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I

It is my purpose here to consider briefly the subject of industrial pension systems in the United States and to consider the principles involved in them and the ultimate aspects of them as far as these are discernible. I shall consider the matter rather in relation to manufacturing industry than in relation to railroads and other public utilities; and as regards manufacturing industry, at least, I shall venture to suggest that pension systems, conceived to meet a need arising out of temporary industrial conditions, ought, as industrial conditions change in ways that are already indicated, gradually to cease. At present, as far as industrial pension systems in manufacturing industry exist, they undoubtedly, in their measure, which is by no means inconsiderable, meet very real needs; and this will inevitably be true for a long time to come. The question in regard to an old-age pension for a single worker involves a working-life history, and the completing of any radical change must be a matter of many years. It seems, in fact, very desirable that in the meantime industrial pension plans, formal or informal, should be generally adopted—for the reason that they correspond to the conditions that have existed through a large part of the lives of many workers whose old age is still to be provided for—but always with a view to their ultimate termination.

Important studies and criticisms of industrial pension systems have been published in rather close succession for some years past. Luther Conant Jr.'s *Critical Analysis of Industrial Pension Systems* (Macmillan, 1922) is the earliest comprehensive work and is still of the greatest possible interest. The National Industrial Conference Board's *Industrial Pensions in the United States* (1925), partly because of its later publication, embraces in its study a still larger number of plans. The successive annual reports of the Carnegie Foundation for the Advancement of Teaching have for ten or more years past each included a critical survey of the year's progress in the matter. Of considerable interest are three articles written by Gurden Edwards, published in *The Annalist* of 1925, and reprinted by the Metropolitan Life Insurance Company under the title "Retirement plans in industry"; also the studies and proposals of the old-age pensions committee of the industrial-welfare department of the National Civic Federation (1925, 1926, 1927). In the present year there is a pamphlet published by the American Management Association under the title, "Pensions: a problem in management," which includes a paper by Edward S. Cowdrick and discussion by a number of industrialists and others with extensive pension experience. Finally, there is in progress of publication another comprehensive study by the Industrial Relations Counsellors, Inc., the preliminary report being dated May, 1928.

The first industrial pension system in the United States was inaugurated by the Baltimore & Ohio Railroad Company in 1884. There are probably at the present time about three hundred formal pension systems in force in the United States. It is calculated that about $50,000,000 per annum is being paid to about 100,000 pensioners, and that of this about one half is being paid by the railroad companies to former employees. Public utilities other than railroads and financial institutions having pension plans total over one hundred; and manufacturing industries, according to the preliminary report of Industrial Relations Counsellors, Inc., one hundred and twenty-three, of which a number are consolidations.

All industrial pension plans in the United States are in the same stream of development, and all have been treated, I think always, as parts of the same story. But I believe that, in the end, the problems they present must be considered separately, according to classes of industries.

Principally, the conditions are not the same in public utilities and in manufacturing concerns. The former, generally speaking, have greater permanency of existence, important in relation to the pension promise which from the time it begins to be in effect to its final fulfilment may spread over a period of fifty years. They have also probably something more nearly approaching general permanence of service, whereby a much larger proportion of the workers will fulfil a "length of service" requirement and so receive pensions. They have, I believe, in the last analysis, more fixed and limited standards of pay. Bonuses and profit-sharing, already existing and capable of great extension in manufacturing industry, are probably impracticable in public utilities, under government control and government regulation of rates that may be charged to the public. I am considering critically pension systems in manufacturing industry only.

While practically all writers on the subject of industrial pensions raise serious questions concerning the great majority of such systems, as to their social morality, as to their being ultimately practicable, as to their ever being effective at all on a sufficiently wide scale, it seems the fashion, especially of late, to take the need of pension systems for granted and to consider merely the advantages and disadvantages of different plans. This was not quite the position taken in the National Industrial Conference Board's work, nor in Luther Conant's *Critical Analysis*. The former says (p. 125), "It is not the purpose of this report to recommend or to discourage the establishment of pension plans in industry." The latter discusses more searchingly the economic and moral aspects of pension. Both give consideration and weight to the almost totally antagonistic attitude of organized labor.

Each of the two works just mentioned reviews the history of pension plans in the United States, and each contains an appendix classifying them. The *Critical Analysis*, published in 1922, lists 94 concerns having pension plans, and *Industrial Pensions in the United States*, published in 1925, lists 247 such concerns. About one fourth of the difference, apparently, is due to the different years of publication. It will, I think, be well to take the later and more comprehensive list.

It is seen, as I have already noted, that the earliest formal industrial pension plan in the United States was inaugurated by the Baltimore & Ohio Railroad Company in 1884. There were, altogether, five such plans up to the year 1900. From 1901 to 1910, 44 were added; from 1911 to 1915, 73; from 1916 to 1920, 68; from 1921 to 1925, 40. The maximum for a five-year period was, then, from 1911 to 1915; after that the numbers fall. This has been attributed to unsettled post-war conditions and to a growing realization of ultimate costs. I am inclined to add rising wages as a probable important cause, for I can not doubt the relationship between the question of the adequacy of the immediate wages paid to labor, and the ultimate supplementing of wages by pensions.

Pension plans are classified primarily as non-contributory or contributory, the former meaning that the employee makes no money contribution to the scheme, and the latter that he contributes regularly out of his wages to the pension fund, in whatever form this may be.

Non-contributory pension plans are further classified as discretionary and limited-contractual. Contributory plans in manufacturing industry (with the slight exception of two or three fully contractual plans) are all limited-contractual. Discretionary plans are defined as "reserving to the employer the exclusive right to grant, withhold, reduce or terminate the allowance in individual cases, or to modify or abandon the plan altogether." Limited-contractual plans are discretionary during the working-life, but pensions once granted may not be changed. And if the plan is contributory the employee is entitled in any circumstances to the eventual return of his own contributions, either with or without interest.

It seems clear that "limited-contractual" often covers some further contractual features when the plan is contributory. The employer may undertake to contribute certain sums to a joint fund. The employees may participate in the administration. The plan may in these and other ways tend to a closer understanding and mutual engagement between employer and employees. But the conditions governing the employer's contributions and the employees' contributions are still so distinct that apparently there is not here a single plan, but two plans, namely, a savings plan (the employees' contributions), and a limited-contractual pension plan undertaken by the employer. There is said to be a recent tendency to separate the funds, and to call the plans "coöperative" instead of "contributory." *

In any case, contributory plans are plainly a great advance upon non-contributory plans. The purpose is no longer merely an old-age pension for the worker himself. The benefits are no longer merely planned by others for him, but he is himself saving. The move is in the right direction. Its character is emphasized in the following quotation in the *Critical Analysis* from the seventh annual report of the Carnegie Foundation for the Advancement of Teaching:

> "In all contributory systems, experience has shown that eventually the contributors will demand four things: first, that if a contributor is dismissed or resigns voluntarily before the pensionable age, he shall be paid the amount of his total contributions, with interest; second, that if a contributor becomes disabled before the pensionable age, he shall receive

* *Pensions: A Problem in Management*, by Edward S. Cowdrick, American Management Association, 1928.

either a full or proportionate pension; third, that if he dies before retirement, his estate shall receive the amount of his total contribution, with interest, or even the amount of both his and his employer's contributions, with interest; fourth, that if he retires upon a pension, but dies before the total amount of his pension receipts equals the amount of his total contribution, with interest, his estate shall receive the balance."

An officer of one of the large consolidations in manufacturing industry having a non-contributory discretionary plan, has, however, advanced the pertinent question whether it is not better to have savings plans "that will stand on their own feet, rather than to operate them under the guise of a pension plan." I shall discuss this question later on.

There are, then, these types of pension plans in manufacturing industry: discretionary and limited-contractual, and each of these either contributory or non-contributory, and a very few contractual plans. Of the 247 plans in all industries listed in *Industrial Pensions in the United States* in 1925, 171 were non-contributory and wholly discretionary with the employer; 43 were non-contributory and limited-contractual; 20 were contributory and limited-contractual; and the remaining 13 either contractual or of some special type, but few of these 13 were in manufacturing industry.

It is presumable that in every industrial concern that has had a fairly long existence, sufficient for employees to have spent a large part of their working lives in its service and to have grown old therein, there has come a time when the management has, without any pension plan, granted some individual pensions. As concerns grow larger, and as with the lapse of time present and prospective pensioners increase in number, a formal plan apparently comes to be regarded as desirable. Probably the cost, present or prospective, comes to be seriously considered, and it is felt to be necessary to justify the expenditure on business grounds. A plan is formulated that aims to secure definite benefits to the employer in return for the pension expense. This seems to be the usual origin of industrial pension systems.

It was expected that the establishment of formal pension plans would create feelings of appreciation and increased attachment on the part of employees; that the prospect of a retirement pension would lift some anxiety from their minds; that as a result they would give more efficient service, and particularly long continuous service, reducing labor turnover. It is plain that these expectations have not been very generally fulfilled. In the later years more emphasis is placed upon the advantage of an established routine for retiring aging employees when it is desirable in the interests of the business to do so.

Except for earlier disability, and possible special circumstances, pensions in practically all cases are dependent upon two conditions, age and length of service. *Industrial Pensions in the United States* (pages 72 and 78) contains tables of retirement ages fixed and length of service required in 118 plans. Compulsory retirement ages are from 60 to 70 for men, and from 55 to 70 for women. Length of service required (with negligible exceptions) ranges over 20, 25 and 30 years. Continuity of service is insisted upon in practically all plans. Subject to the right of employees under contributory plans (of which in 1925 there appear to have been not more than ten at the outside in manufacturing industry), all service credits are canceled by resignation, discharge, or going out on strike. The right of the employer to discharge is kept intact.

Industrial Pensions in the United States says, "Nearly one half of all the plans studied fix an age limit for persons entering the employ of the concern for the first time . . . the age limit observed with by far the greatest frequency is 45 years."

The most serious questions relative to existing pension systems are concerned with their more obscure workings, and to some discussion of these I must come later. The plain conditions as affecting the employees are, in the meantime, serious enough. Louis D. Brandeis (quoted in *Critical Analysis*, p. 45) speaks of them as tending "to rob the working man of his little remaining industrial liberty." This seems scarcely an exaggeration, although no measure of his liberty is ostensibly taken away from him. He is placed in a position where perfect freedom of action can not be exercised without sacrifice. Pension systems are frankly arranged to create a penalty, which in many cases in any working force of ordinarily varying ages, must be very heavy, for going out on strike. The continuous service is broken and for many it is too late to begin again. But the hampering of the employee's freedom of action goes beyond this. He may wish to change his employment for many reasons; he may have the opportunity of securing higher wages or other better conditions elsewhere; and then he has to choose between sacrificing increased advantage in his working life and sacrificing his prospect of a retirement pension. And if he sacrifices other advantages for the prospect of a retirement pension, the latter is still uncertain. It is, in nearly all cases and at least throughout the working life, discretionary with the employer. The employee may through unforeseen causes be obliged to change his employment; he may be discharged; the employer may fail, or the company be merged with another company not willing to assume pension liabilities, as occurred when Morris & Company were merged with Armour & Company in 1922.

As regards the maximum hiring age, which apparently is an inevitable accompaniment of the pension based on fixed retirement age and length of service, and virtually of all private pension systems, it seems difficult to imagine anything more deplorable. Concerning it, a recent writer* has said, "There is this seeming paradox: the very pension systems that are designed to support old age operate against the employment of men of advanced years, since employers who pay pensions naturally expect their workmen to render service for at least reasonably long periods before reaching retirement age." The principle is just the same as if pension systems and maximum hiring ages were universal, and the man over 45 were left with the simple choice between his present job and none at all.

If there is a good deal to be said against existing pension plans from the employees' side, it seems that the employers have reason to be seriously concerned about them. Their situation is indeed drawn in very dark colors. The first of the three articles, already alluded to, by Gurden Edwards in *The Annalist*, since republished by the Metropolitan Life Insurance Company, is entitled "Industrial pension plans collapsing." Perhaps this is an extreme view, but it is difficult to see that it is very different from the conclusions arrived at by all who have considered the matter carefully.

The *Critical Analysis* (p. 2) says, "Very few of the industrial pension plans in the United States today are so financed that they are likely to remain solvent without refinancing or modification."

Industrial Pensions in the United States (p. 101) says, "The great majority of pension plans in American industry have been established with no accurate calculation of their future costs and with no adequate provision for financing them."

The Carnegie Foundation annual report, 1926, quotes two authorities. First, Matthew Woll, vice-president of the American

* Edward S. Cowdrick, *Pensions: A Problem of Management*, American Management Association, 1928.

Federation of Labor and president of the Union Labor Life Insurance Company: "Five hundred industrial institutions, among them many of the strongest in the country, are piling up obligations which will, within a few years, require very large expenditures for which no provision is now being made." And, second, the 1925 report of the Superintendent of Insurance, state of New York: "A large percentage of the existing pension systems were established on unsound bases. Bitter disappointment is in store for prospective beneficiaries under such unsound systems."

The simple fact appears to be that industrial concerns have gone into the business of deferred annuities under conditions involving risks which no insurance company would assume, and have done so in the great majority of cases without actuarial calculations of costs and without funding in due time the resources which with accumulations to the maturity of the obligations would suffice to meet them.

It seems very doubtful that even approximately accurate calculations are possible under the conditions of the great majority of existing plans. The pensions eventually payable depend upon labor turnover. Pensions are payable only to employees remaining with the concern until retirement age. The matter can not be foreseen. It is one aim of the pension plan to produce a different result from that in past experience. It aims to secure long continuous service. Next, the great majority of plans provide for a pension determined by multiplying a percentage of the average salary of the final 5 or 10 years by the years of service. The percentage is commonly 1, 1½, or 2. It is said that the wage level has risen in this country, from 1913 to 1928, 120 per cent. Pensions to be paid will therefore be something like double what might have been calculated for a plan established as long ago as 1913. Gradual adjustment would have been possible, but frequent revaluations of the accruing pension liability would have been necessary, and there is every indication that such frequent revaluations have been made in very few instances, if any.

Neither change in labor turnover, if indeed there has been any material change in this, nor change in wage level, which in the long run would come into relative adjustment, has, however, been the cause of the unsound condition, said to exist pretty generally, in industrial pension systems. The real troubles are lack of actuarial calculations and of funding; or in plainer words, ignorance of the long-continued increase and the ultimate annual burden of pension payments, and neglect of the principle that the cost of pensions, as a part of the cost of labor, needs to be accrued, year by year, throughout the years in which the labor is performed.

The way pension payments increase is illustrated in the first of the Gurden Edwards articles by three charts. The first assumes no growth in the payroll in the 30 years preceding the adoption of the pension plan. In the first year pensions commence for employees who entered the service 30 years before. Each year following the same number becomes eligible. Mortality, of course, gradually checks the accumulating numbers. The maximum is reached in 20 years and is then 12 times what it was in the first year of pension payments.

The second chart assumes an annual increase in employees of 10 per cent. for 20 years, and then no further increase in the succeeding 10 years of the 30 years preceding the adoption of the pension plan. The maximum is reached in 34 years and is then 37 times what it was in the first year of pension payments.

The third chart is said to represent conditions in an actual and well known manufacturing company. It is said that in this company pension payments, a few years after the installation of the plan, were becoming heavier than had been expected or provided for, and that an analysis of the situation revealed an inevitable burden which the company's finances could not support, and that abandonment of the pension plan was recognized to be imperative.

It seems plain that nothing but actuarial calculations can give any idea of the ultimate liabilities.

It is variously calculated, however, that from 1 per cent. (Gurden Edwards' second article) to 2 or 2½ per cent. (*Critical Analysis*, p. 150) upon current payrolls throughout the employees' service period, invested currently in interest-bearing securities, would yield reasonable pensions. These figures contemplate no withdrawal or death benefits; in other words, they take the full advantage of labor turnover and mortality. The actual pensioners are, of course, relatively few.

The relation between the amount necessary, if funded year by year throughout the working life, and the amount of the ultimate pension (considering individual cases singly) is shown in the Gurden Edwards articles by the following examples:

1. Salary $1,000. Employed at 25. Pensioned at 65.
   1% × 40 years = $400. Expectancy of life 11 years = $4,400.
   Reserve of $38.45 per annum throughout 40 years with 4% interest accumulations would provide for above.

2. Salary $1,000. Employed at 30. Pensioned at 65.
$500 pension for 15 years.
Reserve of $75 per annum throughout 35 years with 4% interest accumulations would provide for above as follows:

Annual contributions	$2,625.00
Interest—contrib. period	3,168.00
" annuity period	1,753.00
	$7,546.00

But in addition to the actual financial difference, there is the accounting difference. If the necessary percentage of each year's payroll is funded immediately, it is an immediate charge completing the cost of the year's labor in the year's accounts. If no sufficient reserve is made currently, it is always left for future years to complete the payments in remuneration of this year's and every year's labor. The question has been raised, quite fairly it seems to me, whether the balance-sheet of a concern having a pension system in operation is correctly stated unless the accrued pension liability is stated with whatever accuracy is attainable. It has been estimated (though not in a manufacturing industry and therefore probably not with the benefit of the same labor turnover) that accrued pension liability may equal a year's payroll (*Critical Analysis*, p. 174).

Whatever the amount of the accrued pension liability at a given date, and assuming that the pensions are ultimately to be paid according to the plan, by that amount past production costs have been understated, and the future (except as some provision may have been made either by separate fund or reserve in the accounts) left to bear an expense for which it will be receiving no return.

Industrial Pensions in the United States (p. 111) has a table, "Actuarial control and funding," which contains the following:

Plans reported as actuarial	36
" " " non-actuarial	177
" " " funded	85
" " " not funded	136

"Reported as actuarial" might mean anything from some actuarial calculations to continuous actuarial control; and "reported as funded" would doubtless include all having any pension fund whatsoever.

[A second article on industrial pensions and wages, by Mr. Whitmore, will appear in a subsequent issue of THE JOURNAL OF ACCOUNTANCY.—*Editor.*]