work out.

"We are in favor of employees entering into contractual relations with the company, and the contract should specifically set forth the terms of employment and of working conditions. We believe such contract should be for a stated period of time, that necessarily it should be binding upon both parties thereto, and that there should be a proper penalty enforceable for the violation by either of the parties. All questions of discipline and efficiency should rest entirely with the employer. The employee should have every opportun-

ity of presenting a full and complete defense to any charge that may be filed against him and to have a fair hearing and a just decision. This could be done within the organization itself and without the intervention of outside parties, for it is needless to say that no corporation wants to dispense with the services of a competent, capable employee, so long as there is room for his employment in the services. We believe that the experience of the Philadelphia Rapid Transit Company with its employees, extending over a period of more than five years, conclusively demonstrates the possibility of settling all differences that may arise between employer and employee in a public service corporation, in a manner that is entirely satisfactory to the public, the employer and the employee."

COLONEL WILLIAMS' STATEMENT

T. S. Williams, president Brooklyn Rapid Transit Company, and T. P. Shonts, president Interborough Rapid Transit Company and New York Railways, were both unable to be present at the hearing but sent written communications giving their views. Mr. Williams said that he appreciated the motive of the commission in seeking to prevent interruption of service by reason of dissatisfaction with wages and working conditions, but he did not agree that the ends aimed at could best be accomplished by law or that such legislation as proposed would be either practicable or beneficial. On the other hand, he feared that it would be productive of unrest and dissatisfaction, tending to disturb relations which are now harmonious and fairly satisfactory.

Continuing, Mr. Williams said in part:

"If there were substantial reasons for expecting that your plan would preserve continuity of service in case of labor disputes, we would all, I think, be disposed to waive minor differences of opinion. But it seems to have been conceded that at best the proposed legislation could only serve as a moral argument against strikes, and that there would be no way of enforcing among workers observance of a labor decision, although the power of the commission over railroad corporations could be exercised to compel obedience from the corporations. This admission, it seems to me, puts us no farther forward than we are to-day, and if continuity of service cannot be secured with reasonable certainty from the plan, its other features would probably not be seriously put forth and are in their general scope too radical and objectionable to warrant favorable consideration.

"My own conviction is very strong that such problems must be solved not by law but by intelligent and fair co-operation. No legislative reforms are likely to be so abortive as those which have to do with the delicate relations between labor and capital, and which on the one side may threaten fundamental principles of individual freedom, and on the other side imperil or unnecessarily shackle business and industry. The better and surer way to correct industrial evils is by encouraging a more enlightened comprehension of respective self-interest between employed and employers. At no time in the world's history has the necessity for this mutual sympathy and co-operation been so generally recognized as it is to-day. Inequalities and adverse conditions exist, and perhaps always will, but the force and

power of an educated public sentiment, finding sympathetic and practical response both from those who toil and from those who invest, will have more influence in securing substantial equity than any law—and such a response will be the most effective insurance to the public against the evils in interruptions of transportation and industry which follow misunderstandings and discord.

“Every reasonable investor knows that his investment in a public service corporation cannot be on a sound and permanently productive basis unless the workers, whom his money hires, and the public, which his facilities serve, are reasonably satisfied. Every sensible employee likewise knows that the permanence, conditions and emoluments of his employment depend primarily upon the continuance of investment and upon satisfaction with its return. And the public knows that its comfort and convenience are best subserved when both investor and worker are reasonably satisfied with their respective participation in the products of their joint undertaking. General recognition of this common interest may be slow in coming, and in the meanwhile there may be regretful clashes, but if the principle is sound it will ultimately be triumphant.

“Your plan, on the other hand, presupposes not natural and spontaneous harmony between these participants, but antagonism and the doubtful peace sought to be enforced by law or official fiat. The other plan assumes mutual interest, presupposes honest purpose and encourages intelligent co-operation. From neither plan would its advocate expect that a Utopia could be developed at once. Your plan may look like the short route to industrial peace, but it is not the natural or safe or permanent route, nor is it founded on a sound principle. In its practical application it would tend to breed trouble, not to allay it.

“The principles outlined above have been put into practical effect on the Brooklyn Rapid Transit System. They received a severe test in the surrounding labor disturbances of last summer, and they stood that test well. Had the plan which you now recommend been then in force we would probably have had dissatisfaction and disturbance. Instead there was mutual confidence, loyalty to the enterprise, enthusiastic co-operation and, of course, no interruption to service. We have a splendid body of men who are trying in their own way, and, I think, the right way, to solve these difficult problems, and we ask that they be left alone to solve them in that way as long as it is satisfactory to them and insures public comfort.”

MR. SHONTS' STATEMENT

In criticising the proposed plan, Mr. Shonts made a statement in part as follows:

“We recognize these points:

“1. The supremacy of the public interest in uninterrupted and efficient transportation service.

“2. The principle of collective bargaining for the purpose of securing fair and reasonable wages and working conditions, and also the principle of definite periods of employment.

“3. The necessity for an impartial tribunal with power to enforce its decisions in labor disputes.

“4. The necessity for such a change in the law as will insure uninterrupted service pending investigation by such a tribunal, and thereafter continuous service in accordance with its decision.

“5. The necessity for leaving with the employer the maintenance of discipline and efficiency, including the right to discharge for good cause, but with the right of a discharged employee to have a written statement of the cause of his discharge delivered at the time thereof.

“6. The right of an individual employee to leave the service before the expiration of the agreed period with the written consent of the employer, or, if such consent be refused, that the Public Service Commission may, for good cause shown, make an order which shall be in lieu of such consent.

“We do not believe, however, in your plan for the organization of employees or for a wage board, or that your commission should have the power to determine wages, salaries or working conditions, or to adjust grievances.

“We believe that it is against the public interest that the employees of the transportation lines in this city should be affiliated with labor unions which, to wit their strikes in other trades or in other cities, may put this city to the detriment of a sympathetic strike. We believe that the plan or an organization which our own employees adopted last year is more in the public interest, as well as their own, and that their method of collective bargaining is more truly representative of the employees than your proposed wage board. Each class of employees has proportional representation, and the terms negotiated are submitted for individual approval so that no employee may be bound except of his own free will.

“Then the law should provide that no employee should leave the service except by consent as above mentioned. If any considerable number give written notice of intention to quit or to demand changed conditions or wages, or if the employer gives written notice of an intention to change wages or conditions, let the Public Service Commission forthwith ask the Appellate Division to appoint three arbitrators to determine the controversy, giving the commission the right to appear on behalf of the public. The decision, when confirmed by the Appellate Division, should be binding for a period of from one to three years. This plan insures an impartial judicial tribunal to pass upon the rights of the public, the employees and the employer, and prevents the Public Service Commission from being both prosecutor and judge, which is abhorrent to all systems of government. Let the law also impose severe penalties upon both employer and employee for a breach of the decision so made.

“As to our fourth objection—to your taking up the adjustment of grievances—we believe that these matters can better be left to the employees' own organization in conference with the officers of the employer as provided by our own brotherhood rules, which have been approved by our directors. The interposition of any outside body in the adjustment of ordinary grievances will not make for harmony and co-operation, but will tend to create a spirit of contention and insubordination.”

FURTHER HEARINGS

The hearings before the commission were continued on Feb. 13 and Feb. 15. Those who were heard included Deputy Attorney General Merton E. Lewis; Everett P. Wheeler, representing the committee on industrial arbitration of the New York Reform Club; Pauline Goldmark of the National Consumers' League, and J. A. Fitch of the staff of *The Survey*. Mr. Lewis favored contracts of service for utility employees, with criminal punishment for breach by either party. He thought, however, that the easiest way to settle industrial disputes would be to confer this power upon the courts. The Attorney General should apply to the Appellate Division for arbitrators, whose decision should be reviewed by the court. Mr. Wheeler favored civil penalties rather than criminal, and the carrying out of awards under the supervision of the commission. Miss

Goldmark stated that the public should enter negotiations from the first step. She believed that utility employees should be guaranteed higher wages than those in private employment. Mr. Fitch said that standards of bargaining should be created and that an investigating body should be organized to get the facts without going so far as to restrict the right to strike. He thought that there should be no public supervision of mutual agreements or settlements between employer and employees unless either side or the public should appeal. Furthermore, he thought that rate bodies should not pass on wages, but that a separate body should be organized.

Capacity of Cast-Iron Car Wheels*

The Author Analyzes the Elements of Weight and Cost, and Advocates Increased Flange Thickness for Heavy Service

BY GEORGE W. LYNDON

President, Association of Manufacturers of Chilled Car Wheels.

IN the year 1904, the 700-lb. chilled-iron car wheel as used under 50-ton cars was recommended as standard by the Master Car Builders' Association, and with a subsequent modification increasing the weight to 725 lb., it was formally made standard in 1909. During the time intervening the rolled-steel wheel was introduced, and notwithstanding the alleged superiority of this metal, the new wheel weighed a minimum of 750 lb.

Since the year 1875, the great capacity of cars and the tremendous tonnage hauled has called for an increase in the weight of the car structure from 18,000 lb. to 65,000 lb., or an addition of 260 per cent, an increase in the weight of rail of 150 per cent and an increase in the axle of 200 per cent. Yet the weight of the wheel has increased only from 525 lb. to 725 lb., or 38 per cent.

While the chilled-iron wheel has always met increases in the capacity of the cars, one part of the wheel has received scant consideration and that is the flange. This is due, perhaps, to the fact that, during all the remarkable railroad development of the past forty years, the space between the running rail and guard rail has remained fixed at 1 3/4 in.

For years the chilled-iron wheel manufacturers have been trying to secure a stronger flange and have demonstrated the fact that 3/16 in. can be added to the thickness of the present M. C. B. standard. Compensation for the increase may be made by mounting each wheel 3/32 in. closer to the rail so as to maintain the M. C. B. standard dimension of 4 ft. 6 29/64 in. from back to back of flanges. This insures that the relation of the back of the flange to guard rail remains the same as at present and no change in track clearance is required. There can, therefore, be no objection from a track standpoint of making a liberal increase in the present flange thickness and the plan has received approval from a special committee of the American Railway Engineering Association.

Under 70-ton cars the load per wheel amounts to about 25,000 lb., and this requires almost 20,000 lb. flange pressure to change the direction of the truck. Therefore, with present conditions of operation, considering the increased speed, the thrust on the flange including impact is at least ten times greater than under the old 10-ton cars of 1850, and it must be apparent that the increased flange duty has not been provided for.

The Association of Manufacturers of Chilled Car Wheels believes that, because of the general conditions confronting us to-day and the need for a safety factor of operation, three designs of wheels with 3/16 in. in-

crease in flange, would in a great measure solve the present troubles. Its recommendations for the three wheel sizes are as follows:

Weight of Wheel	Maximum Gross Load on Car
675 lb.	112,000 lb.
750 lb.	161,000 lb.
850 lb.	210,000 lb.

With regard to cost it may be said that about 30 per cent of all wheels sold are removed by foreign lines and the prices paid for these removals are fixed by the printed interchange rules of the Master Car Builders' Association, as follows:

	Chilled-Iron	Steel
New value, each	\$9.00	\$19.50
Scrap value, each	4.75	4.50
Net cost	\$4.25	\$15.00
Cost of removing from and replacing in trucks, per pair \$2.25, each	1.12	1.12
Cost under car, each	\$5.37	\$16.12
Cost of two turnings	3.25
Total cost of wheel service, each	\$5.37	\$19.37

It will be observed that the total cost for wheel service for steel wheels is about four times that of the chilled-iron wheel, and upon this basis of comparison any substitute must yield four times the mileage or time service in order to equalize the cost. All chilled-iron wheels are guaranteed for a standard minimum period of service, and should any wheels fail in service through the fault of the manufacturer a new wheel is supplied without any cost to the user. Hence, the maximum net cost per year ranges from 52 cents to 90 cents depending on the size.

Any wheel that is sold for \$20 will cost the railroad in interest charges alone (figured at 5 per cent per annum), more than the renewal charges of the chilled-iron wheel, because while the guaranteed net cost to the railroads is based upon six, five or four years' service respectively, the actual service is often twice as much.

During the two years last past, the price of all commodities have reached their highest figures. Nevertheless the price of the chilled-iron car wheel has practically remained constant.

In conclusion it may be said that the capacity of the chilled-iron car wheel has not yet been reached, and today there are in service wheels weighing 950 lb., or 225 lb. heavier than the heaviest present M. C. B. standard. These wheels are carrying a burden of 26,500 lb. per wheel and they have given such satisfactory service under engine tenders of 12,000 gal. capacity that no other type of wheel is considered by the user.

An additional weight of 25 lb. per wheel because of thicker flanges would not appreciably increase the tonnage, but this addition of metal would materially increase the factor of safety. If all wheel renewals in the country based upon 2,500,000 annual renewals, were increased in weight 25 lb. each, the total increased tonnage to be purchased would be 31,250 tons at \$10 per ton differential, making a total additional expenditure of \$312,500 annually.

At the January, 1917, meeting of the New York Railroad Club a paper was presented by Marcus A. Dow, general safety agent New York Central Lines. This contains the results of a comprehensive analysis of the subject. In conclusion Mr. Dow stated among other things that "the railroad or industrial official who will concentrate his energies and faculties to at least a reasonable degree upon the prevention of accidents is bound to attain success in that direction just as surely as he is bound to attain success in the efficient handling of any other phase of transportation. The first thing necessary is to formulate definite plans, and the next is consistently and continuously to work such plans."

*Abstract of an address before the Canadian Railway Club at Montreal, Canada, Feb. 13, 1917.

Practical and Economical Solutions of Problems in EQUIPMENT AND ITS MAINTENANCE

Milwaukee Center-Entrance Car Designed for Train Operation—European and American Practice in Setting Trolley Poles—Open Car for Winter Service in Boston, Mass.—New Electric Railway Equipment

(Contributions from the Men in the Field Are Solicited and Will Be Paid for at Special Rates.)

Center-Entrance Cars for Milwaukee

New 50-Ft. Cars Retain Company's Former Wheel and Motor Standards But Have Low Center-Step Arrangement, Large Seating Capacity and Other New Features of Body Design

A radical departure from previous designs has been adopted by the Milwaukee Electric Railway & Light Company in the fifty new cars that have recently been placed in its city service. The new features include the center entrance and exit with front exit also, the use of multiple-unit control for train operation, and the installation of maximum-traction trucks. However, the company's standard three-wear, 34-in. driving wheel has been retained, and also the standard 70-hp. Westinghouse 306-CA-2 motor. The economy, from the maintenance point of view, of adhering to previous standards, and the rather severe service requirements for which these cars have been designed, were considered to be of sufficient importance to warrant sacrificing the advantages of the low floor. However, the ease of entrance and exit has been greatly facilitated by the well and step arrangement that has been used.

The design was controlled largely by the decision to operate the cars in two-car and three-car trains. During the morning and evening rush-hour service they will be operated in two-car trains, but it is planned to operate them in three-car trains on the long suburban lines to the parks outside of Milwaukee on days of especially heavy traffic. Under these conditions it was

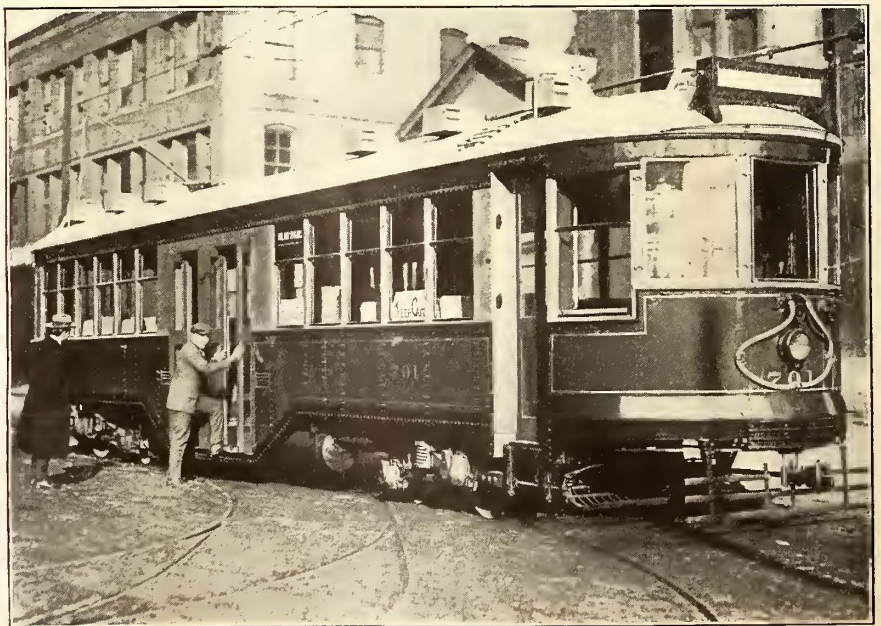
considered that the best location for the conductor would be at the center of the car. Also, the long runs require rather high speed, and with the heavy loads carried, it was considered essential to have a large motor. Accordingly the company's previous standard motor was utilized, and the advantages of the maximum traction truck added to it for the first time in Milwaukee.

The service requirements which the electrical equipment was designed to meet are summarized in the following table:

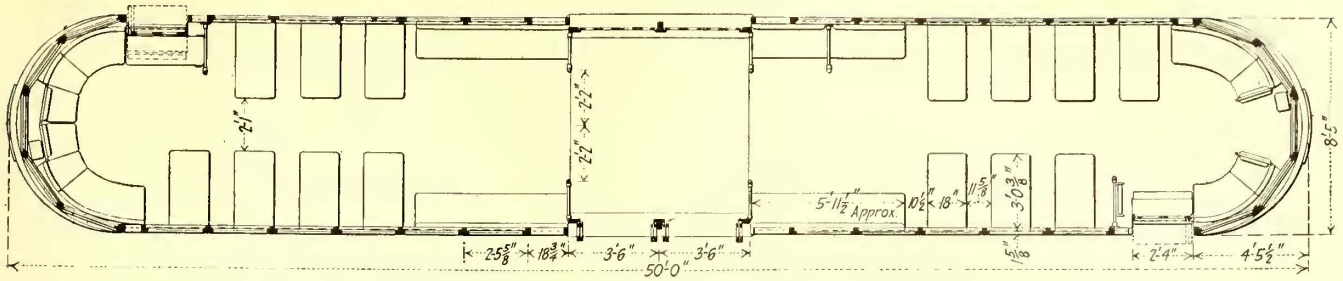
SERVICE SPECIFICATIONS FOR ELECTRICAL EQUIPMENT

Seating capacity	60
Capacity (with standing load figured on 4 sq. ft. basis)	115
Length of car over-all	50 ft.
Distance between bolsters	28 ft.
Width of car body over belt rail	8 ft. 5 in.
Weight of empty car and trucks (without electrical equipment or live load, max.)	36,000 lb.
Line potential:	
Maximum	600 volts
Minimum	400 volts
Average	500 volts
Total distance round trip	17.9 miles
Running time	1.06 min.
Schedule speed	10.15 m.p.h.
Stops per mile7
Average duration of stop	6½ seconds
Wheel diameter:	
Drivers	34 in.
Idlers	22 in.

Multiple-unit operation is provided for by the use of Westinghouse H.L.D. control. This is a combination of pneumatic switch units and cylinder control, which has 600 volts on two fingers, but has the main control circuit operated at 110 volts. Automatic acceleration is provided, and in order to increase the speed of accelera-



INTERIOR VIEW OF MILWAUKEE CAR SHOWING MOTORMAN'S CAB; EXTERIOR VIEW OF CAR



FLOOR PLAN OF MILWAUKEE CENTER-ENTRANCE CAR

tion on heavy grades where it would be unduly slow with the automatic control, a push button is installed at the motorman's position by means of which he can gain manual control of the acceleration. This button is placed in an inconvenient place so that the motorman will not be inclined to use it when starting under normal conditions.

CAR-BODY ARRANGEMENT AND DETAILS

The feature of the car body design is the arrangement of floor ramp, well and entrance steps which divide the distance between rail and car floor in such a way as to make for easy entrance. The center well is reached by a single stationary step, above which the entrance and exit doors operate. Between the center well and the main body of the car there is a low step. From this point to the bolster of the car, a distance of approximately 10 ft., there is a ramp of 6 in. At the front exit door, which is made 28 in. wide, there are two steps, one of them stationary and the other of a folding type, that is operated in conjunction with the doors. The various step heights are as follows:

Top of rail to center step.....	14 in.
Step to well or vestibule floor.....	10 in.
Well floor to car floor.....	8 in.
Top of rail to front exit first step.....	15 in.
Second step.....	12 in.
Second step to car floor.....	12 in.

The pay-as-you-enter railings, etc., are so arranged that the conductor can stand in the middle of the well facing the entrance doors, which give two openings approximately 2 ft. 10 in. wide, and from this point he controls the movement and collects fares of passengers going to the front or to the rear of the car. The construction is such that it may readily be adapted to a combination pay-as-you-enter, pay-as-you-leave scheme, provided the company later decides to depart from the regular pay-as-you-enter practice in use at present in Milwaukee. The entrance and exit doors are controlled by two levers on the stanchion in front of the conductor's position. A light-signal connected with the doors gives the motorman the go-ahead indication, and ordinary stop signals are given by the passengers through buzzers or through a button placed in front of the conductor. Emergency stop signals are given by a single stroke bell operated from a push button which is installed on the center post between doors behind the conductor's position. It is placed in this position behind him so that it will be used only for emergency purposes, and one stroke of this bell is to be understood as an emergency stop signal to the motorman.

The car underframe is made up very largely of pressed-steel members with a few structural shapes. The superstructure is very largely of steel, but with end posts of wood in order to minimize the cost of repairs. Steel or composite board finish is used throughout the interior, and the cars are built with a double-wooden floor with insulating material between to cope with the winter heating problem. For this same reason an air space between the outside steel plates and the inside sheeting, and between the car roof and the composition board headlining is provided. This construction, of

course, adds to the weight of the car, but is considered essential in the Wisconsin climate.

Fourteen Walk-over rattan-covered cross seats have been installed, together with four longitudinal seats adjacent to the center well, circular end seats in the ends of the car and a folding seat at each end-exit door. All seat cushions and backs are of the springless, sanitary type. The seating capacity of the car is fifty-six, but this is increased to sixty in the second and third car in a train by the two seats which fold up into the space occupied by the motorman and by the folding seats across the front exit, which will seat two passengers.

At the ends of the car the arrangement of the motorman's control equipment is ingeniously worked out so that practically no space is sacrificed when the control equipment is not in use. The two seats at the end of the car fold down by simply kicking the supports from beneath them, and two glass panelled doors forming the backs to these two seats open up to a position parallel with the length of the car and form an operating cab for the motorman. These doors lock in position, both closed and open, and serve when closed to protect the clothes of passengers from coming in contact with any grease which might be on the apparatus, and also to conceal the equipment and prevent passengers from meddling with any of it. The cab is converted for rear-end use by merely closing the doors to a position parallel with the end windows and raising the folding seats.

The car lighting includes the use of selector switches which control two series of 56-watt lamps equipped with reflectors. A special 23-watt circuit provides illumination for the hood destination signs and headlights, the side route signs being illuminated from the general interior car lighting. Ventilation is accomplished through the use of twelve exhaust-type ventilators placed symmetrically with six each side of the well, which are used in conjunction with the forced hot-air heating system.

The possibilities toward producing a car of light weight were somewhat curtailed by the limitations made necessary by the sixty-passenger capacity of the car, the heavy service requirements and the special construction against cold. A summary of the various weights is detailed below.

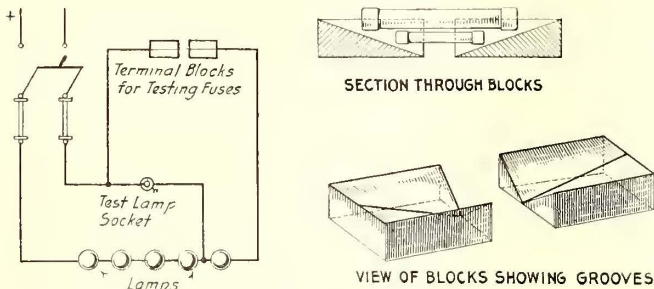
	Pounds
Motors.....	5,500
Electrical equipment.....	2,423
Truck, less motors.....	11,686
Air brake equipment.....	1,195
Heater equipment.....	495
Hand brake equipment.....	305
Sander equipment.....	111
Fenders.....	200
Draft rigging.....	820
Fare boxes.....	20
Signal bells.....	5
Signs and sign equipment.....	200
Miscellaneous equipment.....	91
Seating apparatus.....	1,350
Vestibule equipment.....	576
Door operating devices and door equipment.....	1,060
Window and window trimmings.....	873
Roof.....	2,034
Underframe.....	7,534
Sideframe.....	2,339
Miscellaneous equipment.....	2,921
Miscellaneous body details.....	262
Total.....	42,000

Special Contact Blocks for Testing Fuses

BY R. H. PARSONS
Electrical Foreman

A great saving in time is made possible by the use of special apparatus in connection with the common method of testing lamps and fuses.

In the *ELECTRIC RAILWAY JOURNAL* for Sept. 9, 1916, page 455, a test board with special fuse and lamp testing appliances was described, and another type of device that may be used for the same purpose is a special terminal block to make contact with the fuse under test. The blocks have slanting V-grooves, as shown in the



PROTECTIVE CONTACT BLOCKS FOR TESTING FUSES
OF VARIOUS LENGTHS

accompanying drawing, to accommodate fuses of various sizes and also to protect the operator from electrical contact. Two blocks are so placed in the testing circuit that the smallest fuse can just span the distance between them. A larger fuse makes contact nearer the opposite ends of the blocks and its middle point, or the operator's hand, is remote from the bottom of the groove, thus insuring greater safety.

The terminal blocks and an old style, threadless socket, into which test lamps can be quickly pressed, are mounted on a slate base with the other testing apparatus. This equipment, if placed near the inspection or repair track for the use of the men working on cars, is very convenient.

Should Trolley Poles Be Set with a Rake?

BY J. G. KOPPEL
Electrical Superintendent of Bridges,
Sault Ste. Marie, Mich.

It is a well-known fact that many roads which use electric power for propulsion are building their overhead lines by setting the trolley poles with a certain rake, from 6 in. up to 2 ft. It seems to me that a line constructed with poles set with a rake gives a very poor impression. Such a line, even if new, always has the appearance of being thirty or more years old.

I saw the first street railway line built with poles set with a rake in London, England. These poles were all of good design and made of cast steel with cast-iron bases. The rake was about 6 in., and the poles were set without guy wires. A line built like that spoils the good appearance of the street, because we know that, no matter what we are building, the plumb-line, the square and the level are the three devices by which the construction is governed. Up to the present time human beings are accustomed always to see things looking straight, one way or the other, that is, either vertical or horizontal.

Going back to the English tramway line I will state that the English firm which built this line also built a

tramway system at St. Petersburg, Russia, but the Russian engineers objected to the construction of a raked pole line, and the poles were, therefore, erected vertical. These have carried their load well and are still standing upright. Two other tramway lines were built, one at Riga and the other at Libau, by a German firm. The poles were built up from two U-irons with flat iron riveted in the centers, and all poles were set vertical on single and double-track lines.

A few weeks ago I happened to be in Montreal, Canada, where I noticed that the Montreal Tramway uses steel tubular poles set with a rake from 6 in. to 8 in. The impression made by the raked poles between straight buildings and vertical lighting poles was, upon me, very unfavorable. Further, on the Chicago, Milwaukee & St. Paul electrification I notice that guyed poles set with a rake are used.

In view of the difference between European and American practice in this matter, I wish to raise the question, among those who have had more experience in pole setting than I have had, as to what real advantage is to be gained by setting guyed poles with a rake. Will guyed poles set with a rake stand more load under ordinary conditions than guyed but vertical-set poles?

My opinion is that the present practice of raking poles is largely the result of blindly following precedents established in the early days of pole-line construction. It may be that the practice was developed for the purpose of covering up poor workmanship, so that by giving a pole a sufficient rake an observer cannot tell whether it had pulled over since it was set or whether it was originally set as seen. It seems to me, therefore, that it would be better to follow European practice because of the better impression that this type of construction makes upon the traveling public.

[NOTE.—In this connection the following quotations from a paper entitled "A Civic Duty for Engineers," by S. E. Doane, chief engineer National Lamp Works General Electric Company, delivered before the Cleveland Engineering Society, is of interest:

"It is still a frequent practice in this country to have the trolley poles leaning away from the pull of the cross-wires (and incidentally in some other directions, too). I have always wondered whether this was really necessary or whether it was being done just because it had always been done that way. I know now that this is not being done in Europe or rather that the poles are being put up with an over-leaning just large enough that they are pulled into the exact vertical when the tensional stress of the span wire comes on. I know that at least one of the largest firms there constructing electric railroads has provided tables to show how much their standard tubular steel poles will bend under the normal stress to which they are subjected. * * * To judge from appearances the same systematic method is followed with wooden poles."

The A. E. R. E. A. Engineering Manual, Ds 2b, specifies as follows:

"18. Wood poles with brackets shall in general have a rake from the track of 6 in. in 24 ft.; steel poles with brackets of 3 in. in 24 ft.

"Wood poles with spans shall have a rake from the track of 12 in. in 24 ft.; steel poles with spans shall have a rake from the track of 6 in. in 24 ft.

"When the strain is from the track, as with poles on the inside of a curve, raked poles, or head guys shall be used and standard rakes maintained.

"Double-bracket poles shall be set without rake; other poles between tracks, and poles under outside jurisdiction may be so set if necessary or required."—EDS.]

Overcoming Starting Troubles with 60-Cycle Converters on a Long Transmission Line

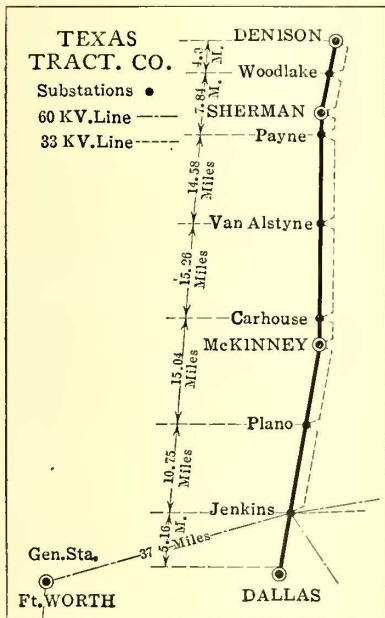
BY H. L. INGRAM

Superintendent of Substations Texas Traction Company, Dallas, Tex.

The principal trouble we have experienced with the 60-cycle rotary converter has been in starting. All units are started from the alternating current end as induction motors. When first installed, they were equipped with double-pole double-throw switches with rheostats in two lines for limiting the starting current supplied from the half-voltage transformer taps. These rotaries are all of the six-pole type. It was found if the circumference of each armature was divided into twelve equal parts and the proper points of division selected, that there would be six positions where the converter would start when the power was applied and six positions where it would not start. This at times caused damage to the commutators, collector rings and switches. The disturbance has been attributed to the unbalancing of the phases by having the rheostats in

only the two lines. Hence the new installation at our Payne substation was equipped with triple-pole double-throw switches and a rheostat in each line, with the result that these converters will start from any position with much less sparking at all the direct-current brushes.

In starting up the machines, they are brought up to speed on the half-voltage taps and the field break-up switch is closed with the proper polarity on the direct-current side and then the double-throw switch thrown over in the full-voltage position. This method of



MAP SHOWING LOCATION OF POWER-HOUSE, SUBSTATIONS AND TRANSMISSION LINES, TEXAS TRACTION COMPANY

starting had given entire satisfaction with the 25-cycle converters, but with the 60-cycle machines, when the change was made from half to full voltage, it was frequently accompanied by flash-overs, tripping of oil switches where the relay was set for as much as 400 per cent normal current and other troubles. It was found that a very few seconds after the machines had come up to full speed on the half-voltage taps and the field break-up switch had been closed, that they "hunted" badly, and this made it practically impossible to throw over to full-voltage conditions. This performance is more marked in the 200-kw. units than in the 300-kw. units and increases as the distance from the generating station increases and the load on the high-tension line decreases. The operators have become accustomed to this condition and have succeeded in getting good results by using a different field strength for each station and making the change before the converter starts hunting.

On a temporary installation at the Payne substation,

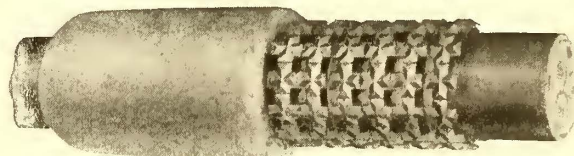
transformers without half-voltage taps were used and the converter was started from full voltage by using a correspondingly increased resistance. While this was a make-shift arrangement, it gave excellent results, and no trouble was experienced in throwing from the resistance leads to full voltage at any time. It is the writer's belief that if a switch were provided with which to short-circuit the starting resistance, hunting on the half-voltage taps would be practically eliminated. We are having no trouble from line fluctuations, except at Jenkins' substation, where an occasional heavy surge on the 60,000-volt line will cause a flash-over. No remedy for this trouble has been found so far, but all things considered, we are realizing excellent results from a standpoint of maintenance and operation.

The Texas Traction Company in June, 1915, discontinued the generation of power at 25 cycles and 19,100 volts, to take advantage of a power contract with the Texas Power & Light Company, which now supplies current at 60 cycles and 33,000 volts to five of the traction company's substations. Another substation at Jenkins, is supplied with energy at 60,000 volts. While the company was generating its own energy at 25 cycles frequency, each of these six substations was equipped with one 300-kw. rotary converter. These were displaced, when the company began to purchase 60-cycle power, by one 300-kw. unit in each of three of the stations, and two 200-kw. units in each of the remaining three. This arrangement was installed in view of the plan to ultimately operate the portion of the line south of Sherman at 1200 volts direct current and abandon the substations at Plano and Van Alstyne.

With the 25-cycle system, the substation farthest from the power house was served by a 35-mile transmission line, while under the present arrangement with purchased 60-cycle power, the most distant substation is 95 miles from the generating station. This, incidentally, is the longest transmission line in the country serving 60-cycle converters. The writer is also in charge of six substations for the Southern Traction Company, which operates south of Dallas at 1200 volts direct current supplied from motor-generator sets, and finds that the 60-cycle converters are just as dependable and have the increased efficiency in their favor.

Protecting Cables in Manholes

The Composite Metal Lath Company, New York City, has just developed a method of wrapping the cable with a mesh of steel wire upon which ordinary brick or terra cotta has been baked. The accompanying illus-



FEEDER CABLE PROTECTED BY METAL LATH COVERING

tration shows a 2½-in. feeder on which the brick lath is used as a base for a protecting coat of sand and cement.

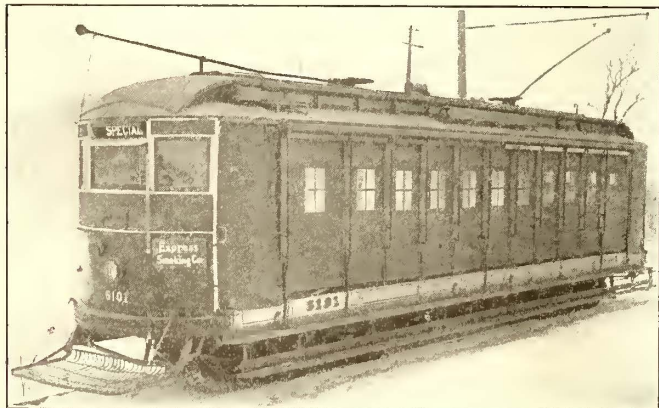
This covering is made up in large sheets 40 in. wide by 16 ft. long. It is usually cut in strips about 3 in. wide and wound spirally about the cable to be protected. A mixture of two parts sand to one part Portland cement is then wiped on by hand to a thickness of about 5/8 in. This covering can easily be applied in manholes or other confined places. It is claimed that this material is less expensive than an asbestos or rope base. Other methods of fireproofing cables in manholes were described by Albert F. Hovey in the ELECTRIC RAILWAY JOURNAL for Nov. 18, 1916, page 1068.

Open Car Equipped for Winter Service as Shopmen's Express

Heaters Under Seats and Side Curtains with Flexible Windows Make Fourteen-Bench Car a Popular Smoker on Bay State Street Railway

The withdrawal of a number of closed cars on the Bay State Street Railway for remodeling recently led to an investigation by the management of the possibilities of equipping some of their open cars for peak-load shop service in winter. A fourteen-bench car thus equipped was placed in service on Jan. 24 on the Neponset-Quincy Point line. The car is at present run as an express smoker for men only without stop between Neponset and the Fore River Shipbuilding Corporation's plant, a distance of about 4 miles, the running time being twenty-two minutes compared with twenty-eight minutes by ordinary cars making stops. A single 5-cent fare is charged, and on three recent trips the car carried a total of 284 passengers, the seating capacity being seventy compared with a seating capacity of thirty-four in the usual closed cars operated on this line.

The most interesting features of the car are the use of electric heaters beneath twelve of the fourteen seats, and the provision of transparent, non-inflammable win-



SUMMER CAR EQUIPPED FOR WINTER SERVICE, BAY STATE STREET RAILWAY

dows 15 in. x 21 in. in size in Pantasote curtains. The car is equipped with forty Gold electric heaters of the cylindrical type wired in two circuits. All seats are equipped except the two end seats, and the corresponding two seats just inside the bulkhead are provided with only two heaters each. The heaters have sheet-iron guards on each side to prevent contact with passengers' shoes. Transite guards 3/16 in. thick are also provided under the seats to serve as heat insulators.

HEATING TESTS

Before the cars were placed in service a number of tests of the heating equipments were made. With an outside temperature of 22 deg. Fahr. and the car standing still with curtains lowered, after a preliminary heating of one hour on half-heat, the temperature at No. 1 end inside rose from 22 deg. to 34 deg.; in the middle from 24 deg. to 36 deg.; and at the No. 2 end, from 24 deg. to 38 deg. All the heaters were later switched into circuit, and in a forty-five-minute heat run the temperature of No. 1 end, which had reached 44 deg., rose to 78 deg.; the temperature in the center rose from 50 deg. to 78 deg., and the rise at No. 2 end was from 52 to 76.5 deg. During the forty-five-minute run above summarized, the outside air temperature was 29 deg. Readings were at the height of the passengers' heads.

In a test run from the Washington Avenue carhouse, Chelsea, to Woodlawn and return, about 2 miles, with all heaters on, the interior temperature fell from 77 deg. to 52 deg. between the carhouse and Woodlawn, and from 52 deg. to 49 deg. on the return run, the outside temperature being 29 deg. These figures indicated the feasibility of operating such a car with entire comfort. The current consumption with all heaters in service is 63 amp. at 550 volts, but it is not likely that it will be necessary to run at full heat a large percentage of the time, and it is also to be borne in mind that the service is rendered only in the morning and evening rush hours. This brings the heating demand on the system peak, but the increased carrying capacity of the car partly offsets this. The usual inclosed cars of the company at the terminals of the Quincy Point line were literally deserted by the passengers in favor of the converted unit, and it has been decided to place similar cars in service in Brockton, Lynn, Salem, Lowell, Lawrence, Taunton, Haverhill and Fall River.

The following table gives the cost of adapting the car for winter service:

Temporary vestibules	\$30.00
Changing register cords	1.60
Forty Gold heaters	100.00
Two heater switches	14.00
Window material	15.00
Installation of heaters	29.00
Installation of window material	10.00
Transite guards	12.00
Pantasote end curtains	35.50
Total	\$247.10

This work can be done in four days, and the car can be dismantled for summer service in half a day. As shown in the illustration, glass windows are used in the converted vestibule, and over the middle window is a 5-in. wooden visor for weather protection. This window is provided with spring hinges, and when the window is opened it is held over the motorman's head in a plane parallel with the visor in front of the window. Extra side curtains of Pantasote are provided to inclose the side of the platform.

The fare register cords have been placed on the interior of the car. It is possible to collect the fares by opening the side curtains at only three or four points in the car, but in the actual handling of traffic the passengers seem to prefer to have the conductor climb over the seats inside of the car rather than to open the curtains.

The flexible windows in the curtains provide ample light for reading. They are made of a material known as "Celestron," furnished by the Chemical Products Company of Boston, Mass. The cost of this product is 30 cents per square foot, compared with 25 cents for celluloid, but celluloid windows are regarded as unsafe, and their use is prohibited by the insurance companies and the Massachusetts Public Service Commission.

New Rules for Cleaning Buffalo Cars

The International Railway, Buffalo, N. Y., has created the position of assistant general carhouse foreman to supervise the cleaning of its cars. Heretofore this work was handled by the carhouse foreman of the separate barns. The new cleaning and sanitary rules are:

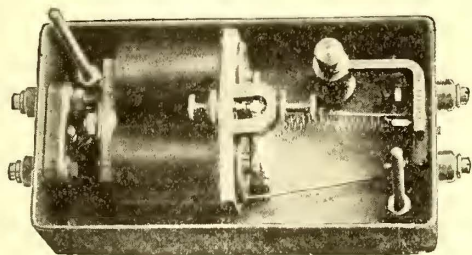
"In the interior of the car, all woodwork, moldings, headlinings, window posts, seat cushions and backs, must be thoroughly wiped down with cheesecloth dusting rags; lamps must be thoroughly cleaned with damp chamois skin; all soiled signs must be replaced with clean ones; ironwork in cabs and seat pedestals must be thoroughly wiped down, first with damp kerosene waste, then with dry waste; all pockets must be thoroughly cleaned with wide-blade scrapers to be furnished for the purpose; all mopboards and floors must be cleaned

with soap and water or car cleaner; the solution must contain the proper amount of disinfectant; windows must be cleaned with pumice stone or cleaning powder; after the glass is clean it must be polished with damp chamois skin. All surfaces on the exterior must be cleaned with a special cleaner, and in dry weather the exterior must be wiped down with waste."

Relay for Controlling D.C. Circuit Breakers

The relay shown in the accompanying illustration has been developed by the Westinghouse Electric & Manufacturing Company of East Pittsburgh, Pa., to give overload protection on d.c. circuits. The operating parts of the relay include a small two-pole electromagnet with a special winding and a simple adjusting mechanism. These are inclosed in a dustproof aluminum case.

The electromagnets are so wound that the relay will operate on from 50 to 80 millivolts. It can, therefore,



OVERLOAD RELAY FOR D.C. CIRCUITS

be used with the standard 50-millivolt ammeter shunt without appreciably affecting the meter reading.

The relay is particularly applicable where it is necessary to open a circuit breaker by current other than that in the line in which the breaker is placed. For example, with three-wire generators, the circuit breaker is in the main line, but the tripping coil must be controlled by the actual armature current of the generator. By the use of the relay the circuit breaker can be located at the most convenient place in the line which it is to open, and be controlled by the current in another circuit by simply inserting an ammeter shunt in this circuit and running light leads to the relay.

Meter for Measuring the Heating Effect of Varying Currents

The continuous capacity of a railway motor which is limited by the amount of heat which it can dissipate is determined by the maximum value of the root-mean-square current at which it can operate without exceeding a safe rise in temperature. This root-mean-square current is the square root of the average of the squares of the instantaneous current values over a given period of time. The determination of the current value by the ammeter method where the current is changing rapidly is not only difficult but tiresome and expensive, especially when readings must be taken over a considerable period of time on a moving car or a locomotive.

To avoid these difficulties the Westinghouse Electric & Manufacturing Company has developed the root-mean-square meter in which all or part of the current is measured by passing it through a resistor immersed in a quantity of water. Since the heat generated is proportional to the square of the current the temperature of the water will, except for heat losses, be raised in the same proportion. Every change in current value will virtually be recorded on the basis of the square of the

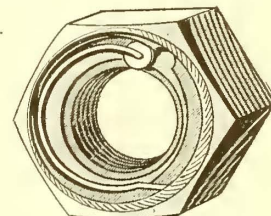
current at infinitely small time intervals by the rising temperature of the water. Rapid radiation of heat is prevented by the use of a vacuum jar, and in external appearance the meter looks very much like the ordinary thermos bottle. To determine the root mean square of the current it is necessary only to observe the elapsed time and the rise in water temperature. By applying these values to the calibration curve of the instrument the correct result can be readily determined.

By the use of proper shunts for direct-current and instrument transformers for alternating current, this meter can be used for measuring current on high-voltage as well as low-voltage circuits. Careful laboratory tests have shown that the error of this instrument is less than 2 per cent.

A Self-Tightening Combination Plain and Lock Nut

The accompanying drawing shows the "Roller" lock nut with the steel cover removed, this fitting in the recess in the nut face. The lock is a steel roller held in place by a brass spring arm which is anchored at the outer part of the nut. The nut is spun on by hand, whereupon the small steel roller wedges into the thread-way and effects an absolute lock against any backward movement of the nut. This lock, however, permits the nut to go forward so that the effect of vibration is to cause the nut to creep up or along the bolt to a tighter seat. The lock nut is therefore not affected by the stretching of bolts since it takes up slack automatically.

To remove this lock nut the application of strong wrench pressure is all that is required. In effecting this removal the roller bites deeper into the threadway, enabling the nut to turn slightly so that the roller then drops into the circular recess, thus allowing the nut to be spun off by hand. It will be observed that only the threadway is nicked, and the bolt thread itself is not injured in any way.



SELF-TIGHTENING PLAIN AND LOCK NUT

This style of lock nut is not dependent on thread friction and is longer lived than a gripping or friction lock nut. It is a combination plain and lock nut in one unit, which combines the functions of a lock nut, a plain nut, a cotter pin and a spring washer, and it is no larger than an ordinary nut. It was placed on the market at the time of the 1916 convention of the American Electric Railway Association by the Roller Lock Nut Company, Inc., New York City, and since that time it has been used successfully by many railways.

Mechanical Training Course for Boys

A systematic course of training open to boys from sixteen to eighteen years of age is in effect at the shops of the United Railways Company of St. Louis, Mo. Each apprentice furnishes his own tools, but the company provides tool boxes. The length of the course is four years. At the beginning the pay is 12 cents an hour, and this is increased at the rate of 1½ cents per hour every six months. Every apprentice must attend school at least two nights a week in conjunction with his instruction in the shops. This gives the necessary training in mathematics, drafting and applied science, the course being arranged by the master mechanic in conference with the school authorities. The tuition is paid by the railway company.

News of Electric Railways

Traffic and Transportation

Financial and Corporate

Personal Mention

Construction News

Five Electrification Projects

Lehigh Valley, Boston & Maine, Pennsylvania, Erie and Chicago Terminal All Included in Current Reports

The past week has been notable for the number of rumors that have been reported of electrification on various steam railroads. Of these the project of the Lehigh Valley Railroad is the most ambitious as well as the most definite. The company authorizes the statement that W. J. Wilgus has been retained as consulting engineer to investigate the possibility of electrifying a section of the main line from Mauch Chunk, Pa., to Pittston Junction, a distance of 63 route miles. This section is double-tracked throughout and includes a 25-mile low-grade freight cut-off past Wilkes-Barre. The company's main coal-carrying branch also is involved in the electrification project. This is a 52-mile double-track line. It extends eastward from Mount Carmel, Pa., through the anthracite mining district and joins the main line at Penn Haven Junction, just north of Mauch Chunk.

\$20,000,000 INVOLVED

From this outline of the projected electrification it is evident that the Lehigh Valley has under consideration the electric operation of the heavier part of its tonnage trains of coal, since the electrified divisions are located within the mountainous districts containing the anthracite coal fields and serving the railroad's west-bound traffic across the mountain range traversed by the main line. The total route of 115 double-track miles, including the Wilkes-Barre cut-off and sidings, if electrified, is likely to involve an expenditure approaching \$20,000,000, but in view of the heavy coal traffic that the road has handled during the past year or two, a large return on the investment should be possible. Power at a low price should be available from the several large central stations that have been constructed in the coal regions to make efficient use of refuse from the numerous anthracite mines. Data regarding the character of electric equipment to be installed are, of course, lacking at the present time, but indications are that the engineer's report on the project will be completed within a few months. A definite decision in regard to the commercial possibilities of the proposed installation will then be possible.

Less definite than the report regarding the Lehigh Valley's electrification is the rumor that Chicago's steam railroad terminals are to be electrified as a sequel to the recently announced plan of electric operation of the Illinois Central Railroad's terminal service. This has its basis, apparently, in the fact that a bill requiring electrification for all Chicago roads within ten years is to be introduced at the Illinois State Legislature now in session in Springfield, Ill.

A legislative act to provide for electrification of a 10-mile branch of the Boston & Maine Railroad between Dover and Portsmouth has also been introduced in New Hampshire. The aim here is to establish an hourly passenger service between the two cities mentioned.

BALTIMORE WORK PROBABLY NOT IMMEDIATE

A rumor to the effect that the Baltimore tunnel electrification plan of the Pennsylvania Railroad has been revived has also been going the rounds during the week. This, however, appears to have originated largely in the fact that the railroad company is endeavoring to secure permission to expand its facilities in Baltimore, since three ordinances regarding improvements to the company's line in that city have been introduced. None of these, however, includes any statement regarding electrification, and there is no warrant for expecting any immediate installation in Baltimore in connection with this matter, although the possibility of electri-

fying the main line of the Pennsylvania Railroad between Baltimore and Washington has been under consideration for several years past.

Very much the same considerations apply to a revival of the rumor that the Erie Railroad is to install electric operation on the Jersey City-North Newark section of its Greenwood Lake Branch. This has been talked of for years, and owing to the preponderance of local passenger traffic on the line, and the necessity for frequent short trains, the opportunity for economy through electrification is more or less obvious. It is doubtful, however, whether traffic is sufficiently heavy to warrant the increased investment, and at the present time the project is just about where it has been for the past five years.

Bridge Controversy in Kansas City

Bond Filed by the Kansas City Railways Secures Right to Operate Over the Kaw River

The federal court has been asked to intervene to protect street railway traffic between the Kaw River district of Armourdale, Argentine and connecting lines, and Kansas City, Mo., over the river. The specific proceeding was a temporary injunction granted at the request of the Kansas City Railways, preventing the destruction of the Kansas Avenue Bridge. The Kaw Valley Drainage Board had ordered this bridge destroyed as a flood menace. The railway was using this bridge. The company had previously been denied the use of the Twenty-third Street trafficway bridge and viaduct, which was to replace the Kansas Avenue bridge. The result would have been the stopping of railway traffic at this point, and the isolation of a large district.

HOW THE SITUATION AROSE

The situation arose because the commissioners of Wyandotte County demanded a large payment by the railway on the new viaduct, whereas the company's share of expense on the viaduct was otherwise provided for in a contract that was made last summer by the company with the commissioners.

The Kansas Avenue bridge over the Kaw River has been used for years for wagon, foot and street railway traffic. The Twenty-third Street viaduct and bridge were to replace it. The building of the temporary approach on the Missouri side, and the completion of track-laying on the entire bridge and viaduct, and approaches, made possible the use of this substitute bridge almost at once. Just as the company was preparing to use the new structure, however, and when the Kaw Valley Drainage Board had issued its order for the destruction of the Kansas Avenue bridge, the county commissioners demanded that the company pay to the county \$250,000 before the commissioners would allow the company to use the trafficway. The \$250,000 represented one-half the cost of the trafficway. With one bridge ordered destroyed and the use of the other interdicted except on terms involving disregard of a suit that was pending the company as a last effort in its own interest appealed to the federal court.

On Feb. 1 an agreement was reached in the federal court whereby the company will put up a bond and the Wyandotte County Commissioners will allow the company to use the Twenty-third Street trafficway as soon as the Kaw Valley Drainage Board begins the destruction of the Kansas Avenue bridge. The controversy over the payment of the railway's share on the trafficway is left for settlement to the suit now pending. A bond of the company will guarantee that it will pay in accordance with the ruling of the court in that suit.

Col. Williams Hits Commission

Asks if Regulation Is Worth the Price—Commissioner Whitney Replies

The current number of the monthly publication of the Brooklyn (N. Y.) Rapid Transit Company contains two contributions from the pen of Col. Timothy S. Williams, president of the company. The first severely criticizes certain "short-sighted men in office who play the rôle of demagogue," and later on says that "indulgence in official graft" has given way to "political hypocrisy." The second article, "The Price of Regulation," deals directly with the Public Service Commission. The first article said in part:

"There will be at least one fixed rule of conduct scrupulously adhered to so long as the writer [President Williams] has any influence in the management of the B. R. T. system. That rule is frankness, observance of obligations and honesty. If, as occasionally happens, short-sighted men in office play the role of demagogue, and seek to make personal capital unjustly at the expense of our corporation, we shall expect to tell the truth, even though that truth may offend the sensibilities of those whom it hits. Indulgence in official graft has fortunately become obsolescent, but political hypocrisy is conceded to be more prevalent than ever. One way of meeting this new tendency is by cajolery (commonly known as 'jollyng'), flattery and meekness, so that the Pharisee in office may gratify his taste for publicity while at the same time privately bargaining with the corporation. This is not the right way nor the safe way."

The second article, after discussing the third-tracking of the company's elevated lines, says in part:

"It will be remembered that when the dual system contracts were under consideration the city's representatives insisted upon a provision that even when the companies were expending their own money the Public Service Commission should have complete authority over plans, specifications, form of contract, award of contracts, and costs. The Interborough Company refused to accept all of these drastic provisions as to its own third-tracking work. The Brooklyn company deferred to the city and accepted them.

BROOKLYN COMPANY MORE CONFIDING

"The Interborough Company was more worldly wise. We were less sophisticated and more confiding. We trusted to the good faith, reasonable judgment and prompt action of the Public Service Commission. The Interborough went promptly to work, made its own plans and specifications, let its own contracts (without competitive bidding), determined its own costs, and the result is a completed third-track in operation a whole year.

"The Brooklyn company went to work with equal zeal, but at nearly every step has encountered delay, criticism, supervision, or opposition as the penalty for subjecting its efforts and expenditures to what is called official regulation and supervision. Is regulation worth the price? And why was there discrimination?"

MR. WHITNEY'S ANSWER

To these criticisms Travis H. Whitney of the Public Service Commission replied in part:

"The statements made by Colonel Williams are mostly untrue. As a matter of fact, the B. R. T., with the alleged burden of approval by the commission, has succeeded in completing more mileage of rapid transit lines and in getting them into operation earlier than has the Interborough. The work upon which he congratulates the Interborough is the third-tracking of the Second, Third and Ninth Avenue lines, completed and put into operation on Jan. 17, 1916, to the extent of a little over 12 miles of track. At that time the B. R. T. had at least three times this mileage of rapid transit lines in operation. Apparently by this article Colonel Williams is seeking to convince his directors and stockholders that the Public Service Commission has delayed the completion of the Fulton Street third-tracking. As to this I merely wish to state that shortly after the dual contracts were signed Colonel Williams himself applied to the commission in the matter of the relocation of the elevated in Adams Street, thus making the lower end of Fulton Street an open question."

City Rejects Payment

Seattle Rejects Payment Tendered with Conditions Attached

The Puget Sound Traction Light & Power Company, Seattle, Wash., as noted in the ELECTRIC RAILWAY JOURNAL of Feb. 3, page 221, tendered the sum of \$64,387, representing 2 per cent of its gross earnings for 1916, to the city recently under protest, with the stipulation that in accepting it the Council agreed not to begin a suit to require compliance with franchise obligations that require paving of right-of-way with the same material and at the same time that the remainder of the street is paved. Walter F. Meier, assistant corporation counsel of the city, advised the Council to return the check to the company unless the company was willing to pay the sum named under protest and without further conditions. On Jan. 24 the Council, in reply to the tender, adopted the report of its finance and franchise committees and rejected the tender. In his opinion to the Council Mr. Meier said:

"Whether the city shall insist upon the enforcement of the obligations inserted in the franchises granted by it is wholly a question of policy, determinable by the legislative department of the city. The acceptance of such tender, with the conditions annexed, would constitute a voluntary surrender by the city of its present right to insist upon complete compliance with the terms and conditions inserted in the franchises now held by the Puget Sound Traction, Light & Power Company. We are unwilling to say that the acceptance of a tender conditioned as this one is would not lead to undesirable legal complications, and unless the city desires to reverse its policy, then the check of the company should be returned with the statement that if the company desires to pay the amount due under protest but without attaching any conditions thereto, other than its payment under protest, the same will be accepted. The city does not recognize the right of the company to attach any conditions whatever to the payment of 2 per cent of its gross earnings as required by its franchises, and unless the company complies with this condition, the city will institute proceedings to compel compliance in this respect."

WHAT THE COMPANY ASKED

Nearly two years ago the company petitioned the Public Service Commission for an order relieving it from certain of its franchise obligations, the payment of 2 per cent of its gross earnings to the city annually, the paving of its right-of-way and the payment of any portion of the cost of Lake Washington Canal or other waterway bridges. Since then the tax on gross earnings has been paid under protest, and the right-of-way has been planked rather than paved. In tendering the amount due for 1916 the company took into consideration the action of the Council in directing that suit be instituted to force it to pave its right-of-way rather than to plank it, and made it a condition of acceptance of the gross earnings tax that no such suit would be started until the Public Service Commission had acted on its petition for relief.

Labor Opposes Constabulary

Representatives of organized labor appeared in force at Albany on Feb. 13 at a joint hearing before the finance committee of the New York Senate and the committee on ways and means of the Assembly to oppose the bill introduced by Senator Mills to create a State constabulary. A similar bill was defeated in the Legislature last year, largely on account of labor opposition. The labor men were the only ones to oppose the present bill. They heckled George F. Lum, deputy superintendent of the Pennsylvania State Police, and attacked the work of the Pennsylvania constabulary in the recent strike of the employees of the Wilkes-Barre (Pa.) Railway. Representatives of labor insisted the bill should be amended so as to eliminate the proposed constabulary as an agency for the maintenance of order in labor disturbances. They want the activities of the force confined to patrol duty and the suppression of crimes and disorder in the rural districts. President Holland of the State Federation of Labor said that industries which desired special protection should pay for it and not seek to shift the expense to the taxpayers.

Operating Allowances Discussed

The request of the Cleveland (Ohio) Railway for an increase in its operating allowance under the Talyer franchise has brought forth a flood of suggestions and criticisms from the friends of 3-cent fare. Councilman Stolte has proposed competing lines, although the city has guaranteed the dividends on railway stock. Councilman Harry C. Gahn believes that if the Council refuses the increase requested the matter should be submitted to a referendum vote. Fielder Sanders, street railway commissioner, is protesting against paying off the operating and maintenance deficits in lump sums at once. He argues that the company should charge these amounts off in monthly payments.

Commissioner Sanders has submitted his ideas of a subway terminal to the City Plan Commission, but has not yet made his report to the City Council on his investigation of the matter in eastern cities.

Councilman Taylor has proposed that the street railway commissioner's office be done away with and that the money spent by that office be applied as relief to the allowances for operation and maintenance, which are now insufficient.

Wheeling Wages Readjusted

Supplement to Existing Contract on Wages Agreed to by Company and Men

On May 1, 1915, the Wheeling (W. Va.) Traction Company entered on the fourth three-year agreement with its trainmen, as local union No. 103 of the Amalgamated Association of Street & Electric Railway Employees of America. This agreement provided for a sliding scale of wages ranging from 22 cents an hour for the first year of service up to a maximum of 31 cents an hour during the last year of the contract, the men being increased 2 cents an hour upon their respective anniversaries with the company. On Jan. 1, 1917, the scale ranged from 22 cents to 30 cents, and the contract still had sixteen months to run.

During the early part of January the union, citing the increased cost of living as its reason, passed a resolution requesting the company to change Sec. 1 of the existing contract. This section covered the wage scale, and made it necessary for a man to be in the service at least five years to reach the maximum wage. The change which was asked was to the following scale: first six months, 30 cents; second six months, 32 cents; third six months, 34 cents; after eighteen months, 36 cents.

In its consideration of the matter the company was governed by many factors. Due to the unusual industrial conditions and the high price paid for labor particularly by the steel mills of the Wheeling district the company was unable to obtain the class of men it desired for its service. In addition it felt that the men were entitled to at least a temporary increase due to the unusually high cost of living. For these reasons the company was willing to deal with the men for a revision of Sec. 1 of the existing contract, but did not see fit to grant the increase asked for by the union. After several conferences between the officials of the company and the union, a supplement to the existing agreement was signed on Feb. 5, providing for the payment of 3 cents an hour from Jan. 1 to April 30, 1917, in addition to the rate called for by the existing contract; from May 1, 1917, to the expiration of the present agreement, or April 30, 1918, 4 cents an hour in addition to the rates called for by the contract for the first and second year in the service of the company and 3 cents an hour in addition to the contract rate to those men more than two years in the company's service. This means that until April 30, the scale will be from 25 cents to 33 cents and from May 1, to the expiration of the agreement, from 26 cents to 34 cents an hour, or an increase over the contract rate of approximately 10.8 per cent for the first mentioned period and 11.2 per cent for the last-mentioned period.

In addition the company voluntarily suggested and incorporated in the supplemental agreement a provision that its men receive an additional 3½ cents an hour while breaking in students. No additional pay had been allowed for this work in the past and the company believes that with this inducement its students will be better trained.

Mr. Dempsey Sentenced

Fine of \$500 Imposed in What Is Said to Be First Conviction for Failure to Obey Commission Order

John J. Dempsey, superintendent of elevated transportation of the Brooklyn (N. Y.) Rapid Transit Company, was fined \$500 on Feb. 13 by County Judge Roy for failing to obey an order of the Public Service Commission. The fine was paid under protest. Mr. Dempsey was convicted of failing to stop the Fifth Avenue "L" trains at Third Street, as ordered by the commission. Judge Roy said:

"The verdict in your case, Mr. Dempsey, is more a conviction of the railroad system of this borough than a conviction of you personally. The evidence presented by the District Attorney fully justified the conviction. The order of the commission which you were charged with failing to obey was plain and simple and could not have been misunderstood. Yet for over three years it was repeatedly disobeyed. The vast majority of our citizens have a deep-seated conviction that the railroad has persistently sought to discredit the commission and its orders. I am told this is the first conviction in this country for violation of a Public Service order. Probably for this reason, but also because you are not an officer of the corporation, I consider the ends of justice will be met by the imposition of a fine of \$500."

In the plea which he made for Mr. Dempsey before sentence was passed Attorney Marsh for the company reviewed the entire proceeding. He concluded his remarks with this appeal to the court:

"Unless the court believes the violation was willful and intentional, it would seem to be unthinkable that a sentence of imprisonment or anything but a nominal fine should be imposed."

First Arbitration in Kansas City

Outside Expert Passes Upon Questions in Dispute Under the New Franchise

Under the franchise of the Kansas City (Mo.) Railways the city's interests are handled by Robert P. Woods, and the company's by Philip J. Kealy, who together constitute the board of control. The franchise provides that when these members are unable to agree the Court of Appeals shall act as or appoint an arbiter. The first case of difference developed about a month ago. The court appointed James E. Allison, at one time chief engineer and commissioner of the St. Louis Public Service Commission, to render a decision. The city contended that \$30,000 paid by the company in lieu of transporting dirt from the station park, which moving of dirt had been required in the franchise, should be charged to operating expense. Mr. Allison held that it should go into the company's valuation. The city contended that \$41,000 paid to the city and to the city's attorneys and appraisers who aided in the negotiations for a new franchise should be charged to the reorganization fund, and not be charged to either capital or operating expense. Mr. Allison upheld the city's contention. The city contended that all expense of constructing new tracks, tearing out the old tracks, and making replacements should be charged to operating expense. Mr. Allison decided that such expenses are a capital charge and should be added to the investment.

Power Improvements in Detroit

Early in the spring the Detroit (Mich.) United Railway will begin work on extensive improvements at power station B, Atwater and Riopelle Streets. Included in the improvements will be a new smokestack, 250 ft. high, 14½ ft. in diameter inside, at the top.

There are at present three sets of boilers, eight 250 hp., eight 300 hp. and eight 350 hp. The battery of eight 250-hp. boilers will be removed and for the present in place of these boilers will be installed four type M-22 Stirling boilers of 603 hp. each with superheaters. Space will be left for the installation at a later date of two additional boilers.

This work will involve substantial building alterations. Excavations will be made for a basement, the floor of which will be below the grade of the present boiler room floor.

The new boiler room floor will be several feet above the level of the present boiler room floor. The section of the roof over the eight boilers that are to be removed will be raised about 18 ft. The present bucket coal conveyor, which now serves the eight 250-hp. and the eight 300-hp. boilers, will be maintained in operation throughout the alterations. The present steel and concrete coal bunkers will be enlarged by extending the sides vertically. Larger steel supporting columns for these bunkers will replace the present columns. A new ashbin with an independent ash-conveying system will be built. Two Griffin steam ash conveyor systems will be installed, one from the present 300-hp. boilers, and one from the new 600-hp. boilers. Six retort Taylor stokers will be installed under the boilers, and Diamond soot blowers will be used. Turbine driven pumps will be used for boiler feed. The distance of the mud drums of the Stirling boilers above the floor line will be 8 ft., which with the ample capacity of the stack will insure smokeless operation.

Increase in Wages in Ohio.—The Ohio Electric Railway, Springfield, Ohio, operating 617 miles of city and interurban lines, has announced an increase in the wages of its trainmen amounting to from 2 to 3 cents an hour.

Increase in Wages in Portland.—The Portland Railway, Light & Power Company, Portland, Ore., has granted an increase in pay to its trainmen and has agreed to allow for "deadhead" time. Details will be announced shortly.

Surface Contact System Reappears.—In the basement of a large building in Allentown, Pa., a working model of the surface contact system has been rigged up for public demonstration. It is reported that a stretch of road equipped with the system will be built in Allentown for demonstration purposes.

Progressives to Consider Municipal Ownership.—At a conference of Progressive leaders at Atlanta, Ga., on Feb. 14 plans were laid for the national conference of Progressives at St. Louis on April 12. Resolutions were adopted approving the speech of John M. Parker, New Orleans, the candidate for vice-president on the Progressive ticket at the recent national election, recommending that the St. Louis convention consider public ownership of public utilities.

Bill to Cut Commission Powers.—As an aftermath to the request of the Tacoma Railway & Power Company to the Washington State Public Service Commission to be relieved of certain obligations imposed by the ordinance under which it is operating, a bill has been introduced in the Legislature by Senator Johnson, Spokane, amending the Public Service Commission act so as to put it beyond the power of the commission to grant any such relief from the provision of any franchise, ordinance or law under which a public service corporation is operating.

Mr. Thompson to Report That Regulation Has Failed.—In a speech which he made on Feb. 10 Senator George F. Thompson, chairman of the Legislative committee which inquired into the workings of the Public Service Commissions in New York, said: "The committee is going to report to the Legislature that regulation of public utilities has failed, because the Public Service Commission has not the power to regulate them, and because the commission is compelled to perform inconsistent duties. Responsibility is not centralized in anybody."

Hamilton Strike Settled.—The strike of the employees of the Cincinnati, Dayton & Toledo Traction Company, Hamilton, Ohio, has been settled and the men have returned to work. The representatives of the men and Benton S. Oppenheimer, the receiver of the company, are to confer with the end in view of settling such differences as exist, with arbitration as the final recourse for the adjustment of any matters they are unable to dispose of by agreement between them. The final settlement, however, is to be subject to approval by the court having jurisdiction over the property.

Denver Company Advertises Among Its Own Men for Help.—I. M. Ristine, supervisor of employment of the Denver (Col.) Tramway, advertised as follows over his own name in *The Tramway Bulletin* for January, 1917: "Wanted—An Engineer: Mr. Kendall wants a man with engineering education or experience to work out the most economical schedule speed for each city car line, with the

corresponding power consumption and per cent coasting. It is the policy of the Denver Tramway to make appointments from among present employees whenever the right man for the job can be found without going outside of the organization. Applicants please apply at Room 202." Mr. Kendall is efficiency and traffic engineer of the company.

Conference on San Francisco Tracks.—As a means of obviating the necessity for the construction of additional tracks on upper Market Street by the Municipal Railway, two compromise proposals were presented at a special meeting held in San Francisco, Cal., on Feb. 3 by the public utilities committee of the Board of Supervisors. One of these proposals was offered by Jesse W. Lilienthal, president of the United Railroads, and the other by M. M. O'Shaughnessy, city engineer of San Francisco. Both measures will afford direct transportation through the Twin Peaks Tunnel down Market Street over the tracks now in use. The committee took the matter under advisement and voted to lay the matter over for another week. No action was taken on the resolution proposed earlier in the week for the purchase of the United Railroads by the city.

Programs of Association Meetings

Central Electric Railway Association

The annual meeting of the Central Electric Railway Association will be held at the Claypool Hotel, Indianapolis, Ind., on March 8 and 9. The executive committee meeting will be on the evening of March 7. On the evening of March 8 the annual dinner and dance will be held. This promises to be a particularly interesting feature as the committee in charge has arranged for a number of new features.

New England Street Railway Club

The February meeting of the New England Street Railway Club will be "Maine Night." It will be held at the Copley Square Hotel, Boston, Mass., on Feb. 22. All arrangements for the meeting have been made by A. H. Ford, vice-president of the club and vice-president and general manager of the Cumberland County Power & Light Company, Portland, Me. Mr. Ford has been able to secure as speaker William T. Cobb, of Rockland, Me., former Governor of that State, of whom a brief biography is published elsewhere in this issue. His subject will be "Public Relations."

New York Electric Railway Association

The program for the twenty-second quarterly meeting of the New York Electric Railway Association, to be held at the Hotel Astor, New York, N. Y., on March 2, has been announced. The program of papers follows:

"Indemnity and Surety Bonds," by William N. Tomlins, Jr., vice-president and manager of the Metropolitan Department of the American Surety Company, New York.

"Redeemable Cash Fare Receipts," by R. W. Palmer, general manager of the Auburn & Syracuse Electric Railroad, Auburn, N. Y.

"Recent Tendencies in Taxation Matters," by R. L. Rand, vice-president of the Richmond Light & Railroad Company, New Brighton, N. Y.

Methods of discipline in the following departments will be discussed: (a) Ways and Structures, (b) Mechanical, (c) Power, (d) Transportation, (e) Office.

Instead of having a written question box, it is proposed to have delegates representing member companies present their troubles in person at the meeting with a view to exchanging ideas and receiving the benefits of the ideas of others, including representatives of the manufacturers.

The meeting will conclude with a formal dinner at the Hotel Astor at 7.30 o'clock, after which several prominent speakers will address the association. All requests for hotel accommodations should be made to the Hotel Astor. At this meeting a new policy, on the part of the association, will be inaugurated in that a charge of \$5 will be made for each dinner ticket partially to defray the expense of the dinner and the meeting. Tables will be arranged to accommodate parties of eight. Places will be assigned in the order in which applications are received. A buffet luncheon will be served during the progress of the meeting.

Financial and Corporate

Annual Reports

Chicago City & Connecting Railways Collateral Trust

The annual report of the Chicago City & Connecting Railways Collateral Trust, Chicago, Ill., for the calendar year 1916 shows a net income increase of \$279,223 or about 50 per cent over 1915. This gain was secured through a rise of \$285,505 or 15 per cent in gross income and an increase of only \$6,282 or 0.5 per cent in total disbursements. The surplus, however, because of a larger dividend on the participation shares, was less than half that at the end of the preceding year. Dividends at the rate of \$3.25 per share were paid on the 250,000 preferred participation shares outstanding as compared with \$2 in 1915.

The increase in disbursements was brought about by increased taxes in spite of lower interest charges and less general expense. The taxes increased \$17,279, or about 200 per cent, on account of the federal tax on net income. This item increased this year, and in addition, the new law raised the rate from 1 to 2 per cent. In 1913 and 1914 the trust paid no taxes at all, because the counsel for it believed that it was not subject to taxes, and this was substantiated by the Government in a minor decision. Later the Government reversed its decision, and the trust has been paying the taxes since, although suit is now pending for their recovery.

The income statement for the last two years follows:

	1916	1915
Dividends	\$1,979,750	\$1,704,352
Interest	91,256	88,855
Other income	29,662	21,956
Gross income	\$2,100,668	\$1,815,163
Interest on bonds	\$1,087,208	\$1,094,750
Bond redemption	105,000	105,000
Interest on bills payable	24,908	24,784
General expense	20,978	24,557
Taxes	26,052	8,773
Total disbursements	\$1,264,146	\$1,257,864
Net income	\$836,522	\$557,299
Dividends on participation shares...	812,500	500,000
Surplus income	\$24,022	\$57,299

York Railways

Although there was an extraordinary increase of \$59,134 or 12.4 per cent in the operating costs of the York (Pa.) Railways during the fiscal year ended Nov. 30, 1916, as compared to the preceding one, this was more than met by the gain of \$139,196 or 16.8 per cent in gross earnings. The 1916 totals were \$967,496 and \$537,248 respectively.

The so-called "operating expenses" totaled \$445,946, an increase of 8.4 per cent, while the allowances for depreciation amounted to \$40,541, a rise of 96 per cent, and taxes to \$50,760, an increase of 10 per cent. In spite of these, however, the net earnings at \$430,248 showed an increase of \$80,062 or 22.8 per cent. The gain was reduced somewhat by an increase of \$19,601 or 8.1 per cent in interest and bond discount, but the net income totaled \$171,172, a gain of \$60,460 or 54 per cent. After the payment of \$100,000 in dividends and certain small adjustments the surplus on Nov. 30, 1916, amounted to \$208,323. As noted in the ELECTRIC RAILWAY JOURNAL of Jan. 6, the company has declared 2½ per cent of deferred dividends on its preferred stock.

The expenditures charged to cost of property during the year for the railway department were \$2,936 for additional track and \$31,919 for new cars and equipment. The total capital expenditures, covering the lighting and heating divisions as well, were \$136,499.

The York Railways was incorporated under the laws of Pennsylvania in 1907 and controls all the local lines in York and also owns practically the entire stock of the Edison Light & Power Company, York. The total track operated is 84.46 miles, of which 25.79 miles are in York.

Merger Planned in Spokane

Washington Water Power and Inland Empire Lines in Tacoma Involved

After nearly fourteen years of competition the Washington Water Power Company and the Inland Empire Railroad are trying to arrange for the consolidation of their local lines in Spokane for their mutual benefit. The city of Spokane looks favorably upon the plan, particularly as it seems likely to result in corporation ownership with municipal control.

The move toward consolidation comes as the result of a recent opinion handed down by the Public Service Commission forbidding the abandonment of owl cars as a measure of economy and requiring the companies to obtain the consent of the commission to the use of one-man cars. As noted in the ELECTRIC RAILWAY JOURNAL of Jan. 27, page 184, the commission actually suggested the merger plan as a substitute. Attorneys for the companies acted at once upon the suggestion and a bill providing for the consolidation or lease of the properties is before the Legislature.

At many places in Spokane the tracks of the two systems are needlessly close to one another and four of the main lines of the Washington Water Power Company parallel those of the Inland Empire System for more than twenty blocks at a distance apart of never more than three streets. In one instance the two companies use the same track for a distance of nearly half a mile.

The Washington Water Power Company was first to adopt the pay-as-you-enter cars, and soon after the advent of the jitney it introduced the one-man car. Opposition developed at once to the one-man car, and the commission, in the decision referred to previously, held that the companies should in the future submit to it for approval lists of routes of their respective lines upon which they desired to operate such cars and that the cars should be approved by the commission before they were placed in service.

The pay-as-you-enter car as operated in Spokane has been approved by the public, and the prejudice against the one-man car is fast disappearing. It is not uncommon, however, on account of the multiplicity of service, for cars on such lines as the one running to Fort Wright, to make the entire trip to the city with a single passenger after the evening rush hour. Small branch lines are run across certain sections of the city connecting remote districts with the main lines which go to the downtown section, and these never handle traffic which one-man cars could not easily carry. It is on such lines that the single employee system was first worked out and the plan has been developed until it is used on all lines of the Washington Water Power Company now except during rush hours, when a conductor stands in the front vestibule with the motorman to collect fares.

In referring to the bill placed before the Legislature by the company attorneys, C. S. MacCalla, general manager of the Washington Water Power Company, said:

"No one can say at this time what we will do if this bill is passed, but even if we wanted to we could not carry out the suggestion of the Public Service Commission without a law of this kind. Districts that now have two lines operating on ten-minute schedules could be served just as well by cars on one line running every five minutes. Both of the present systems could be operated from one power plant. It has been figured that an amalgamation would mean a saving of 20 per cent in trackage and 25 per cent in operating expense."

As for the jitney, which has gained a strong foothold in Spokane, that form of transportation would seem likely from the course that events are taking to be confronted soon with a consolidation of the existing street railways, a keener fight than ever for patronage and possible municipal intervention through probable participation by the city in the management of the street railways.

The Spokane & Inland Empire Railroad operates 45 miles of track in Spokane through its ownership of the Spokane Traction Company. The Washington Water Power Company operates in Spokane through its ownership of the Spokane Street Railway, the Spokane Cable Railway, the Spokane Electric Railway, the Ross Park Street Railway and the City Transit Company. In all, the company owns and operates 112 miles of street and interurban railway.

\$3,500,000 Deal Completed

Control of Ironwood and Bessemer Properties Passes to L. E. Myers

L. E. Myers of the L. Myers Company, contractors, Chicago, Ill., has purchased the Ironwood & Bessemer Railway & Light Company, Ironwood, Mich., including the Gogebic & Iron Counties Railway & Light Company, the Ashland Light, Power & Street Railway, Ashland, Wis., the Ashland Power Company, Hurley (Wis.) Water Company, and Ironwood Water Works Company. The Big Falls, Tylers Fork, Brownstone Falls, Copper Falls and Superior Falls power developments on the Montreal, Flambeau and Tylers Fork Rivers are also included in the transfer. On the completion of the power development work that is now under way these properties will comprise about 40,000 hp. in water power and steam auxiliaries. About 9000 hp. in steam plants is under construction. The consideration involved in the sale was about \$3,500,000. L. E. Myers has been elected president of the several companies and L. N. Bosen of the Myers Company has been elected vice-president. The present local managements will be continued.

Chicago Agreement Continued

The three-year operating agreement entered into by the Chicago Railways and the Chicago City Railway in January, 1914, to form the Chicago Surface Lines as the operating company, was renewed at a meeting held on Feb. 7, for another three-year period. The following members of the board of operation were re-elected: Henry A. Blair, Charles C. Adsit, Wallace Heckman and John M. Roach, representing the Chicago Railways, and Leonard A. Busby, H. B. Riley and F. O. Wetmore, representing the Chicago City Railway. Mr. Blair was re-elected chairman of the board and Mr. Busby, president. F. D. Hoffmann was re-elected secretary and assistant treasurer; M. B. Orde, treasurer; Frank L. Hupp, assistant secretary; John J. Duck, general auditor, and W. W. Gurley, general counsel.

Empire United Reorganization

Formal Plan Not Announced—Unofficial Statements Indicate Segregation of Properties

The formal plan of reorganization of the Empire United Railways, Inc., Syracuse, N. Y., has not been announced. Unofficial statements in regard to the proposed plan indicate, however, a readjustment of the finances of two of the constituent companies without sale at receivership, and their consolidation into a new company, and the segregation of the property of the Rochester, Syracuse & Eastern Railroad.

The new company to take over the Syracuse, Lake Shore & Northern Railroad and the Auburn & Northern Railroad will, it is said, be financed and managed by Ford, Bacon & Davis, New York, N. Y. This company will likely be capitalized on the basis of \$500,000 of authorized three-year 6 per cent notes, \$1,000,000 of authorized Series A 6 per cent cumulative preferred stock, \$1,250,000 of authorized Series B 6 per cent non-cumulative preferred stock and \$1,500,000 of authorized common stock. Of these securities there will be issued at this time all of the authorized Series B preferred stock and all of the common stock, but only \$350,000 of the three-year notes and \$200,000 of the Series A preferred stock. The basis of the distribution of these securities has not been indicated, nor has any statement been made as to how under the plan as so far developed the holders of the preferred and common stocks of the Empire United Railways would participate.

The following statement is credited to James M. Gilbert, chairman of the protective committee of bondholders of the Syracuse, Lake Shore & Northern Railroad.

"A proposition was submitted to us by the committee representing the bondholders of the Empire United Railways, which contemplates the payment in full of the unpaid interest upon the bonds of the Syracuse, Lake Shore & Northern Railroad, together with the foreclosure expenses and the expenses of this committee.

"The plan further provides for the discontinuance of the pending foreclosure proceeding and the discharge of the receivers appointed therein, and the continuance of the bonds

of the Syracuse, Lake Shore & Northern Railroad as a first lien on the property covered by the mortgage securing them.

"As this plan puts these bondholders in precisely the position they would have been in if there had been no default in payment of interest, and this at no expense to them, and also provides the road with sufficient cash to take care of its capital requirements, thus greatly improving the value of the security for these bonds, we do not see how, in justice to the bondholders whom we represent, that we could refuse consent."

Brooklyn (N. Y.) Rapid Transit Company.—Eleven of the subsidiary companies of the Brooklyn Rapid Transit Company held annual meetings during the week ended Feb. 3. In the Coney Island & Gravesend Railroad directorate, Howard Abel, comptroller of the Brooklyn Rapid Transit Company, was elected to succeed J. F. Calderwood, who resigned some time ago as vice-president and general manager of the Brooklyn Rapid Transit Company. The directors of the other companies were all re-elected.

Gary, Hobart & Eastern Traction Company, Hobart, Ind.—The court has ordered the sale of the property of the Gary, Hobart & Eastern Traction Company, which has been in the hands of Judge O. L. Wildermuth as receiver.

Georgia Railway & Power Company, Atlanta, Ga.—G. W. Brine has been elected a director of the Georgia Railway & Power Company to succeed Asa G. Candler, who resigned from the company before taking the office of Mayor.

Haytian-American Corporation, New York, N. Y.—P. W. Chapman & Company, Breed, Elliott & Harrison, Lawrence Turnure & Company and Hartshorne & Battelle, New York, N. Y., are offering for subscription at 100 and accrued dividend \$5,500,000 of 7 per cent cumulative convertible preferred stock of the Haytian-American Corporation, owning and operating railroad, public utilities and sugar properties in the Republic of Hayti. The preferred shares will be accompanied by 25 per cent in common shares and 50 per cent in founders' shares.

Laurel Light & Railway Company, Laurel, Miss.—H. N. Whitney & Sons are offering at 100 and interest the unsold portion of their block of \$150,000 of 6 per cent first-mortgage gold bonds of the Laurel Light & Railway Company. The bonds are dated Dec. 12, 1911, and are due July 1, 1936. The bonds are a first mortgage on all of the street railway property acquired since organization and also a lien on the light and power property in Laurel, subject only to \$80,000 of bonds of the Laurel Electric Power & Light Company which cover only the original electric light property in Laurel. Eighty thousand dollars of the bonds of the Laurel Light & Railway Company are reserved to retire the bonds of the Laurel Electric Power & Light Company. With the issuance of \$12,000 of additional bonds of the Laurel Light & Railway Company, for additional property, the mortgage will be closed. The Fidelity Trust Company, New York, N. Y., is trustee under the mortgage given to secure the bonds.

Milwaukee Electric Railway & Light Company, Milwaukee, Wis.—The annual meeting of the stockholders of the Milwaukee Electric Railway & Light Company will be held at the office of the company in Milwaukee, on Feb. 21, for the purpose of electing three directors to fill the vacancies caused by the expiration of the term of office of the directors of the third class; "to consider and take action upon the proposition of purchasing the properties and franchises of other utilities," and for the transaction of other business.

Oakland, Antioch & Eastern Railway, Oakland, Cal.—An application has been filed with the California Railroad Commission by the Oakland, Antioch & Eastern Railway for authority to issue five one-day 5 per cent notes of a par value of \$18,000 each, in forms similar to a note at the present time held by the Union Trust Company, San Francisco, for \$90,000, which is dated Oct. 31, 1915, payable in one day and bearing interest at 6 per cent. The five notes are to be secured by bonds now securing the note to the Trust Company, the total of the bonds being \$150,000. The \$90,000 note is indorsed by John I. Walter, H. C. Breeden, W. Arnstein, S. Naphtalis and Henry T. Scott. It is proposed that these indorsers pay this \$90,000 note and take the five notes for that total amount.

Ottawa (Ont.) Traction Company.—At the annual meeting of the Ottawa Traction Company, A. J. Dawes, Montreal, was elected to the board to fill a vacancy, and former officers were re-elected.

Pine Bluff (Ark.) Company.—The controlling interest in the Pine Bluff Company has passed from Ford, Bacon & Davis interests to W. S. Robeneck, Thornton; H. C. Couch, Arkadelphia; Charles S. McCain, Little Rock; J. H. Meek, Fordyce, and J. L. Longine, Arkadelphia. Among the representatives of Ford, Bacon & Davis, New York, N. Y., on the board of directors of the company, was William von Phul, now vice-president and general manager of the United Railroads, San Francisco, Cal. The property of the company consists of approximately 9½ miles of electric railway, an electric light and power plant, water pumping station and reservoirs, with complete distribution system for both electric and water departments.

Pittsburgh & Butler Railway, Pittsburgh, Pa.—The property of the Pittsburgh & Butler Railway is advertised to be sold under foreclosure at Pittsburgh on May 9. The company was placed in the hands of the Pittsburgh Trust Company on Jan. 2, 1917, as receiver, as noted in the *ELECTRIC RAILWAY JOURNAL* of Jan. 6, page 53.

Public Utilities Company, Evansville, Ind.—The Public Utilities Company has assumed the property of the Evansville Public Service Company and is now operating the city street railway lines, the interurban line to Princeton, Ind., and the local electric lighting and gas plants, having received the sanction of the Indiana Public Service Commission to the merger.

Quebec Railway, Light & Power Company, Quebec, Que.—Justice Cassils at Ottawa on Jan. 24 handed down an opinion regarding the valuation of the Quebec & Saguenay Railway and other properties of the Quebec Railway, Light & Power Company which the Dominion Government is proposing to buy. The press reports of the finding indicated that the court inclined to the opinion that total deductions which would aggregate several million dollars should be made from the cost of the roads. A statement made in behalf of the company said that there was no ground for the interpretation of the decision as a conclusive decision adverse to the company's contentions. As a matter of fact, the deliverance is viewed by the company as favorable in the sense that all ambiguity or doubt as to the intentions of the Government in regard to the purchase must now be removed.

Salt Lake, Garfield & Western Railway, Salt Lake City, Utah.—C. F. Childs & Company, Chicago, Ill., and New York, N. Y., are offering at price to yield 5.75 per cent \$300,000 of first mortgage 6 per cent gold bonds of the Salt Lake, Garfield & Western Railway dated Sept. 1, 1916, and due serially from 1919 to 1941. The company is the successor to the Salt Lake & Los Angeles Railroad, 17 miles long. The proceeds of the issue will be spent to extend the line from Saltair to Garfield, 3 miles; to electrify the entire system; to equip the road with new and modern electric rolling stock. Any residue will be applied to liquidating indebtedness. The plans for electrification were reviewed briefly in the *ELECTRIC RAILWAY JOURNAL* of Feb. 10, page 263.

Sandpoint & Interurban Railway, Ltd., Sandpoint, Idaho.—At a recent meeting of the stockholders of the Sandpoint & Interurban Railway, Ltd., the directors were instructed to accept the offer made by Albert Filson, president and manager of the company, of \$13,000 for the entire holdings of the company, with the exception of the office building at Main and Second Avenues, which is occupied as a depot. The holdings include 6 miles of track, five electric cars and other equipment.

Sandusky, Norwalk & Mansfield Electric Railway, Norwalk, Ohio.—The report prepared by the expert appointed by the court to inquire into the financial affairs of the Sandusky, Norwalk & Mansfield Electric Railway is reported to be ready for presentation to Judge John M. Killits of the District Court of the United States for the Northern District of Ohio at Toledo. A hearing will be held soon after the report is submitted, and it is expected that the details will all be arranged so that the property can be offered for sale under foreclosure by April 15. It is antici-

pated that the upset price will be fixed at \$275,000. The road was placed in operation in 1905. In 1911 it was placed in the hands of Wilbur Hoyt, C. P. Brooks and George B. Dusenberry as receivers on the application of the holders of the \$600,000 of first mortgage bonds, the interest on which was in default. On Nov. 6, 1912, C. G. Taylor was appointed receiver of the company. The company has outstanding \$360,000 of common stock, \$240,000 of non-cumulative preferred stock, and \$600,000 of first mortgage bonds. It operates 22 miles of track between Norwalk and Plymouth, built over private right-of-way except in cities, where the franchises run for twenty-five years from 1904. On July 1, 1913, the Plymouth & Shelby Traction Company, controlled by the Sandusky, Norwalk & Mansfield Electric Railway and operating 9 miles of track, was released from the receivership.

San Jose (Cal.) Railroads.—The California Railroad Commission has issued an order dismissing the application of the San Jose Railroads for authority to buy \$50,000 of San Jose & Alum Rock Railway bonds and \$200,000 of San Jose & Santa Clara Railroad bonds and to refund this \$250,000 of bonds by issuing to the Southern Pacific Company \$250,000 of San Jose & Santa Clara County Railroad bonds. The commission held that permission from it in this instance was unnecessary.

Slate Belt Electric Street Railway, Pen Argyl, Pa.—A. H. MacAdams, J. H. Scholl, Murtha Quinn and George F. Hayes, Philadelphia, have been elected directors of the Slate Belt Electric Street Railway to succeed Milton Flory and Charles N. Miller, Bangor; E. A. Speer, Pen Argyl, and John A. Miller, Nazareth. Mr. MacAdams has been elected president of the company to succeed C. H. Latta. Mr. Schneebeli, who has been secretary and treasurer, continues as secretary, but Thomas J. Ryan, Philadelphia, becomes treasurer of the company.

Stroudsburg (Pa.) Passenger Railway.—The Stroudsburg Passenger Railway has been purchased by the same interests that control the Stroudsburg, Water Gap & Portland Railway. The property will be transferred on April 1. The Stroudsburg Passenger Railway operates 2.5 miles of line connecting Stroudsburg and East Stroudsburg. The Stroudsburg, Water Gap & Portland Railway operates 10 miles of line connecting Stroudsburg, Delaware Water Gap and Portland.

Tacoma (Wash.) Municipal Railway.—According to a report made by Controller Fred Shoemaker to Mayor A. V. Fawcett, Tacoma, the 1-mile municipal railway operated under lease by the Tacoma Railway & Power Company, after running into a deficit of \$3,912 during the year 1915, shows a profit for 1916 of \$962. The gain appears after deducting 4 per cent for the cost of construction paid the city and 5 per cent interest on the investment allowed the Tacoma Railway & Power Company. The agreement under which the line is run provides that the profits shall be divided equally between the city and the company. Before there can be any such division, however, the 1915 deficit must be charged off.

Tidewater Southern Railway, Stockton, Cal.—The Western Pacific Railroad has filed with the California Railroad Commission an application for authority to buy 1,201,000 shares of the capital stock of the Tidewater Southern Railway in order to extend the Tidewater lines and to develop its freight and passenger traffic so that the interchange between the Western Pacific and the Tidewater company may be increased. The Tidewater lines extend from Stockton and Modesto to Turlock, and connect with the Western Pacific at Stockton. Last October the Tidewater company applied to the commission for authority to make a new entrance into Stockton by using the tracks of the Western Pacific Railroad to the crossing of the Santa Fé line, and thence into Stockton by the Stockton Electric Railway. The Tidewater company also asked for permission to extend its line from Hatch, Stanislaus County, to Erwin City, Merced County, 8 miles. A hearing was held upon the new Stockton entrance, but a decision has not yet been made.

Tulsa (Okla.) Traction Company.—The Tulsa Traction Company has filed an amendment to its charter at Oklahoma City, changing its name to the Oklahoma Union Railway, and increasing its capital from \$100,000 to \$600,000.

Dividends Declared

Central Arkansas Railway & Light Corporation, Hot Springs, Ark., quarterly, 1 3/4 per cent, preferred.
 Detroit (Mich.) United Railway, quarterly, 1 3/4 per cent.
 Tampa (Fla.) Electric Company, quarterly, 2 1/2 per cent.

Electric Railway Monthly Earnings

BANGOR RAILWAY & ELECTRIC COMPANY, BANGOR, ME.						
Period		Operating Revenue	Operating Expenses	Operating Income	Fixed Charges	Net Income
1m., Dec., '16		\$73,741	*\$41,805	\$31,936	\$18,654	\$13,282
1 " " '15		67,306	*34,478	32,828	17,606	15,222
12 " " '16		829,958	*460,877	369,111	214,916	154,195
12 " " '15		788,832	*400,510	388,322	212,495	175,827
CENTRAL MISSISSIPPI VALLEY ELECTRIC PROPERTIES, KEOKUK, IOWA.						
1m., Dec., '16		\$26,954	*\$17,959	\$8,995	\$2,072	\$6,923
1 " " '15		26,237	*15,489	10,748	1,897	8,851
12 " " '16		294,893	*197,994	96,899	23,827	73,072
12 " " '15		282,177	*187,512	94,665	22,455	72,210
CHATTANOOGA RAILWAY & LIGHT COMPANY, CHATTANOOGA, TENN.						
1m., Dec., '16		\$110,760	*\$88,869	\$21,891	\$30,159	†\$8,268
1 " " '15		105,343	*63,836	41,507	29,784	11,723
12 " " '16		1,235,623	*823,444	412,179	356,324	55,855
12 " " '15		1,087,344	*727,731	359,613	357,762	1,851
COLUMBUS (GA.) ELECTRIC COMPANY						
1m., Dec., '16		\$84,353	*\$30,166	\$54,217	\$28,527	\$25,690
1 " " '15		70,226	*26,866	43,360	43,360	14,681
12 " " '16		881,353	*351,233	530,120	343,574	186,546
12 " " '15		721,217	*322,040	399,177	344,544	54,633
DALLAS (TEX.) ELECTRIC COMPANY						
1m., Dec., '16		\$198,746	*\$103,197	\$95,549	\$40,919	\$54,630
1 " " '15		168,163	*101,577	66,586	35,861	31,925
12 " " '16		1,990,420	*1,207,612	782,808	451,887	334,064
12 " " '15		1,828,488	*1,120,174	708,314	404,561	304,953
EAST ST. LOUIS & SUBURBAN COMPANY, EAST ST. LOUIS, ILL.						
1m., Dec., '16		\$296,312	*\$184,854	\$111,458	\$63,749	\$47,709
1 " " '15		238,667	*141,274	97,393	62,982	34,411
12 " " '16		3,027,699	*1,820,774	1,206,925	755,033	451,892
12 " " '15		2,466,969	*1,473,592	993,377	756,315	237,062
EASTERN TEXAS ELECTRIC COMPANY, BEAUMONT, TEX.						
1m., Dec., '16		\$75,471	*\$39,710	\$35,761	\$9,625	\$26,136
1 " " '15		69,453	*35,373	34,080	9,172	24,908
12 " " '16		826,313	*444,422	381,891	107,698	274,193
12 " " '15		723,091	*386,447	336,644	105,562	231,082
EL PASO (TEX.) ELECTRIC COMPANY						
1m., Dec., '16		\$117,342	*\$59,202	\$58,140	\$5,335	\$52,805
1 " " '15		101,469	*46,508	54,961	4,180	50,781
12 " " '16		1,110,717	*653,564	452,153	59,127	393,026
12 " " '15		981,888	*521,059	460,829	50,368	410,461
KEY WEST (FLA.) ELECTRIC COMPANY						
1m., Dec., '16		\$11,708	*\$7,226	\$4,482	\$2,525	\$1,957
1 " " '15		9,504	*6,619	2,885	2,559	326
12 " " '16		116,371	*77,547	38,824	30,219	8,605
12 " " '15		112,840	*82,040	30,800	30,595	205
NEW YORK & STAMFORD RAILWAY, PORTCHESTER, N. Y.						
1m., Dec., '16		\$25,295	*\$24,709	\$586	\$7,987	†\$7,366
1 " " '15		23,649	*24,166	517	7,994	†\$8,472
6 " " '16		189,564	*152,315	37,249	47,923	†\$10,371
6 " " '15		210,310	*159,500	50,810	47,998	33,166
PADUCAH TRACTION & LIGHT COMPANY, PADUCAH, KY.						
1m., Dec., '16		\$28,281	*\$20,659	\$7,622	\$7,268	\$354
1 " " '15		28,944	*15,691	13,253	7,438	5,815
12 " " '16		310,962	*213,600	97,362	86,676	10,686
12 " " '15		289,155	*179,025	110,130	91,269	18,861
PUGET SOUND TRACTION, LIGHT & POWER COMPANY, SEATTLE, WASH.						
1m., Dec., '16		\$788,880	*\$443,296	\$345,584	\$184,923	\$160,661
1 " " '15		699,702	*414,999	284,703	182,417	102,286
12 " " '16		8,107,371	*5,120,995	2,986,376	2,212,982	773,394
12 " " '15		7,559,582	*4,754,763	2,804,819	2,179,984	624,835
SAVANNAH (GA.) ELECTRIC COMPANY						
1m., Dec., '16		\$80,096	*\$49,649	\$30,447	\$23,986	\$6,461
1 " " '15		68,902	*44,271	24,631	23,329	1,302
12 " " '16		826,093	*553,695	272,398	282,756	†10,358
12 " " '15		794,213	*518,488	275,725	278,491	†2,766
WESTCHESTER STREET RAILROAD, WHITE PLAINS, N. Y.						
1m., Dec., '16		\$14,763	\$16,249	†\$1,486	\$2,018	†\$3,480
1 " " '15		17,513	20,514	†3,001	1,723	†\$4,692
6 " " '16		107,199	115,022	†7,823	11,473	†\$19,138
6 " " '15		133,742	129,734	4,008	9,840	†\$5,648

* Includes taxes. † Deficit. ‡ Includes non-operating income.

Traffic and Transportation

Indianapolis Traffic Increasing

1916 Interurban Passenger and Freight Traffic Handled at Indianapolis Traction Terminal Offsets 1915 Decrease

The following tables compiled by the Indianapolis Traction & Terminal Company, relating to the interurban passenger and freight traffic handled through the traction terminal station at Indianapolis, show an increase of almost 600,000 passengers carried during the year 1916 as compared with 1915. The year 1915, however, did not show the usual increase, due to business depression, as will be noted from the table showing the comparison for the several years but the business developed during the year 1916 more than offset this decrease. In order to estimate the number of visitors brought to the city of Indianapolis by the interurban lines, it is considered, theoretically, that each person makes a round trip, and on this basis the total number of people who visited Indianapolis by the electric lines in 1916 would be one-half of the total passengers carried, or 3,604,274, an increase of nearly 100,000 over the year 1914. The total of 7,208,747 passengers handled by the interurban lines entering the city of Indianapolis during the year 1916 is more than twice the population of the State of Indiana, which is approximately 3,000,000. The number of passengers entering and leaving Indianapolis every two weeks is more than equal to the total population of the city of Indianapolis, which is about 260,000.

DATES WHEN INTERURBAN LINES COMMENCED OPERATING INTO INDIANAPOLIS

Indianapolis, Columbus & Southern Traction Company	Jan. 1, 1900
T. H. I. & E.—Eastern Division	June 17, 1900
Union Traction Company—Muncie Division	Jan. 1, 1901
T. H. I. & E.—Martinsville Division	Aug. 2, 1902
T. H. I. & E.—Brazil Division	Sept. 15, 1902
Indianapolis & Cincinnati—Shelbyville Division	Sept. 12, 1902
T. H. I. & E.—Northwestern Division	Oct. 9, 1903
Union Traction Company—Logansport Division	Dec. 3, 1903
Indianapolis & Cincinnati—Rushville Division	July, 1905
T. H. I. & E.—Danville Division	Sept. 1, 1906
T. H. I. & E.—Crawfordsville Division	July 4, 1907
Union Traction Company—Newcastle Division	June 29, 1910
Beech Grove Traction Company	March, 1911

The total number of passengers carried since 1900 was as follows: 1900, 377,761; 1901, 955,554; 1902, 1,523,411; 1903, 2,347,936; 1904, 3,274,654; 1905, 3,881,382; 1906, 4,469,982; 1907, 5,032,677; 1908, 4,979,371; 1909, 5,156,906; 1910, 5,736,272; 1911, 6,279,822; 1912, 6,431,714; 1913, 6,524,366; 1914, 7,012,763; 1915, 6,629,642; 1916, 7,208,747.

INDIANAPOLIS TRACTION & TERMINAL COMPANY—TOTAL NUMBER INTERURBAN AND SUBURBAN PASSENGERS ARRIVING AND DEPARTING—INDIANAPOLIS

Month	1916		1915	
	Pas-sengers, 1916	Pas-sengers, 1915	Pas-sengers, 1916	Pas-sengers, 1915
January	459,614	473,428	600,015	582,016
February	467,910	462,977	590,609	514,255
March	533,200	508,172	638,126	511,771
April	542,183	520,528		
May	643,625	622,531		
June	642,151	580,984		
July	767,669	629,694		
August	692,166	624,891		
September	631,479	598,395		
Total	7,208,747	6,629,642		
			Average per day	19,696
				18,163

INDIANAPOLIS TRACTION & TERMINAL COMPANY—TOTAL NUMBER INTERURBAN AND SUBURBAN CARS ARRIVING AND DEPARTING—INDIANAPOLIS

Month	1916			1915		
	Pas-senger Cars	Freight Cars	Total	Pas-senger Cars	Freight Cars	Total
January	19,260	1,987	21,247	19,494	2,112	21,606
February	18,049	1,890	19,939	17,977	1,962	19,939
March	19,947	2,217	22,164	19,865	2,213	22,078
April	19,644	2,071	21,715	19,806	2,151	21,957
May	22,048	2,120	24,168	23,039	2,117	25,156
June	22,630	2,215	24,845	22,137	2,196	24,333
July	25,033	2,290	27,323	23,616	2,183	25,799
August	23,735	2,375	26,110	23,577	2,210	25,787
September	21,631	2,191	23,822	22,211	2,084	24,295
October	20,912	2,318	23,230	20,396	2,156	22,552
November	19,967	2,157	22,124	19,470	2,042	21,512
December	21,173	2,149	23,322	19,915	2,085	22,000
Total	254,029	25,980	280,009	251,503	25,511	277,014
Average per day	694	71	765	689	70	759

Hearing on Seven-Cent Fares

Small Massachusetts Road Seeks to Establish This Unit Instead of Present Five-Cent Rate

An appeal for the establishment of a 7-cent fare unit on the Norwood, Canton & Sharon Street Railway was heard by the Public Service Commission of Massachusetts recently at Boston. The company was represented by Robert Holt, of Gaston, Snow & Saltonstall, Boston. The road is only 6.25 miles long. It consists of two disconnected parts separated by the Blue Hill Street Railway. The company is managed by the Norfolk & Bristol Street Railway at an expense of \$200 a year and it purchases electricity from the Blue Hill company at the rate of 2.75 cents per kilowatt-hour. The present management began the operation of the road in 1913 and in the three years following a net divisible income of \$2,000 was realized. This, however, was wiped out in 1916 and there was a deficit of more than \$5,000 in the latter year. The present fare unit is 5 cents. Only two cars are required to maintain hourly service on the company's lines.

Mr. Holt said that the northerly section of the road was located wholly in the town of Norwood, service being rendered from Norwood Center to Canton. This section of the road is operated by platform men employed by the Blue Hill Street Railway, which pays the company 1½ cents per car-mile for the use of the car on that portion of its tracks between Washington Street, Canton, and the Norwood, Canton & Sharon tracks extending into Norwood. The Blue Hill company pays these platform men for the time that they are on its tracks. Only four men are required for this service and each road meets about half their compensation. The southerly section of the road is about 3.3 miles long. It is wholly in Sharon, and service is rendered between Sharon Heights and the Canton-Sharon town line. There are no through cars running into Canton and no transfers are issued to the Blue Hill cars. The road has one carhouse, located at the Sharon end, and the Blue Hill company cares for the rolling stock maintenance. The operating revenue of the company in 1916 was \$10,875 and the operating expenses were \$14,735. Last year the company ran 68,094 revenue car-miles. The operating revenue per car-mile was 15.97 cents, the lowest in Massachusetts. The passengers per car-mile averaged 3.2 compared with 5.9 for all companies in the State, and the total revenue passengers carried was 217,474. The average operating revenue per car-mile for all companies in Massachusetts in 1916 was 30.75 cents. The company proposes to sell tickets in strips of ten for 65 cents and sixteen for \$1. Mr. Holt pointed out that it had been impossible to maintain the track properly with the revenue received. It is estimated that the establishment of a 7-cent fare unit, if all the present patronage is retained, will increase the company's income by \$3,233 a year. Following the presentation of the company's case, J. A. Halloran, for the selectmen of Norwood, stated that the town authorities are not in opposition to the establishment of the 7-cent fare unit, even though the rate may exceed that in and about Norwood on other street railway lines. One-man cars are to be considered for the road according to M. A. Cavanaugh, general manager of the Norfolk & Bristol Street Railway.

Bus Line Privilege Not a Franchise

The municipal consent to the operation of stage lines within a city required by the laws of New York is not a franchise in the sense of the clause of the second class cities law, requiring that franchises must be disposed of at public auction, according to a decision recently made by the Public Service Commission of New York, Second District, in the matter of the application of the Troy Auto Car Company, Inc., for a certificate to operate a bus line in the city of Troy, N. Y. The phrase "public convenience and necessity," according to the opinion, is to be taken as an entirety. It is not necessary, as a precedent to the granting of a certificate, that the commission should find that the proposed stage line is strictly a necessity as well as a convenience. Public convenience and necessity exists when the proposed facility will meet a reasonable want of the public and supply a need, if existing facilities, while in a sense sufficient, do not adequately supply that need.

Buffalo Receives Billy Sunday

International Railway Handles Promptly Thousands Who Hit the Salvationist's Sawdust Trail

Special service has been provided by the International Railway, Buffalo, N. Y., for the crowds which are attending the Billy Sunday revival services at the tabernacle on the grounds of the Buffalo International League baseball park. J. W. Andrews, former superintendent of the Buffalo & Lockport and Lockport & Olcott divisions of the International Railway, has been assigned to the special duty of directing the street car movement to and from the tabernacle. He is assisted by a corps of uniformed supervisors and trainmen. The baseball park is located within two short blocks of the Cold Spring station of the International Railway and car tracks are on three sides of the big frame tabernacle, which has a seating capacity for 14,500 persons. Five car lines pass the structure and the South Park-West Utica line is routed around the baseball park before and after the services. Cars for all lines are parked on dead tracks on the Masten Street side of the building for the accommodation of the tabernacle crowds after the meetings. All chartered and special interurban cars start from the Cold Spring station, two short blocks from the park.

A system of electric signals similar to that adopted at the Kansas City revival is used by Superintendent Andrews for starting the cars after each service. An electric signal from the desk of George Sunday, Billy Sunday's business manager, in the tabernacle to Mr. Andrew's office in the rear of the building gives the superintendent advance information as to when each meeting will end. At Mr. Andrews' station in the tabernacle there are electric signals connected with large gongs at Michigan and East Ferry Streets, at Main and East Ferry Streets and at the Cold Spring station. By a code of signals Mr. Andrews starts the cars to keep pace with the movement of the crowds. He also receives ample advance notice of any changes in the arrangements at any meeting. A special telephone connects the tabernacle with the superintendent of the Cold Springs carhouse.

The rapidity with which the crowds have been handled during the first two weeks of Mr. Sunday's campaign has been favorably commented upon by Mr. Sunday and the newspapers. At the evening services almost 14,000 persons have been loaded into cars and the streets cleared of traffic within fifteen minutes. A squad of policemen is co-operating with the railway in directing the movement of the crowds.

Substitute Petition Presented

Bay State Street Railway Files New Schedule of Fares for Nashua, N. H.

The Bay State Street Railway, Boston, Mass., has withdrawn its original petition for a general increase of fares in Nashua, N. H., from 5 to 6 cents and including the changing of various Nashua-Hudson fare limits, and substituted a new detail of fare increase and transfer changes as follows:

Five-cent cash fare raised to 6 cents including fares on cars operated by agreement with Manchester Street Railway.

Sale of nine tickets for 50 cents, good only within Nashua transfer limits as modified.

Withdrawal of all reduced-rate tickets except school tickets sold at one-half regular rates.

Changes in local transfer privileges.

Nashua-State Line Route No. 111. Local transfer limit. Stewarts corner changed to the junction of county and Pelham roads, a reduction in length of ride of 2.88 miles; distance from transfer station, Nashua, 2.46 miles.

Changes in fare collection points:

Nashua-State Line Route No. 111.—Fare-collection point established at the junction of county and Pelham roads, Hudson, making an additional fare zone between end of route Palm Street, Nashua, and Stewarts corner, Hudson; also between end of route and New Hampshire-Massachusetts State line, distance from end of route 3.04 miles, re-

ducing length of ride 2.88 miles; length of zone 2.88 miles.

The Public Service Commission of New Hampshire has suspended the prophesied new schedule until April 1 pending the investigation which it proposes to conduct into the matter.

Safety Program Adopted

Commission, Electric Railways and Auto Association Agree Upon Final Program, Including Legislation

A final program, including legislation to be asked for this year, for greater safety at the grade crossings of highways and electric railways was adopted at the offices of the Public Service Commission for the Second District of New York at Albany on Feb. 14 by the conference which the commission has been engaged in for nearly a year with representatives of the electric railways and the automobile clubs of the State.

The program includes the endowment of the commission with power to order the obstructions to vision at these grade crossings removed and the expense apportioned equitably among the State, municipality and the railway, the equipment of all crossings with standard signs and warnings lighted at night and the erection of a standard sign at a distance of 500 ft. from the crossing on the highway, a requirement that all whistles or other signals on electric cars be sounded up to the time the car or train reaches the crossing, that motorists be compelled to approach crossings with their cars so under control that they can bring them to a stop before crossing, that all vehicles be compelled to carry light showing in all directions, and that the work of the committee to encourage education and publicity against the dangers at these crossings be continued.

The executive committee of the conference, of which Seymour Van Santvoord of the commission is chairman, will take charge of the presentation of these conclusions, with suitable bills, to the Legislature.

Among those at the meeting on Feb. 14 were H. B. Weatherwax, of the Hudson Valley Railway; H. A. Bullock, of the Brooklyn Rapid Transit Company; H. A. Abell, of the Schenectady Railway; M. D. Kilbride, of the New York State Railways; C. B. Hammond, of the Elmira, Corning & Waverly Traction Company; A. W. Seaman, of the New York State Automobile Association; C. L. Addison, of the Long Island Railroad; W. H. Collins, of the Fonda, Johnstown & Gloversville Railroad; I. M. Beatty, of the Peekskill Light & Railroad Company; William O. Wood, of the New York & Queens County Railway, and James P. Barnes, general manager of the Buffalo, Lockport & Rochester Railway.

P. A. Y. E. for Denver.—The Denver (Col.) Tramway is preparing to install the center-entrance P-A-Y-E on its entire system. The first car of this type in Denver was placed in service on Jan. 29.

Traffic Survey in Flint, Mich.—B. J. Arnold has been engaged to make a traffic survey by the city authorities of Flint, Mich. The problem includes a study of steam railroad terminals, street railway traffic and entrance for inter-urban lines. The street railway lines in Flint are operated by the Detroit United Railway.

City Regulation for Intra-Urban Jitneys.—The Texas Highway Commission bill, which provides for the levying of a tax on all motor vehicles and placing them under State supervision, has been amended by a clause specifically providing that cities and towns in the State of Texas shall have authority to regulate jitneys that operate within their limits.

Skip-Stop Proposed for Norfolk.—The Virginia Railway & Power Company has decided to use the skip-stop system in Norfolk, if permitted to do so by the City Council. A survey is being made of the entire territory in which the skip-stop system will be in effect in that city and the proposition will be brought to the attention of the Council as soon as all of the data needed have been completed by the company.

West Penn Magazine Revived.—The West Penn Railways, Pittsburgh, Pa., in response to repeated requests, have re-

sumed for their employees the publication of the *West Penn Bulletin*. The last number was issued in the latter part of 1914, the general business depression existing at that time requiring its sacrifice in the interests of economy. The first copy of this resumed monthly magazine is dated October, 1916.

California Jitneys Asked to Report to State.—The Railroad Commission of California complying with the recent decision of the Supreme Court of that State placing jitney buses under its jurisdiction, has sent to nearly 1000 freight and passenger and stage lines in the State blank forms for their filing with the commission schedules of rates, fares, classifications, time schedules, routes, rules and regulations.

Kentucky Company Courts Industrials.—The Owensboro (Ky.) City Railroad is co-operating with the city's business interests in its efforts to bring new industries to the city and hold them there. In connection with the establishment of a new chair factory some distance out, the company is repairing an old track laid to a convenient point and will replace a trolley wire, probably also constructing a waiting station at the end of the line. Cars will run to the terminus in the morning and in the evening to haul the employees whose homes are in the city.

Rise in Dallas Valuations.—Valuations of public utilities in Dallas, Tex., recently submitted to the City Commission, show an average increase of 111 per cent over the valuations of 1916. The street car properties east of the Trinity River, or those in the city of Dallas proper, are valued at \$8,500,000, the valuation agreed on in the reorganization plan of the city and the Strickland-Hobson interests. The property of the Northern Texas Traction Company, including the Oak Cliff lines, was valued at \$1,684,000, an increase of 95 per cent over the 1916 valuation.

Bids Opened for Municipal Railway Buses.—Five bids for motor buses for use in the transportation of passengers in conjunction with the Municipal Railway System of San Francisco, Cal., were opened on Jan. 31 by the Board of Public Works. The lowest of these bids is as follows: Furnishing and delivering complete, \$4,375; maintenance for 125,000 miles, \$1,875; turn in allowance (chassis), 125,000 miles, \$500; weight of bus, complete without load, 6800 lb.; rated power, S. A. E., 28.8; wheelbase, 172 in.; length of chassis, overall, 20 ft. 6 in.; rated capacity of chassis, 6000 lb.

A Sermon Around a Commission Decision.—The Puget Sound Traction, Light & Power Company, Seattle, Wash., has republished in *Electrogram*, circulated by it among the public, extracts of the decision of the Public Service Commission of that State in the Spokane traffic case with comment of its own on the decision. This is the decision in which the commission said that if no relief were found for the conditions in Spokane the inevitable would happen, namely, "the trolley will come down and the rails will come up." This decision was referred to at length in the *ELECTRIC RAILWAY JOURNAL* for Jan. 27, page 184.

Portland Company Simplifies Its Transfers.—The Portland Railway, Light & Power Company, Portland, Ore., has recently issued new transfers, which are somewhat simpler than the former style, in that the little "P. M." coupon has been eliminated and hereafter a transfer issued between noon and midnight will be punched, but not between midnight and noon. The line from which the transfer is issued is indicated by the initials of that line, instead of by color of the transfer, as heretofore. The cost of the new transfers will represent a slight saving over the old type. This railway company issues approximately 60,000 transfers a day, or about 22,000,000 a year.

Interborough Traffic Sets New Records.—Planned for a daily capacity of 600,000 persons, the average subway riding of the Interborough Rapid Transit Company has risen steadily to 1,541,832, the record set on Dec. 18. On that day also the elevated system of the same company reached its high-water mark of 1,252,063. Another record was broken in the travel during the week before Christmas. Figures for the seven days were more than 2,295,000

greater than for the Christmas week of the previous year. From 1,069,000 in September, 1916, the daily average of passengers on the subway has mounted steadily higher. In November it was 1,199,000 and December traffic reached 1,246,563.

I. T. S. Employees Render Vote of Confidence.—The employees of the Chicago, Ottawa & Peoria Railway Company, a subsidiary of the Illinois Traction System, have given the officials of the road a unanimous vote of confidence. This action followed a long discussion of the wage question. The satisfactory settlement of the problem, with the unanimous vote of confidence, is indicative of the cordial relations which now prevail between the men and the officials of this company. According to the agreement the first and second year men are allowed 2½-cent increase per hour while all those who have been employed by the company for two years will receive a flat increase of 4 cents an hour.

Louisville Semaphore Accident Involves Traffic Problems.—Special consideration at a date to be selected has been ordered by the Jefferson Circuit Court at Louisville, Ky., of the question as to whether the city, in maintaining semaphores at certain street intersections, has a right to use semaphores the arms of which are on a level with the windows of the street cars. The order is in connection with the trial of a suit involving injuries to a child which stuck its head out the window and suffered a gash in the head when it came in contact with the semaphore. Both the city and the Louisville Railway are defendants in the case, and both contend that it was the duty of the father to prevent the child from sticking his head out of the window even though it was open.

Safety Film Available.—Realizing the value and success of the motion pictures "The Price of Thoughtlessness" and "The Cost of Carelessness," both of which are particularly adapted for public safety work and the training of transportation department employees, the railway by which they were developed has consented to allow the pictures to be distributed through the National Safety Council by Scott & Van Alton, Inc., New York, N. Y., and the pictures can now be procured by any company or civic organization conducting or desiring to conduct safety or educational work. The consent was necessary, as both the motion pictures and stereopticon slides are copyrighted. The scenes portray actual incidents and accidents that may and do occur every day and are in every way true to life. The highly dramatic features of the motion picture of the present day have been eliminated, and nothing is left but those features which may be desired to make safety and educational endeavor a thorough and lasting success.

Buffalo Advertising Brings Results.—The International Railway, Buffalo, N. Y., is continuing its campaign of newspaper advertising. As stated previously in the *ELECTRIC RAILWAY JOURNAL* the cars of the company were placarded with posters asking for constructive criticism. As a result many valuable suggestions have been received and a number so made have already been adopted. Others are being considered for future use. In one of the first of the series of advertisements E. G. Connette, president of the company, replied to the complaint regarding the matter of heat. Another display advertisement of the company set forth its reasons for turning back cars before they reached their destination. Other advertisements have told about the company's constructive policy in making improvements and about the causes of irregularities in service. The company published every day a list of all delays of more than ten minutes' duration, giving the cause of the delay, the lines affected and the time. In its recent advertisement dealing with expenditures the company said that during the last five years it had spent \$8,869,067 for new construction, reconstruction of tracks, paving of tracks, rolling stock, etc. These expenditures were tabulated by years. The figures were commented on favorably in an editorial in a recent issue of the *Courier*, the largest morning paper in Buffalo. Several of the other Buffalo daily newspapers have also commented favorably, in editorials which have appeared in recent issues, on the company's policy of taking the public into its confidence.

Personal Mention

S. W. Haberle has succeeded J. H. Morris as chief dispatcher in the Illinois Traction System.

P. P. Griffin has been elected vice-president of the Susquehanna Traction Company, Lock Haven, Pa.

W. E. Skëad has been appointed city purchasing agent of the Brandon (Manitoba) Municipal Railway.

C. D. Smythe has been appointed commercial agent of the Joplin & Pittsburg Railway, Pittsburg, Kan.

B. F. Yeakee has been appointed electrical engineer of the Glendale & Montrose Railway, Glendale, Cal.

R. B. Campbell has been elected secretary of the Arkansas Valley Interurban Railway, Wichita, Kan.

B. C. Long has been appointed master mechanic of the Muskogee (Okla.) Electric Traction Company.

James Wilson has been elected treasurer of the Shawinigan Falls Terminal Railway, Montreal, Quebec.

H. G. Budden has been elected secretary of the Shawinigan Falls Terminal Railway, Montreal, Quebec.

Mary A. Landon has been elected president of the Woodstock & Sycamore Traction Company, Genoa, Ill.

R. B. Shields has been appointed chief power station engineer of the Wheeling (W. Va.) Traction Company.

J. A. Werner has been elected first vice-president of the Chicago, Aurora & De Kalb Railroad, Aurora, Ill.

W. E. Page has been appointed engineer overhead construction of the Sand Springs Railway, Tulsa, Okla.

J. H. Schuch has been appointed chief engineer of the Butte, Anaconda & Pacific Railway, Anaconda, Mont.

Roy Carmien has been appointed local purchasing agent Alaska Gastineau Mining Company, Thane, Alaska.

E. W. Shell has been elected treasurer of the Trans-St. Mary's Traction Company, Sault Ste. Marie, Ontario.

G. C. Starkweather has been appointed superintendent of the Hoboken Manufacturers' Railroad, Hoboken, N. J.

H. E. Cox has been appointed chief engineer Birmingham Railway, Light & Power Company, Birmingham, Ala.

I. W. Ross has been appointed general manager Tuscaloosa Railway & Utilities Company, Tuscaloosa, Ala.

E. L. King has been appointed general manager of the Lee County Central Electric Railway, Lee Center, Ill.

W. F. Fetherolf has been appointed general freight agent of the Lehigh Valley Transit Company, Allentown, Pa.

J. M. Mellor has been appointed master mechanic of the Northern Massachusetts Street Railway, Athol, Mass.

L. E. Rader has been appointed chief power station engineer of the Warren (Pa.) Street Railway, at Stoneham, Pa.

A. Keller has been appointed chief power station engineer of the Warren & Jamestown Street Railway, at Stoneham, Pa.

Charles Krial has been appointed roadmaster of the Philadelphia & Easton Electric Railway, with office at Revere, Pa.

H. H. Wood has been made assistant to the general superintendent of the Central Illinois Public Service Company, Mattoon, Ill.

R. D. Jones has been appointed claim agent for the Reading Transit & Light Company, Reading, Pa., succeeding Rex D. Billings.

B. J. Arnold of Chicago has been commissioned as major of engineers in the Officers' Reserve Corps of the Army of the United States.

C. S. Head has been appointed superintendent of maintenance of way of the Indiana Railways & Light Company, Kokomo, Ind., to succeed G. H. Losey.

W. J. Ginnivan has resigned as manager and purchasing agent of the railway department of the Montgomery Light & Traction Company, Montgomery, Ala.

H. F. Dicke, for five years general manager of the Boise Valley Traction Company, Boise, Idaho, has been appointed as general manager of the Utah Light & Traction Company, Salt Lake City, Utah, succeeding H. L. Beach.

Mrs. Melodia Blackmar Jones was elected president of the Niagara Gorge Railway, Buffalo, N. Y., at the annual meeting of directors on Feb. 2. Mrs. Jones succeeds her husband, the late Capt. Joseph T. Jones. The Niagara Gorge Railway owns and operates the Great Gorge Route from Lewiston to Niagara Falls, N. Y., along the American gorge of the Niagara River.

R. D. Voshall has been appointed superintendent of equipment of the Birmingham Railway Light & Power Company, Birmingham, Ala., to succeed R. A. Riley. For the past eight years Mr. Voshall has been connected with the Tidewater Power Company, Wilmington, N. C., for five years as master mechanic and for three years in charge of the railway department. Previously he served with the New York (N. Y.) Railways and the Illinois Traction System.

W. F. M. Goss, dean of the College of Engineering, University of Illinois, has been elected president of the Railway Car Manufacturing Association of New York, and will take up his new work as soon as released. Mr. Goss was dean of engineering at Purdue University from 1879 to 1907, when he went to Illinois. He was employed as chief engineer by the Chicago Association of Commerce in 1915 to prepare a report on smoke abatement and railway terminal electrification in Chicago.

Ward Hubbard, formerly chief engineer of the Rockford & Interurban Railway, Rockford, Ill., has resigned to become engineer of maintenance of way of the Bay State Street Railway, Boston, Mass. He entered the employ of the Union Traction Company, Anderson, Ind., in 1903 as a rodman, and was employed in that company until 1911, serving successively as timekeeper, foreman, chief clerk and division engineer. In 1911 he became chief engineer of the Rockford & Interurban Railway, coming to Boston to take up his present work Feb. 1, 1917.

Thomas Dreier has been appointed assistant to the president of the Bay State Street Railway, Boston, Mass. Mr. Dreier has been engaged in editorial work for about twelve years. For more than two years he was editor of *Associated Advertising*, the official magazine of the Associated Advertising Clubs of the World, and in the interests of better advertising has spoken before commercial organizations in nearly all the large cities of the country. He is the author of several books and is a frequent contributor to magazines. Mr. Dreier is to be the principal speaker at the meeting of the Massachusetts Street Railway Association at Youngs Hotel, Boston, Feb. 21.

H. L. Beach, general manager Utah Light & Traction Company, Salt Lake City, Utah, has tendered his resignation and will be transferred to the east by the interests controlling that property. Mr. Beach assumed the management of the Utah Light & Traction Company, which has 145 miles of track and 184 motor cars, about two years ago. Before going to Utah Mr. Beach had been associated for a short time with B. J. Arnold and previous to that for a long time was with the transportation department of the Chicago Railways Company, now a part of the Chicago Surface Lines. The *Salt Lake Herald-Republican*, in commenting on his resignation, says in a recent issue that his departure will be deeply regretted by the public. It adds that to operate a public utility to the entire satisfaction of its patrons is among those achievements commonly regarded as impossible, but that the public in Salt Lake City will be content if the service in the future will be as satisfactory as it has been in the past.

William T. Cobb, Rockland, Me., who as noted elsewhere, will address the members of the New England Street Railway Club at Boston on Feb. 22 on the subject "Public Relations," is unusually well fitted to discuss this subject from every possible viewpoint. He is a graduate of Bowdoin College, Brunswick, Me., Heidelberg University and the Harvard University Law School and is a member of the Maine Bar Association. About twenty years ago Mr. Cobb assisted

in building the Rockland, Thomaston & Camden Street Railway and has been its president for many years. He was Governor of the State of Maine for four years, from 1904 to 1907, inclusive. He was one of the receivers of the Eastern Steamship Corporation, is a trustee of Bowdoin College and is president of the Maine Railways Light & Power Company, the Androscoggin Electric Company, the Oxford Electric Company and the Rockland, Thomaston & Camden Street Railway, besides being a director of several banking and financial institutions.

W. D. Ray, for the last two years vice-president and general manager of the Pennsylvania Utilities Company, Easton, Pa., which was recently sold by the Barstow interests, has tendered his resignation, effective April 1.



W. D. RAY

Prior to coming to Easton, Mr. Ray was for four years vice-president and general manager of the Northern Indiana Gas & Electric properties operating in Hammond, Michigan City and other Indiana cities, and before that he served three years as commercial agent for the Sanitary District of Chicago. Mr. Ray's early years were spent as electrical engineer for several railroads in the Chicago territory, and later he became designing engineer for the old Standard Electric Company. During the Chicago World's Fair, Mr. Ray was connected with the Exposition's electrical department. At this period he collaborated with C. K. MacFadden in the book, "The Practical Application of Dynamo-Electric Machinery," a little volume which has appeared in many reprintings. From 1894 to 1897 he was superintendent of the Everett (Wash.) Electric Railway, returning to Chicago to handle electric-motor sales for the Lorain Steel Company. Later Mr. Ray had charge of the complete construction of two 75-mile electric railways in Michigan, and of the Grand Rapids-Muskegon third-rail road. During the past two years Mr. Ray has been in charge of the Pennsylvania Utilities Company, which furnishes electricity, gas and electric-railway service to a community of 100,000 people in Easton and neighboring towns.

Obituary

John Hickey, mechanical engineer of the Salt Lake & Utah Railroad, Salt Lake City, Utah, died on Feb. 3.

John J. Linden, one of the oldest employees on the Chicago (Ill.) Surface Lines, died on Jan. 17. He started with the company as a conductor thirty years ago and later became night foreman and superintendent. He was for many years general superintendent of the old Chicago Consolidated Traction Company. Later he went to Washington to become general manager of the Seattle, Renton & Southern Railway Company, but returned to Chicago about five years ago to take up his old work as superintendent at the North Side Lincoln station. At the time of his death he was on an indefinite furlough, owing to ill health.

Capt. R. S. Satterlee, vice-president of the Habirshaw Electric Cable Company, and ordnance officer on the staff of Major-General O'Ryan, National Guard, New York, is dead as the result of exposure connected with military duty. Captain Satterlee served in the Spanish War and later was appointed by Governor Roosevelt a first lieutenant in the Twelfth New York Regiment, and went to Cuba with that command and served in the Army of Occupation. On his return here he joined the Habirshaw Wire Company, of which he became president in 1911. Upon the reorganization of the company into the Habirshaw Electric Cable Company, Captain Satterlee became vice-president.

Legal Notes

Charters, Ordinances, Franchises

CALIFORNIA.—*Validity of Collateral Agreement as to Note.*

Where a stock subscription contract was executed in duplicate, the subscriber retaining one copy on which the corporation's agent indorsed an agreement to return the subscriber's note for his subscription if he were dissatisfied, and the corporation, within that time, before any stock was issued to him, refused to return the note upon being requested, the note was not enforceable against the subscriber by another party with notice of these facts, although the agent had not indorsed the agreement on the original subscription contract, filed with the company. The corporation had been fully organized before this subscription was made, and it did not appear that any subsequent creditor or later subscriber had been defrauded by reliance upon this subscription, or that this subscriber connived at or contemplated any secrecy in making the collateral agreement permitting cancellation, or that he knew that the corporation's agent failed to indorse the agreement upon the original subscription retained for the corporation files, whatever secrecy there was about the agreement being imparted to it by the corporation through its agent. (*Tidewater Southern Ry. v. Vance*, 160 Pacific Rep., 1097.)

GEORGIA.—*Assessments for Public Improvements.*

A street railway company which owns a 30-ft. right-of-way on the side of a street in a municipality is not exempt from assessment for a sanitary sewer in the street on which it abuts, on the ground that the railway company cannot receive any benefit from the improvement so long as its property is subjected to the present particular use. The case does not represent that class of assessment which the courts are warranted in preventing as representing "a manifest abuse of legislative authority." (*Georgia Railway & Electric Co. v. City of Atlanta*, 87 Southeastern Rep. 1058.)

IOWA.—*Right-of-way—Fee or Easement—Paving Charges.*

Where owners of land conveyed to a railway by deeds reading that they sold and quitclaimed to the road all their right, title, and interest in the land, not merely in the right-of-way, though each deed embodied a statement that the land was to be used for the construction and operation of a street railroad and that if in the future the land should be abandoned for such purpose it should revert to the grantor or the public, the road received a fee in the land. Hence a paving assessment against it could not be avoided on the theory that its interest in the land was merely an easement, since where an estate is conveyed subject only to a possibility of reverter, the grantee is the owner until the reverter takes place. (*Des Moines City Railway v. City of Des Moines*, 159 Northwestern Rep., 450.)

Liability for Negligence

INDIANA.—*Killing Stock—Presumption—Negligence.*

Negligence on the part of a street railway cannot be presumed from the mere fact that live stock is injured or killed by its car at a point where the statute does not require its tracks to be fenced. (*Terre Haute, Indianapolis & Eastern Traction Co. v. Krause et al.*, 109 Northeastern Rep., 760.)

INDIANA.—*Duty to Passenger a Continuing One Until He Reaches Destination.*

Where a passenger on an interurban car informed the conductor that he wished to be put off at stop 32, but the conductor negligently carried him by such stop to stop 34, the railroad's duty of using a reasonable degree of care for his safety as a passenger by furnishing transportation or by instructing as to the way and dangers, continued until he walked back to stop 32, since the relation of carrier and passenger, once established, continues until terminated by the passenger, or by the act of the carrier under circumstances justifying its termination, while the act of the railroad in putting decedent off at the wrong place did not so justify termination. (*Terre Haute, Indianapolis & Eastern Traction Co. v. Hunter*, 111 Northeastern Rep., 344.)

Construction News

Construction News Notes are classified under each heading alphabetically by States.

An asterisk (*) indicates a project not previously reported.

RECENT INCORPORATIONS

**Central Jersey Traction Company, Keyport, N. J.*—Incorporated to operate an electric railway. Capital stock, \$900,000. Incorporators: Francis A. Carter, James F. Shrader and Logan B. Gill, all of Philadelphia.

**Harney Valley Railroad, Portland, Ore.*—Incorporated under the laws of Washington, to construct either a steam or electric railway from Bend, Ore., to Klamath Falls and San Francisco, via Burns. Capital stock, \$25,000. H. H. Parker and Isaac D. Hunt, vice-president, Ladd & Tilton Bank, Portland, Ore., are interested.

Portland, Vancouver & Northern Railway, Vancouver, Wash.—Supplemental articles of incorporation were recently filed with the Secretary of State by Henry Crass and C. W. Ford to change the name of the Portland, Vancouver & Northern Railway to the Pacific Coast Railway. The corporation was formed about two years ago and at that time it was understood the intentions were to build a line into Portland, crossing the Interstate bridge over the Columbia River, between Vancouver, Wash., and Portland, Ore.; also to construct interurban lines in Clarke County, Washington. About that time the jitneys became an uncontrollable factor in the transportation business and the financial conditions became stringent. Now that money is seeking investment the promoters are putting the corporation in shape, looking toward early activities. The company holds a franchise to cross the military reservation at Vancouver. Headquarters will be established in Portland. Henry Crass will be chief counsel and C. W. Ford will look after active construction and operation. [Dec. 16, '16.]

FRANCHISES

St. Augustine, Fla.—The Jacksonville & St. Augustine Public Service Corporation has received a year's extension of time on its franchise to construct a line from Jacksonville to St. Augustine. The contract for constructing the line has been awarded to Stephenson Sons Company, Inc., New Haven, Conn. Grading has been completed on 7½ miles of line and 3½ miles of track have been laid. T. R. Osmond, St. Augustine, general manager. [Sept. 9, '16.]

Evanston, Ill.—The Evanston West Side Railway has asked the Public Utilities Commission of Illinois for a certificate of convenience and necessity to construct 7 miles of electric railway on Asbury Avenue, Wesley Avenue, Howard, Main and Davis Streets, Evanston. It is stated that the Evanston West Side Railway is controlled by the officials of the Evanston Railway Company. [Dec. 4, '15.]

Fairfield, Iowa.—The Iowa Railway & Light Company has received a franchise from the City Council to supply electricity in Fairfield.

Portland, Ore.—The Portland Railway, Light & Power Company has received from the City Council a six months' extension of time on its franchise to construct an extension on Morrison Street from Chapman to Washington Street.

Juniata, Pa.—The Altoona & Logan Valley Electric Railway has asked the Borough Council of Juniata for a franchise to construct an extension on Fourth Avenue.

TRACK AND ROADWAY

Edmonton (Alta.) Power Company, Ltd.—It is reported that the Edmonton Power Company is making surveys for the construction of an 80 mile railway from Edmonton to its new power plant site. Work on the construction of the power plant will be begun as soon as the railway is completed, which, it is estimated, will take about a year. E. W. Bowness, engineer. [May 27, '16.]

Glendale & Montrose Railway, Glendale, Cal.—It is reported that work will be begun about March 1 by this company on the construction of an extension from Los Angeles Avenue, Glendale, to Tujunga.

Municipal Railways of San Francisco, San Francisco, Cal.—The contract for furnishing electric conduit and splicing materials for the Municipal Railway in Twin Peaks Tunnel has been awarded to the Standard Underground Cable Company, Pittsburgh, Pa., at \$32,128.

Connecticut Company, New Haven, Conn.—It has been officially announced that the Connecticut Company has decided to discontinue interurban service between Church Corner, East Hartford, and Rockville, and double its trolley service over street lines from Hartford to Rockville, owing to the hazard of a combined electric and steam service over the main line tracks of the New York, New Haven & Hartford Railroad between Burnside and Vernon. In place of the discontinued service, the company will maintain a half-hourly trolley service; instead of an hourly service, between Tolland Avenue, Rockville, and the old City Hall, Hartford.

Hartford & Springfield Street Railway, Warehouse Point, Conn.—This company will construct an extension of its tracks in Enfield.

Pocatello Traction & Interurban Company, Pocatello, Idaho.—It is reported that the Pocatello Traction & Interurban Traction Company has increased its capitalization to \$2,000,000, and contemplates the expenditure of \$1,500,000 on projected lines. C. G. Haynes, Blackfoot, is interested. [Nov. 18, '16.]

Decatur Railway & Light Company, Decatur, Ill.—It is reported that the Decatur Railway & Light Company plans to construct an extension of its Riverside line from the corner of East Wood and South Webster Streets east on Wood Street to Nelson Park, $1\frac{1}{4}$ miles.

Indianapolis Traction & Terminal Company, Indianapolis, Ind.—Establishment of cross-town car service in the southern and western parts of the city, extension of two car lines and several minor changes have been ordered by the Board of Public Works on recommendation of City Engineer B. J. T. Jeup. The recommended route for the cross-town line is along Virginia Avenue from Fountain Square to South Street, along South Street to Kentucky Avenue and along Kentucky Avenue to Stock Street. New track will be needed between Virginia Avenue and Pennsylvania Street. The city will pay \$3,500 of the \$21,000 cost of the tracks and the county will pay \$1,500. Other changes in car service ordered by the Board is the reconstruction of a loop at Riverside Park, construction of double tracks in West Michigan Street from Holmes Avenue to Tibbs Avenue; removal of tracks on Forty-eighth Street and Pennsylvania Street east; extension of the Meridian Heights car line from Forty-eighth to Fiftieth Streets; extension of the Illinois Street line from Thirty-ninth to Forty-sixth Streets with double tracks, and the construction of turnouts on the Brookside Avenue line, from Eighteenth to Olney Streets.

***New Orleans, La.**—It is reported that the construction of an electric railway from New Orleans to Milneburg is being contemplated. The Elysian Field Avenue Commission, W. W. Fisk, secretary, is reported interested.

Bay State Street Railway, Boston, Mass.—The Bay State Street Railway has asked the Waterways Commission for authority to construct the Pleasant Street bridge over the Taunton River between Dighton and Somerset at Broad Cove. The company desires to construct a trestle sufficiently wide for two street railway tracks.

Detroit (Mich.) United Railway.—A new street car line along the Ford Highway, in a district north of Detroit which is rapidly developing, will be built by the Detroit United Railway. The company has purchased trackage owned by the Michigan Railway in the city of Flint and will extend city service over the line, this district formerly being served only by interurban cars.

Rahway Valley Company, Summit, N. J.—Electrification of the Rahway Valley Company, Summit to Boyden Avenue, Hilton, has been practically completed and consents of property owners in Boyden Avenue are being solicited for

the building and operation of a trolley line through that thoroughfare by the company. Negotiations have been begun with Public Service Railway to connect the line, when completed through Boyden Avenue, with its tracks at Springfield Avenue, Hilton. If a traffic handling agreement can be reached with Public Service Railway cars of the Rahway Valley Company will operate from Summit into the Public Service Terminal in Park Place, Newark, and the route of the Morris County Traction Company will be paralleled.

Brooklyn (N. Y.) Rapid Transit Company.—Only one proffer was made when the Public Service Commission for the First District of New York last week opened bids for the relocation of the surface railroad tracks in New Utrecht Avenue, Brooklyn, between Thirty-ninth and Eighty-first Streets. That offer was made by Charles Meads & Company, New York City, and the amount of the bid was \$230,000. The surface tracks in question were formerly utilized for the operation of the trains of the West End line on the surface of New Utrecht Avenue. An elevated railroad structure has been constructed under the dual system contracts, upon which the elevated trains now operate, making unnecessary longer the utilization of the surface tracks for train operation. All rights of the Nassau Electric Railroad Company are preserved except that it agrees not to operate either steam or electric trains upon the surface and to use the tracks only for trolley operation.

***New York, N. Y.**—The Bronx Board of Improvement has been incorporated with a capital stock of \$600 for the purpose of having surveys made for the construction of a double-track electric railway. The route selected will tap a territory in the extreme northern section of the city, and will follow a general easterly-northeasterly direction, beginning at the Spuyten Duyvil station of the New York Central Railroad on the Hudson River, extending along the Harlem River ship canal to Tibbet Creek, to West 238th Street, to Bailey Avenue, to Gun Hill Road to Pelham Parkway, to City Island, approximately 9 miles. It is estimated the project will cost about \$1,000,000. The Bronx Board of Improvement will petition the Public Service Commission to establish the road, requesting them to direct an existing railroad to build the line. In the event that it cannot be accomplished in this way a separate company is to be organized to build it independently. Florence J. Sullivan, 27 Cedar Street; Edward S. Schwartz, and H. E. Becker are the directors of the Bronx Board of Improvement.

Scioto Valley Traction Company, Columbus, Ohio.—Plans are being made by the Scioto Valley Traction Company to improve its lines from Lockbourne to Main Street, Columbus, about 11 miles.

East Liverpool Traction & Light Company, East Liverpool, Ohio.—A $1\frac{1}{2}$ -mile extension of its Pleasant Heights line is being considered by the East Liverpool Traction & Light Company. The old rails and ties now used on the present line north of the West End fire station will be replaced by new T-rail. This improvement will involve an expenditure of several thousand dollars.

Youngstown & Southern Railway, Youngstown, Ohio.—Work will be begun in the spring by the Youngstown & Southern Railway on the construction of an extension to East Palestine.

Mahoning Valley Railway, Youngstown, Ohio.—This company has received permission from the Youngstown & Southern Railway to use its tracks from East Woodland and South Avenue, over the South Avenue bridge and on Front Street to Champion Street, thereby enabling the Mahoning Valley Railway to route its Poland Avenue cars into the city in this way.

Kansas-Oklahoma Electric Company, Caney, Okla.—A contract has been awarded by this company to Stephenson Sons & Company, Inc., New Haven, Conn., which has sublet to the Railroad Construction Company, New York, N. Y., for the construction of a line from Wichita, Kan., to Fort Smith, Ark., 165 miles. S. M. Porter, Caney, president. [Jan. 15, '16.]

Tulsa (Okla.) Traction Company.—Announcement has been made by the Tulsa Traction Company that extensions will be built from Tulsa in several directions. The line to Bixby will be extended to Muskogee, to Okmulgee, thence to Nowata via Collinsville and Oologah. A line will also be built from Tulsa to Sapulpa. A plan is being developed for building a system of lines connecting the various oil field towns, forming a belt line having terminals in the city of Tulsa.

Northampton Traction Company, Easton, Pa.—This company plans to construct an extension to College Hill.

Lehigh Valley Railroad, Philadelphia, Pa.—Electrification of portions of the Lehigh Valley Railroad is in contemplation as referred to in the current issue of the *ELECTRIC RAILWAY JOURNAL*, page 314.

Pennsylvania Railroad, Philadelphia, Pa.—It has been announced that the branch line of the Pennsylvania Railroad from Seward to Gallitzin will be electrified, the same system as on the Paoli line to be used.

Carolina Rapid Transit Company, Clinton, S. C.—A report on the construction of this company's proposed line from Spartanburg to Clinton was recently submitted by Reid Tull, chief engineer. The proposed roadbed is to be of standard cross-section. All bridges and culverts are to be of concrete, cast iron and steel. Except in a few instances it is proposed to use wooden frame trestles which are to be filled in when the road has been in operation for several years. The main line track is to consist of 80-lb. open-hearth standard section steel rails laid on first class cross-ties and each rail joint bonded with copper bonds equal in cross-sectional area to the trolley wire. Side tracks are to be laid with smaller sections of second-hand steel rail on second-class crossties. The overhead construction is to be of catenary type using 7-16 messenger wire and No. 0000 copper trolley and feeder wire, placing poles 150 ft. on tangents and 105 ft. on curves, using wooden cross-irons for feeders, and message wires and steel arms for messenger and trolley wire support. It is proposed to build three carhouses, one at Spartanburg, one at Union and at either Laurens or Clinton, also two substations, one located at or near Glenn Springs and one at Cross Anchor. The equipment is estimated on using three 60-ton electric locomotives for freight service and six three-compartment interurban passenger cars equipped with motors for passenger service; also two cabooses, six flat cars and six lever cars for use in freight and maintenance service. [Nov. 25, '16.]

Corpus Christi (Tex.) Traction Company.—This company, which plans to construct a line from Corpus Christi to Ward Island, has abandoned its plan to build a loop line on Water, South Second and other streets in Corpus Christi and will build only to its terminal station. The franchise will be amended accordingly. J. H. Caswell, Corpus Christi, general manager. [June 17, '16.]

Dallas (Tex.) Northwestern Traction Company.—E. P. Turner, Dallas, president of the Dallas Northwestern Traction Company, which proposes to build an interurban line from Dallas northwestward to Slidell, approximately 58 miles, announces that he has closed an underwriting contract for bonds sufficient to build and equip the line. The first order for equipment will call for not less than sixteen standard-size passenger cars. Much of the right-of-way has already been secured, and it is announced that the construction company will be ready to begin work as soon as the rest of the right-of-way is available. [Jan. 13, '17.]

Port Orchard, Wash.—T. B. Kidd, representing Tacoma, Wash., capitalists, is promoting the construction of an electric interurban, from Port Orchard through the Burley Valley to Gig Harbor, connecting with Tacoma by a large ferry to Point Defiance. Mr. Kidd has asked the commercial bodies of the towns in the vicinity of Port Orchard to take up the matter, and the county commissioners of Pierce County, Tacoma, have requested that a committee from the commercial clubs meet with them, to take up the matter of a ferry to be jointly owned and maintained by Pierce and Kitsap counties. The proposition is also made to turn the line over to the counties at its actual cost of construction, if the counties desire to assume control.

Tacoma Railway & Power Company, Tacoma, Wash.—The city of Tacoma and the Todd Shipbuilding & Repair Company of that city have started negotiations looking toward the extension of the Tideflats carline from its present terminus to the location on the tideflats, where the Todd Shipbuilding & Repair Company is erecting new shipyards. If the extension is made, it will be operated on virtually the same joint contract that the present tideflats line is being operated or the Tacoma Railway & Power Company will make a proposition to the city of Tacoma for the purchase of the present municipal line over the tideflats and construct and operate the extension as a part of its present system. The present municipal line is operated under an agreement with the city by the Tacoma Railway & Power Company.

SHOPS AND BUILDINGS

Detroit (Mich.) United Railway.—This company has recently purchased a block of property at Fort and Fifteenth Streets as a site for a new west side freight depot. The company's present freight house property at Sixth and Congress Streets will be turned over to the Pennsylvania Railroad.

Valley Railways, Lemoyne, Pa.—Tentative plans have been made by the Valley Railways for the construction of a terminal station along River Street, Harrisburg, extending from Walnut Street to Strawberry Street, and the double-tracking of Walnut Street between Front and River Streets to relieve the traffic congestion in Market Square.

POWER HOUSES AND SUBSTATIONS

Commonwealth Power, Railway & Light Company, Grand Rapids, Mich.—The City Council of Mason is considering a proposal submitted by the Commonwealth Power, Railway & Light Company to take over the municipal distribution system and lighting business for \$15,000. An election will soon be called to submit to the voters the proposal as to whether the proposition of the company shall be accepted or a new plant installed.

Columbus Railway, Light & Power Company, Columbus, Miss.—A new 1000-hp. steam turbine is being installed by the Columbus Railway, Light & Power Company, doubling the capacity of its plant.

Lincoln (Neb.) Traction Company.—This company has leased its power plant to the Commonwealth Power Company of Lincoln and has entered into a contract with the power company to purchase energy to operate its system for a period of forty-nine years. The Commonwealth Power Company contemplates the construction of dams and power stations on the Blue River to furnish power for the local traction system and the interurban line to the city of Omaha.

Interborough Rapid Transit Company, New York, N. Y.—This company has recently purchased the property at 77 and 79 Murray Street, and will construct a two-story and basement building for joint use by the Brooklyn Rapid Transit Company and the Interborough Rapid Transit Company as a substation for the operation of the new subway lines and the present elevated roads.

Cleveland (Ohio) Railway.—The Council of the City of Cleveland has adopted a resolution authorizing the Cleveland Railway to expend \$300,000 for a new substation.

Youngstown & Sharon Street Railway, Youngstown, Ohio.—This company will construct an electric plant in Youngstown.

Portland Railway, Light & Power Company, Portland, Ore.—Preparations are being made by the Portland Railway, Light & Power Company to furnish additional electric power to the Southern Pacific Company for the operation of its trains over the electrified railway from Whiteson to Corvallis. The transmission line from the power station on the Clackamas River to Salem is under construction from Mount Angel southwesterly, so it may carry higher voltage current and larger facilities for distribution of power from Salem are being provided. The total expenditure will be between \$50,000 and \$60,000.

Rhode Island Company, Providence, R. I.—A new substation will soon be built at Harmony by the Rhode Island Company.

Manufactures and Markets

Discussions of Industrial Conditions

A Department for the Manufacturer, Salesman and Purchasing Agent

Rolling Stock Purchases

Business Announcements

Trade Literature

\$2,000,000 for Cars in Boston

President Brush Outlines Plans of Company for Immediate Improvements if Legislature Permits— He Also Reviews Expenditures of Past Six Years

Extensive plans for new equipment were announced in Boston this week by President Matthew C. Brush of the Boston Elevated Railway. They are contingent upon the passage by the Legislature of a bill authorizing the company to issue temporary bonds or use the proceeds of the sale of the Cambridge subway temporarily to purchase more cars and equipment. The passage of such a bill was recommended by the commission appointed to investigate the financial condition of the company. The amount which it is proposed thus to expend for new cars is more than \$2,000,000. In discussing these plans President Brush reviewed what the company had done in the recent past in the way of new equipment. He said in part:

"On Aug. 31, 1916, the company placed orders for 100 center-entrance high-speed multiple-unit control stepless semi-convertible cars for use in the East Boston tunnel, these cars being contracted for at the price of approximately \$8,750 each, or a total cost of \$875,000 for delivery beginning in May, 1917, at the rate of five cars per week. On Aug. 25, 1916, the company placed an order for forty-two rapid-transit cars, similar in design to those operated on the elevated lines and in the Washington Street tunnel, except that the doors are slightly enlarged, at the price of approximately \$12,000 each or a total cost of \$504,000. Delivery on these cars will begin in April, 1917, at the rate of two to four cars per week. On Jan. 13, 1917, the company placed an order for thirty-five cars for use in the Dorchester tunnel, substantially identical to those now in use in the Cambridge subway, at the price of approximately \$18,500 each, or a total cost of \$647,500, for delivery beginning in November, 1917, at the rate of six cars per week. In other words, during the past six months the company has placed orders for \$2,026,500 worth of equipment to the extent of 177 cars, these cars being all of the latest design, all steel and embodying all the latest developments of the art in all appurtenances and auxiliary equipment. The contracts for these cars have in each case been let with the lowest bidder at a cost of about 70 per cent above the cost of two years ago, and deliveries are to be made at the earliest possible date.

"Previous to the placing of the order for the first of these cars on Aug. 25, 1916, the company had during the past six years purchased 135 rapid transit cars and 450 surface cars on the following dates at the respective prices specified:

Elevated Cars:		
20 in 1911 at \$ 9,962.71 each.....		\$199,254.13
55 in 1913 at 10,961.25 each.....		602,868.73
Cambridge Subway Cars:		
40 in 1911 at \$12,237.97 each.....		489,519.00
20 in 1912 at 11,418.85 each.....		228,377.13
Surface—Semi-Convertible Cars:		
50 in 1910 at \$7,548.90 each.....		377,445.19
50 in 1911 at 7,607.38 each.....		380,369.34
75 in 1912 at 6,535.66 each.....		490,174.96
100 in 1913 at 6,897.34 each.....		698,733.50
Surface—Trailer Cars:		
125 in 1915 at \$3,217.61 each.....		402,200.91
50 in 1916 at 3,521.41 each.....		176,070.73
		\$4,045,013.65

"In addition to the above investment, the company has spent, in order to widen tracks sufficiently to operate new cars, during the same period, \$226,734; has spent for bridge strengthening, carhouse changes and loops for these new cars, \$354,316, and in order to furnish power for the operation of equipment, the company has spent for generation,

substations and distribution lines, \$6,360,400, during the same period. Further, the company has invested, since the spring of 1912 in the Cambridge Subway, East Cambridge viaduct and various station and carhouse enlargements, a total of \$14,619,000, and during the same period has incurred obligations to pay rental on Beacon Hill tunnel, Boylston Street Subway, East Boston Tunnel extension, a total investment of \$8,572,000, as well as to pay interest on a further investment in the Dorchester Tunnel and its equipment, the Everett extension, the Bennington Street double track and the improvement of Lake Street, of \$13,192,186.

"In other words, since 1911, the company has either as a result of legislative acts or with the approval of the Public Service Commission incurred a liability to pay either rental or interest on an investment for improved service of \$49,396,149. Of this sum, \$34,177,463 represents property now in operation and \$15,218,686 property which will be in operation during the next year. This \$49,396,149 is substantially equivalent to the total amount of money invested in what is now the Boston & Albany Railroad Company from the first charter in 1831 up to date."

Poles Purchased in 1915

More Than Half of the 4,000,000 Poles Purchased in This Year Were of Cedar

Statistics have been compiled by the Government Forest Service on the poles purchased during 1915 in the United States by telephone and telegraph companies, steam and electric railroads, and electric light, heat and power companies. Information was requested from approximately 17,000 purchasers, representing practically all the pole users in this country. The data in the following tables represent between 90 and 95 per cent of all the poles purchased. A few sawed poles of redwood and western pine are not included.

The annual demand for poles, which now exceeds 4,000,000, the report states, is supplied principally from three different regions of the United States. The northern white-cedar region of the Lake states, the chestnut region of the Eastern portion of the country, and the Western red-cedar region of the Northwest, which includes Idaho, Oregon and Washington.

Most of the cedar poles purchased were the Northern white variety, which were purchased largely by telephone and telegraph companies and steam railroads. Electric railroads, light and power companies, however, it was noted, purchased more of Western red cedar than any other type of pole. These companies also had a large demand for pine poles.

In Table I, data for the years from 1908 to 1911, compiled in co-operation with the Bureau of the Census, are also given. Cedar, chestnut and pine constitute 91 per cent of all poles reported purchased in 1915, and of this amount 61 per cent were cedar. Most of the pine was that commonly known as southern yellow pine, which includes longleaf, shortleaf and loblolly. Western yellow pine was also reported in small quantities. The use of cypress as a pole timber seems to be falling off each year. The minor

TABLE I—POLES PURCHASED IN 1915, AND FROM 1908 TO 1911, CLASSIFIED BY KIND OF WOOD

Kind of Wood	1915	1911	1910	1909	1908
All kinds.....	4,077,964	3,418,020	3,870,694	3,738,740	3,249,154
Cedar.....	2,521,769	2,100,144	2,431,567	2,439,825	2,200,139
Chestnut.....	651,643	693,489	677,517	608,066	516,049
Pine.....	546,233	161,690	184,677	179,586	116,749
Oak.....	199,442	199,590	265,290	236,842	160,702
Cypress.....	67,644	72,995	75,459	77,677	90,579
All other.....	91,233	190,112	236,184	196,744	164,936

species, classified in the tables as "all other kinds," were redwood, spruce, tamarack and osage orange.

As indicated in Table II, the principal purchasers of poles were telephone and telegraph companies. They reported, however, a decrease of 30 per cent, as compared with the number purchased in 1911. The number reported by electric railways and power companies represents an increase of 44 per cent, and that for steam railroads a 76-per cent increase.

TABLE II—POLES PURCHASED IN 1915, CLASSIFIED BY KIND OF WOOD AND CLASS OF PURCHASER

Kind of Wood	Total	Electric		
		Tele- phone and Telegraph Companies	Railways, Light and Power Companies	Steam Rail- roads
All kinds	4,077,964	1,680,880	1,430,122	966,962
Northern white cedar	1,747,210	1,029,219	239,864	478,127
Chestnut	651,643	336,496	275,301	39,843
Western red cedar	567,770	105,590	422,312	39,868
Pine	546,233	69,787	388,210	88,236
White oak	177,799	34,644	13,110	130,045
Red cedar	117,545	21,386	8,424	87,735
Southern white cedar	89,244	16,661	14,686	57,897
Cypress	67,644	24,162	18,174	25,308
Red oak	21,643	6,912	13,001	1,730
All other	91,233	36,023	37,037	18,173

Table III classifies the poles according to length, and shows that all of the leading woods contributed poles to each group. About 67 per cent were less than 30 ft. long, and were used chiefly by telephone and telegraph companies. Those less than 20 ft. long were reported largely by rural telephone companies. The figures for this group show an increase as compared with reports for 1911, while the number of poles between 20 ft. and 30 ft. in length was less.

TABLE III—POLES PURCHASED IN 1915, CLASSIFIED BY LENGTH AND KIND OF WOOD

Kind of Wood	Total	Less					50 Ft. or More
		Than 20 Ft.	20 to 29 Ft.	30 to 39 Ft.	40 to 49 Ft.	50 Ft. or More	
All kinds	4,077,964	1,236,694	1,531,441	980,091	256,236	73,502	
Northern white cedar	1,747,210	540,565	755,311	373,874	67,358	10,102	
Chestnut	651,643	23,992	255,951	295,717	63,676	12,307	
Western red cedar	567,770	17,874	314,010	139,041	71,608	25,237	
Pine	546,233	373,688	69,931	65,004	23,914	13,696	
White oak	177,799	120,393	33,550	16,120	5,998	1,738	
Red cedar	117,545	94,997	14,870	5,624	1,541	513	
Southern white cedar	89,244	4,414	13,282	49,264	15,734	6,550	
Cypress	67,644	13,048	22,211	26,316	4,542	1,527	
Red oak	21,643	3,737	16,341	1,280	139	146	
All other	91,233	43,986	35,984	7,851	1,726	1,684	

More Cables Going Underground

Municipal and Economical Requirements Accelerate Use of Conduit—Safe Voltage Limits Are Increasing

The cable market conditions have temporarily held back much underground work but the trend of the times is toward a rapidly increasing use of underground, rather than aerial, wires and cables. This statement no doubt will apply more exactly to the power and lighting field than to the electric railway field, but the municipal requirements of the larger cities, the demand for continuity of electric railway feeding service and the economic necessity for permanent construction, are accelerating the use of underground conduits for railway feeders. The impelling factors, according to a recent statement of the National Fireproofing Company, Pittsburgh, are lower maintenance costs and reductions in the number of interruptions. On the latter point, at a meeting of the American Institute of Electrical Engineers, the late H. G. Stott of New York is quoted as having called attention to the efficiency of underground service with the following statement: "The number of burn-outs per 100 miles of underground cable per annum has fallen during the last two years to 0.28, or practically one per 400 miles of cable per year. That is a reassuring record; when an overhead transmission line can show anything like it, we can look forward to reliable long-distance transmission."

The statement is also made by the National Fireproofing Company that the limits of installation and size have kept the transmission voltage for underground cables to about

one-third that for overhead transmission. Numerous installations are in operation where the pressures are 20,000 volts and even 25,000 volts; while from present indications underground systems operating at potentials of 50,000 volts and over will not be uncommon in a few years.

The McRoy-Camp conduits as manufactured by the earlier mentioned company, have been standardized and, therefore, can be sold on a more uniform basis than in earlier years when there was a greater diversity in the character of products intended for the same service.

Industrial Mobilization Continues

The mobilization of industrial resources, as a consequence of the international situation created by Germany in the renewed threat of ruthless submarine warfare has continued in Washington during the past week.

The Council of National Defense has held various meetings in Washington with its advisory commission.

Representatives of trades, business and professions are being asked to deal with this Council directly for the discussion of problems in industrial mobilization which may affect the national welfare. The time is rapidly coming, a Washington correspondent of the *Electrical World* reports, when there will be very little, if any, publicity given to these measures of industrial mobilization for national defense. In other words, a censorship is liable to go into effect any day. Already certain steps have been taken by the government in regard to censorship and the plans for an extension of this precaution are upon a scale which will preclude the possibility of business men obtaining news of their industries from the daily newspapers. Even now, the news sent from Berlin by wireless is being censored by the State Department before publication in this country, and the proposed act of Congress providing for a general censorship is ready for rapid passage by Congress. In these circumstances, the best Washington opinion is that leaders in industry will do well to place themselves in personal communication with the government, without waiting "for any eventuality."

CURRENT PRICES FOR MATERIALS

Quoted Thursday, Feb. 15.

Copper (electrolytic)	New York, 34½	cents per pound
Rubber-covered wire (base)	New York, 39	cents per pound
No. 0000 feeder cable (bare)	New York, 37½	cents per pound
No. 0000 feeder cable (stranded)	New York, 35	cents per pound
No. 6 copper wire (insulated)	New York, 35	cents per pound
No. 6 copper wire (bare)	New York, 37	cents per pound
Tin (straits)	New York, 53	cents per pound
Lead	New York, 9	cents per pound
Spelter	New York, 10¾	cents per pound
Rails, A. S. C. E., O. H.	Mill, \$40	per gross ton
Rails, A. S. C. E., Bess	Mill, \$38	per gross ton
Wire nails	Pittsburgh, \$3	per 100 pounds
Steel (bars)	Pittsburgh, 3.25	cents per pound
Sheet iron (black, 28 gage)	Pittsburgh, 4.75	cents per pound
Sheet iron (galv., 28 gage)	Pittsburgh, 6.50	cents per pound
I-beams over 15 in.	Pittsburgh, 10	cents per pound
½-in. galv. extra high strength steel wire	New York, \$6.82	per 100 ft.
¾-in. galv. high strength steel wire	New York, \$3.41	per 100 ft.
¾-in. galv. Siemens-Martin wire	New York, \$2.52	per 100 ft.
5/16-in. galv. Siemens-Martin wire	New York, \$1.94	per 100 ft.
Galvanized barb wire and staples	Pittsburgh, 3.85	cents per pound
Galvanized wire (ordinary)	Pittsburgh, 3.65	cents per pound
Cement (carload lots) with rebate for sacks	New York, \$2.07	per barrel
Cement (carload lots)	Chicago, \$1.96	per barrel
Cement (carload lots)	Seattle, \$2.60	per barrel
Sand in large lots	New York, \$5	cents per ton
Linseed oil (raw, 5-bbl. lots)	New York, 94	cents per gallon
Linseed oil (boiled, 5-bbl. lots)	New York, 95	cents per gallon
White lead (100-lb. keg)	New York, 9¾	cents per pound
Turpentine (bbl. lots)	New York, 52	cents per gallon

OLD METAL PRICES

Copper (heavy)	New York, 29	cents per pound
Copper (light)	New York, 25	cents per pound
Red brass	New York, 21	cents per pound
Yellow brass	New York, 19	cents per pound
Lead	New York, 8	cents per pound
Steel car axles	Chicago, \$34	per net ton
Zinc	8.5	cents per pound
Iron car wheels	Chicago, \$18	per gross ton
Steel rail (scrap)	Chicago, \$24.50	per gross ton
Steel rail (relaying)	Chicago, \$30	per gross ton
Machine shop turnings	Chicago, \$9.25	per net ton

ROLLING STOCK

Lorain (Ohio) Street Railway has placed an order with the Jewett Car Company for twelve 52-ft. all-steel inter-urban car bodies and for five steel car bodies for city service.

Southern Illinois & St. Louis Railway, Marion, Ill., has ordered four 50-ft. steel express cars, three 50-ft. steel passenger cars and eleven 60-ft. interurban cars from the American Car Company, St. Louis, Mo.

Ocean City & Fenwick Island Railway, Ocean City, Md., is in the market for about ten miles of 60-lb. relaying rail, also for necessary overhead material and four open-type trolley cars.

Wheeling (W. Va.) Traction Company, noted in the ELECTRIC RAILWAY JOURNAL of Feb. 3 as being in the market for cars, has placed an order with the Jewett Car Company for fourteen prepayment car bodies.

Tri-City Railway, Davenport, Iowa, will remodel twelve old cars for service as pay-as-you-enter cars. The work will be started as soon as the new car house and shops have been completed at Thirty-fifth Street and Fifth Avenue, Rock Island, Ill.

Cedar Rapids & Marion City Railway, Cedar Rapids, Iowa, has specified the following details on the ten closed motor cars recently ordered from the American Car Company:

Seating capacity	40	Destination signs	Keystone
Bolster centers, length,	15 ft. 10 in.	Gears and pinions,	General Electric
Length of body	25 ft. 6 in.	Gongs	American Car Company
Over vestibule	37 ft. 6 in.	Hand brakes	Pittsburgh Drum
Width over sills	8 ft. 0 in.	Handle with Peacock Drum	
Width over all	8 ft. 3 in.	Headlights	Golden Glow
Height, rail to sills	26 1/4 in.	Journal boxes	Brill
Sill to trolley base	8 ft. 6 in.	Motors, type and number,	Four, G. E., 258-A
Body wood or metal,	Metal and wood	Motors	Inside hung
Interior trim	Bronze	Paint	C. V. Process
Headlining	Agasote	Registers	International
Roof, type	Monitor deck	Sanders	Ohio Brass
Underframe	Metal	Sash fixtures	Brill
Air brakes	General Electric	Seats, style,	Hale & Kilburn, 199A
Axles	Brill	Seating material	Rattan
Bumpers,	American Car Company	Springs	Brill
Cables	General Electric	Step treads	Feralin anti-slip
Car trimmings	Brill	Track scraper	Brill
Control type	K-12	Trolley catchers	Ohio Brass
Couplers	Brill Radial	Trolley base	General Electric
Curtain fixtures	Curtain Supply	Trucks, type	Brill 77-E-1
Window fixtures	Brill	Wheels	American Car & Foundry
Curtain material	Pantasote	Special devices,	Brill renitent post casings
Door operating mechanism,	American Car Company		

TRADE NOTES

W. B. Cosgrove, 50 Church Street, New York, N. Y., has been appointed special representative of the Chicago Mica Company.

Ohio Brass Company, Mansfield, Ohio, has received an order from the Connecticut Company for 146 air sander equipments.

S. K. F. Company, Ltd., 47 King Street, West Toronto, Ontario, Canada, has been recently organized to handle the S. K. F. products in Canada.

Templeton, Kenly & Company, Ltd., Chicago, Ill., held the annual meeting of stockholders on Feb. 3. H. W. Finnell, vice-president of the company, was elected a director.

William H. Bennett, who for nearly a year has been advertising manager of the Searchlight Company, Chicago, has joined the forces of the Service Motor Supply Company, Fifteenth Street and Michigan Avenue, Chicago, Ill.

Bound Brook (N. J.) Oil-less Bearing Company announces the election of its second vice-president, Spencer Weart, as president and the election of its general manager, George Oakley Smalley, as treasurer.

Commercial Electric Supply Company, 42 Congress Street, East Detroit, Mich., has appointed Frederick Riebel, Jr., formerly district sales manager of the George Cutter Company, as general manager.

United States Ball Bearing Company, Chicago, Ill., announces that Otto Bruenauer has become associated with them, in the enlargement and broadening of their field of activities, as engineering manager.

Perry Ventilator Corporation, New Bedford, Mass., has received an order to equip with ventilators the twelve cars for the Worcester Consolidated Street Railway being built by the Osgood Bradley Car Company.

Standard Forgings Company, Chicago, Ill., announces that at the annual meeting of the company, 411 Railway Exchange Building, E. W. Richey was elected vice-presi-

dent and J. G. Coles was elected treasurer. George E. Van Hagen is president of the company.

Quasi-Arc Weldtrode Company, West Nyack, N. Y., has been incorporated by W. Moffatt, D. C. Alexander and F. W. Gordon, 61 Broadway, New York, N. Y. The company is capitalized at \$150,000 and proposes to manufacture electrodes, weldtrodes, machinery, accessories, etc.

Moody Engineering Company, New York, N. Y., has been incorporated by R. H. Jones, F. R. and R. D. Moody, 115 Broadway, New York, N. Y. The company is capitalized at \$250,000 and proposes to do a general consulting, operating, electrical, mechanical and civil engineering business.

Richardson-Phenix Company, Milwaukee, Wis., announces the opening of a sales office in Cleveland, located in the Builders' Exchange, in charge of W. J. Oettinger, in order to take care of the increased business in Ohio. Mr. Oettinger was formerly connected with the engineering department at the home office.

Union Switch & Signal Company, Swissvale, Pa., on Feb. 10 had a portion of its plant, including the machine shop and the packing department, destroyed by fire. However, the foundry, forge shop, pattern and carpenter shops and the general offices, which house the drawings, were left entirely untouched.

Pratt & Lambert, Buffalo, N. Y., varnish makers, have elected the following officers and directors for the coming year: W. H. Andrews, chairman of the board; J. H. McNulty, president; J. N. Welter, vice-president; J. B. Bouck, Jr., secretary and treasurer; A. C. Bedford, C. M. Pratt, F. W. F. Clark, R. F. Clark, S. N. Griffiths and J. P. Gowing, directors.

H. W. Watts, who has been in the New York office of the Diehl Manufacturing Company for several years has been promoted to manager of the Boston office. Mr. Watts succeeds H. A. Howard, who has resigned to devote his entire time to the companies in which he is personally interested. L. F. Tankard has been promoted to manager of the New York office of the company.

Kennedy, Mitchell & Company, Inc., New York, N. Y., fiscal agents for Southern Illinois & St. Louis Railway, have combined the railway company's office which was previously at 15 Wall Street with that of the Kennedy, Mitchell & Company's office at 42 Broadway. The operating offices of the railway are located at Marion, Ill. W. H. Schott is president and treasurer of the company.

Strauss Transit System, Inc., 185 Jefferson Avenue, East, Detroit, Mich., has issued an illustrated booklet describing the Strauss inverted elevated railway system. In this system the cars are suspended from a trussed overhead structure mounted on a single line of posts. The designer of this system is J. B. Strauss, president and engineer of the Strauss Bascule Bridge Company of Chicago.

A. W. Hartigan of the New York sales department of the Western Electric Company has been appointed sales manager of the Electrical Alloy Company with headquarters at 41 Union Square, New York City. The company also announces that it now occupies a new, large, modern, fire-proof factory building, just completed, in Morristown, N. J., which will enable it to increase vastly its production.

Electric Crane & Manufacturing Company, Milwaukee, Wis., has been organized by a group of former officials and engineers of the Pawling & Harnischfeger Company, including S. H. Squier, M. A. Beck, Arthur Mayer, Leo Mayer and Arthur A. Fritsch. The company has purchased the plant of the former Fred M. Prescott Steam Pump Company, at Sixty-fourth and National Avenues, West Allis.

Hess-Bright Manufacturing Company, Philadelphia, Pa., announces the opening of two branch sales offices—one at 1974 Broadway, New York, N. Y., and one at 1036 Guardian Building, Cleveland, Ohio. H. E. Brunner is in charge of the New York Office and is assisted by H. A. Fonda. The Cleveland Office is under the direction of R. E. Clingan, assisted by Walter Ripplier and M. S. McNay. W. L. Batt, general sales manager, states that these offices are opened with the intention of giving more prompt and thorough attention to the ball bearing trade than has heretofore been possible.

Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa., announces, in addition to a large number of orders for central station apparatus, an order for eight additional 1500-kw. rotary converters with transformers from the Cleveland Railway Company. This makes a total of twenty 1500-kw. Westinghouse rotary converters which this railway has ordered from the Westinghouse Company.

American Railways Equipment Company, Dayton, Ohio, which has recently begun the manufacture of a coin-ticket registering fare box for prepayment fare collection, has opened offices at 1165 Reibold Building. D. B. Whistler, who has been actively identified with the fare register business in this city for the last fifteen years, is the inventor and president of the new company. E. L. Reed, patent attorney, is associated with Mr. Whistler.

Stephenson Sons & Company, Inc., New Haven, Conn., railway contractors and dealers in railway investments, announces that the company has incorporated for \$100,000, all paid in. Edward N. Breitung, international banker, and heavily interested in the iron industry in the upper Peninsula of Michigan, is president; Gen. Charles Neilson, a railroad constructor and financier, with offices at 11 Pine Street, New York, is vice-president; C. C. Carroll is secretary, and William F. Lewis, treasurer.

E. B. Merriam, for several years assistant engineer of the switchboard department of the General Electric Company, has resigned his position to become the head of the industrial service department. Mr. Merriam has been connected with the company for sixteen years and is well known for his work in connection with high-voltage automatic circuit interrupting apparatus. He has contributed a number of technical papers to the A. I. E. E., N. E. L. A., etc., on protective apparatus. He was chairman of the Schenectady section of the Institute in 1913.

Combustion Engineering Corporation, New York, N. Y., has doubled the size of its New York offices to accommodate the increase in business. This company has also added considerably to its staff of engineers and draftsmen. A service department will be established under the direction of John Morris, who has been associated with the company since its organization. Mr. Morris will have under his direction a corps of competent engineers who will co-operate with the trade with the idea of rendering free inspection and engineering service.

Berger Manufacturing Company, Canton, Ohio, announce the following appointments: R. W. Van Horne has been transferred from the New York office and placed in charge of the building material products division at the home office; Norman A. Hill, formerly efficiency engineer for the Du Pont Powder Company, has been appointed efficiency engineer; P. V. Stonerod, formerly inspector for the Carnegie Steel Company, has been placed in charge of the sidewalk light department; and A. H. Bromley, Jr., contracting engineer, who for the last several years has looked after the interests of the Berger Manufacturing Company in the Cleveland territory, has been appointed chief engineer of sales, and hereafter will be located in the Canton office.

Holden & White, Chicago, Ill., general sales agents for the Joliet Railway Supply Company, have recently received a number of orders for Perry anti-friction side bearings and Hartman self-centering center plates. Orders for these bearings have been placed by the following electric railways: Fort Wayne & Northwestern Railway; Beaver Valley Traction Company; Aurora, Elgin & Chicago Railway; Metropolitan West Side Elevated Railway; Washington, Baltimore & Annapolis Electric Railway; Newport News & Hampton Railway, Gas & Electric Company; American Car & Foundry Company for Louisville Railways; Fonda, Johnstown & Gloversville Railroad Company; Northern Texas Traction Company; Houghton County Traction Company; J. G. Brill Company for the Ogden, Logan & Idaho Railway; Schenectady Railway; Union Traction Company of Indiana; Baldwin Locomotive Works; McGuire-Cummings Manufacturing Company for the Chicago & West Towns Railway; New York, Westchester & Boston Railway; Northwestern Elevated Railroad; Calgary Street Railway, and the Des Moines City Railway.

ADVERTISING LITERATURE

Standard Varnish Works, New York, N. Y., has issued a pamphlet on its waterproof cement floor paint.

Cumberland Electric Manufacturing Company, Clarksville, Tenn., has prepared a bulletin descriptive of its low-voltage transformers and electrical specialties.

Laclede-Christy Clay Products Company, St. Louis, Mo., has issued a bulletin of a complete line of fire brick for every furnace requirement.

Ray Manufacturing Company, Louisville, Ky., has issued a bulletin descriptive of its continuous feed-water regulators.

Laconia Car Company, Boston, Mass., has issued a catalog describing all types of steam and electric railway cars for freight and passenger service. Illustrations and details of construction are given for 67 cars built for the different roads. Figures 1 to 50 show cars for steam railroad service, and figures above 50 show cars for electric railway service.

S. K. F. Ball Bearing Company, Hartford, Conn., has issued an attractive catalog on its self-aligning ball-bearing hangers and pillow blocks. The subjects of power saving, the use of small motors, saving in lubrication and in maintenance, reducing fire hazards, etc., are fully covered. A number of pages of data containing tables, curves and engineering data on mounting, lubrication, testing lubricants, dimensions of equipment, etc., are given. Announcement is also made of the S. K. F. engineering service.

Western Electric Company, Inc., New York, N. Y., is distributing its 1917 year book on electrical supplies. This book follows the plan of uniform list prices that was inaugurated in the year book of 1915. This 1310-page volume is well illustrated and has been carefully prepared in such a manner as to make things easy to find for the prospective purchaser. This year book is regularly supplemented by descriptive matter, booklets and other literature on the following: Poles, pole-line hardware, motors and generators, telephone apparatus, lamps, automobile accessories, electrical material for farms and electrical household devices.

NEW PUBLICATIONS

Principles of Alternating-Current Machinery. By Ralph R. Lawrence, Associate Professor of Electrical Engineering of the Massachusetts Institute of Technology. McGraw-Hill Book Company, Inc., New York, N. Y. 603 pages. Cloth.

Written especially for technical men and students in electrical engineering, this book deals with the construction of alternating-current machines and the principles of their operation. All those types of machines are dealt with which embody fundamental and important principles in this field. It is not essentially a book on design, although calculations are given to analyze the electrical theory underlying various details of construction and winding.

Underground Transmission and Distribution. By E. B. Meyer. McGraw-Hill Book Company, Inc., New York, N. Y. 308 pages. Cloth, \$3, net.

Pole and Tower Lines. By R. D. Coombs, C.E. McGraw-Hill Book Company, Inc., New York, N. Y. 267 pages. Cloth, \$2.50, net.

Mr. Meyer in his book deals with the operation of underground systems for distributing electrical energy for lighting and power purposes. He describes, in part, the various methods of distribution, manhole and conduit construction, and the installation and testing of cables. He explains the practical methods of meeting problems involved, but assumes that the reader understands the principles underlying electrical theory. The book by Mr. Coombs is devoted to the subject of overhead construction, the developments necessitated by the use of high transmission voltage being of especial importance. He discusses factors in the design of poles and towers, and gives methods of erection and testing. Those two books afford a general knowledge of present practices in electric power transmission, since each is able to cover its field more fully than could a treatise of wider scope.