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PENSIONS—1949

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THE purpose of this paper is to examine the status of pensions today in this country, with a few backward glances on how we got here and a little contemplation of whither we may go—perhaps, willy-nilly. For him who runs I can sum up in one paragraph the pension *milieu* that we have today.

There exist many varieties of insured plans, countless variations of trust-fund plans, about as many deviations in public employee plans as there are governmental units, and the potentially manifold mutations of Union Welfare plans. There are full reserve plans and partial reserve plans, and, of course, formal and informal pay-as-you-go plans. We have contributory and noncontributory plans; unit benefit, level-percentage benefit, flat-dollar benefit and money-purchase plans. There are available group annuities pure, and group annuities "D. A." (Deposit Administration); pension trusts, with individual policies straight, or with a collateral fund as a chaser; group permanent contracts will do the whole job or half the job, as may be ordered; even one-year term group life is not immune from becoming a vehicle on which to load a later rate guarantee for pension purchases. The trust-fund method is ready with the cloth, and the price, for almost any pension garment the consultant can devise. Insured and trusteed methods are being frequently combined, and in ways of considerable inventiveness. (I recently saw one proposal for a plan which contained six features or methods, any one of which would, in earlier years, have characterized a single type of plan.) The federal government enriches this potpourri with all the attendant and surrounding circumstances of approved plans and unapproved plans, formulae integrated with Social Security and those not so handicapped; the Bureau of Internal Revenue is interested in aggregate funding, entry-age funding, over-funding, under-funding; whether you lump your "experience gains" and spread your "experience losses"; does clause (i) fit, or is it double (i) or triple (i)?

CAUSES

This technical jargon[1] could be considerably extended but this is not

[1] A start on a glossary of current pension terms is included in Appendix II; the anticipated Society-sponsored pension forum might well undertake a more formal system of definitions.

needed for the reader to infer that the subject of pensions in 1949 is not entirely straightforward. Now what forces, circumstances and individuals are responsible for this congeries of pension concepts, apparatus and practices? Certainly no one class of events or persons. A share in the development of *concepts* may be found in our industrialization, in our population aging, in our social legislation, in our organization of labor, in our impatience with the seemingly slow results of our own thrift, in our public employee and military pension policies and in the encroachment of progressive income taxes. A share in the *apparatus* and *practices* may be found in British precedent, in the early legislators of public employee plans, in insurance company group departments and their group actuaries, in pension-trust infected agents and their champions at the Home Office, in corporate trustees and their consultants—actuaries or otherwise—in Bureau lawyers and Bureau actuaries, in employer personnel and insurance departments, in the growth of the labor movement and the power of its current leaders.

For a guide to the actuaries' share let us look at the record. The Society's syllabus for 1900 did not include pensions as a separate required subject. Somewhere between 1900 and 1910 it was introduced; I have not searched out the exact date, but Mr. Klem tells me that in the first edition of *Recommendations of the Educational Committee* in 1910, there are a few references to the subject. The sole titles are British, except for one government report, and the pious hope is expressed that the student would be able to search out a U.S. plan to look at. By 1918, 17 titles are given, all British, indicating a growing awareness of the subject; there was also mentioned here a first pioneering study of plans in the 7th Carnegie report. (This report led into further Carnegie studies of considerable influence on the pension development in this country, *e.g.*, the Steel pension arguments today, and to the eventual formation of the TIAA, Teachers Insurance and Annuity Association.) By 1923, the year in which the Morris and Company pension debacle commenced, a sprinkling of U. S. titles is included in the *Recommendations*—all in that small print which was so irritating to the student—but no title therein on insurance company availability for pension underwriting. By 1935, some of the British references had begun to disappear and with Mr. Hohaus' important papers on Group Annuities a wider gate had swung open. By 1948, Social Security had created even a separate reference shelf and pensions proper had become so specialized as to be included as an "Optional Subject" (until the present discontinuance of options). Because of its historical interest and usability for students, I have listed in Appendix I the pension references for study

recommended by the Actuarial Society's Educational Committee; items are identified from the *Recommendations* of 1910, 1918, 1923, 1935 and 1948.

It is of interest that relatively few papers, not over half a dozen, have appeared in the *Record* and *Transactions* over the last 20 years (1930–1949) on subjects concerned with nongovernmental pension plans. Perhaps this paucity is analogous to the situation under which a myopic scientist, shortly before the atomic bomb, declared that further advances in science would be confined to the fifth decimal place. As I write, the Supreme Court has silently put pensions into the collective bargaining arena and, a little later, the President has delegated an *ad hoc* "Fact Finding Board" to make recommendations on pensions for the agreement of the steel industry and the steelworkers' union.

In collecting these thoughts on "Pensions—1949" in respect of the United States, I became curious as to the highlights of past development and present status of private plans in Great Britain. In an interesting letter from Sir George Maddex, Government Actuary, I find that funded plans along rather modern lines commenced there about the middle of the 19th century. Twenty years before our own tax-encouraged pension spurt of 1942, a similar incentive occurred in Great Britain through the Finance Act of 1921. Today there may be 9,000 to 10,000 schemes in effect there, about as many as we claim here. Insurance company activity over there dates from the latter 1920's, not any earlier than here. The new National Insurance Act does not seem to have had any retarding effect as yet on private plans, either as to new plans or as to revisions of old schemes.

To trace books and papers on a reading list is hardly a scientific way to examine the development of pensions in this country. It skids over the dynamic influences at work and the incidence of events but it is not within the scope of this paper to offer a systematic and documented history of this development. It is a purpose of the paper, however, to set forth briefly the five main vehicles, institutions or influences by which organized old-age pension benefits are being motivated. These are, in no particular order, the State (federal, state or municipal), the Insurance Company (largely group-writing companies), the Trust Fund (usually Corporate Trustee), the Union Welfare Fund (Pensions) and the Bureau of Internal Revenue (BIR).

THE STATE

Organized pensions in this country are implemented through many channels controlled by government. Military pensions are no doubt the oldest form, being provided for by law by the middle of the last century.

Today, politics bids fair to provide a pension to anyone who ever did "eyes right," from multi-billion dollar schemes, actual and proposed. City police and fire plans, again the hazardous duty concept, commenced nearly a century ago in New York City. Plans for civilian governmental employees commenced in 1896 with a noncontributory plan for superannuated teachers of New Jersey; 1913 saw a contributory teachers' plan in Massachusetts. The first plan for general state employees was in 1911, covering the employees of Massachusetts, and the first city plan for general employees was that of 1916 in Philadelphia. It took over two decades of effort on the part of the federal employees to secure the Civil Service Act of 1920 but they have made up for lost time since then. Nationwide expansion has followed among all levels of government. In addition to these plans for public employees, government—particularly the federal government—has enacted plans for other employees also. The Railroad Retirement legislation, after two false starts in 1934 and 1935, has not had its legal status challenged since, nor its sails furled from the winds of ambitious benefits. The Federal Old-Age and Survivors Insurance Benefit (OASI) program of 1935[2] and 1939, though still skewed with limited coverage, is the largest pension system on earth, and will be larger—larger in benefits, in coverage and not the least, in cost; in this instance, it is *larger* size that is the objective of a Congressional body.[3]

In general, the legislated pension plans which apply to public employees (in contrast to veterans' pensions and OASI) are based on types of formulae similar to those which are found among industrial plans. The unit-benefit-per-year-of-service method is the most common for public employees and is also being used in the Railroad Retirement Act. There are two principal differences between public employee plans and industrial plans, either trusteed or insured. These two differences are those of the public plan's (i) frequently ignoring actuarial equities and values, and (ii) relying on the taxing power rather than on advance funding. (Thus far, the Union Welfare type appears to be assuming some of the nonactuarial features of these governmental plans as will be seen later.) As an example of (i), consider the options available under the Civil Service Retirement Act. It is now permissible for a federal employee to choose his wife as a joint-and-survivor annuitant without underwriting restrictions and with only a very nominal (little underwriting) and nonactuarial re-

[2] At that time "Federal Old-Age Benefit" (OAB).

[3] The Bill reported out of the Ways and Means Committee on August 15, 1949, would extend the Social Security insurance coverage to over 10,000,000 more jobs and would increase the benefit for the covered worker by 70% or so, on the average; it would add an "extended disability" benefit (OASI would become OASDI).

duction in benefit (in fact, a bill is now seriously under consideration in Congress which would cause no reduction at all when the wife is so nominated). As an example of the second feature, consider the State of Massachusetts, where since 1945 all public employee plans within the State have been operating on the pay-as-you-go basis, gradually liquidating previous reserve funds already built up, if any.

TABLE 1

APPROXIMATE FIGURES FOR MAIN STATUTORY PENSION PLANS

CATEGORY	PERSONS COVERED (1949) (IN THOUSANDS)		FINANCES (IN MILLIONS)	
	Non-Retired (1)	Retired (2)	Reserves (12/31/48) (3)	Annual Benefit Load (1948) (4)
(1) State and Local	1,260	140	$ 3,500 (1) and (2) combined	$ 260
(2) Public Education*	1,200	120		
(3) Federal Civilian	2,000	145	3,400	140
(4) Federal Military (Regular)	1,400	130	None	225
(5) " " (Vet. Adm.)	19,000†	2,200	None	1,690
(6) Railroad Retirement	8,000‡	230	1,600	200
(7) Old-Age (and Survivors)	40,000§	1,500‖	10,700	350‖
(8) Totals	**	4,465††	$19,100	$2,865

* Nonfederal except for D.C.

† Any of these "Veterans" are potentially eligible to pension if disability traced to service causes or if disabled by any cause and in low income level.

‡ While only about 1.6 million covered jobs in force, about 2.4 million persons filled them during 1947 and perhaps 5.6 million other persons had a vested benefit from previous covered railroad employment.

§ Fully insured.

‖ Primary Insurance Benefits, including Wife's Benefits.

** Not meaningful.

†† Much overlapping.

In addition to these major programs of organized pensions by the State, numerous public employee systems, large and small, are in operation and are in the course of quiet ferment developing the pressures for expansion and liberalization.[4]

Good statistics on reserve fund attainment and current benefit load are lacking for many of these statutory pension enterprises, but certain interesting figures of magnitude are discoverable, as presented in Table 1.

These systems in Table 1 also provide, more or less, for benefits in event of death; Nos. (1), (2), (3) and (6) return at least any employee contributions made, and most of them provide for the survivorship option. Nos. (4), (5), (6) and (7) provide substantial life insurance value; in No. (5),

[4] For 15 or more other federal plans see "*Outline of Federal Retirement Systems*"; Bureau Report No. 15, Federal Security Agency, June 1948.

National Service Life Insurance is still as high as 40 billions in force (once over 130 billions) and No. (7) contains about 80 billions of life insurance in force (if the present bill, H.R. 6000, were enacted the figure might amount to some 150 billions, three-quarters as much as all commercial insurance companies in force combined).

THE INSURANCE COMPANY

The first insurance company underwriting of a pension plan in the U. S. A. is probably, as is so often the case in the beginning of things, obscured in the haze of definition. The annuity policy must long ago have been applied by an employer in furnishing a lifetime benefit to a chosen employee, but an occasional annuity policy is not a pension plan. The annuity principle, however, under advance funding and combined with the breadth and orderliness of group coverage concepts may be said to constitute a "plan" and on this criterion insured plans for industrial employees emerged a little over 25 years ago from the shop of Mr. Hohaus at the Metropolitan and, for teachers, under the group arrangement made available by the TIAA.

This beginning of the *group annuity*, as we know it, was in the form of successive single premium purchases of unit benefits. The "unit-benefit" feature was not new, having been "made in England" earlier and imported here for several prior public employee plans. The "unit-purchase" idea, however, in cutting below "annual premium" costs and in delineating exactly between what the employee's money accomplished and what the employer's, provided the building blocks for the insured form most prevalent today among employers of 50 or more employees. This pioneer type still heads the "best seller" list of insured plans of any size. Over the period, the main schism within the ranks of the unit-purchase group annuity advocates has been whether interest would or would not be added to employee contributions for refund purposes at death or termination of service. The "with interest" method is used almost entirely for new contributory plans of current and recent years, while the "without interest" method was more common earlier. The "with interest" plan is more salable to employees and has an appearance of greater equity; the "without interest" type puts the insurer, and indirectly the employer, in a sounder funding position with respect to future contingencies.

The theoretical appeal to an employer and his employees of one or more *individual policies* held by a Trustee for each covered employee, plus the anomaly, up to a few years ago, of bargain rates for these policies compared with group annuity and group permanent standards, plus, shall we say, the interesting commission perquisite, set the stage for an-

other form of insured plan, the so-called "pension trust." The individual policies issued to the Trustee were either subjoined to a benefit-producing fund or did the whole job alone; they were written by Company A, refused by Company B; eulogized here, condemned there. The relatively high and rigid costs, the medical requirements and the large amount of paper work and other administrative details for the employer and Trustee have caused difficulties in many of these plans (larger ones) and have often occasioned changes to group forms or trust-fund methods. The trend seems to be away from large insured "pension trusts." It is interesting, for many reasons, to note that no actuarial paper in our journals has been devoted to the subject of the individual policy pension trust.

In the field of *group permanent insurance* is found an interesting species of pension fauna, competently described by such specialists as Mr. Warters, Mr. Plumley and others. This species is set up on the "level premium" basis and utilizes the attributes of the insurance-annuity policy form (with insurance) and the retirement annuity policy form (without insurance); or the attributes of the ordinary life and the limited-payment life are used, with cash values translated into income at retirement, with or without augmenting the benefits from either a collateral trust fund held by a Trustee or a deposit account held by the insurance company (special form of "D. A.").

Speaking of a "D. A." account, the *Deposit Administration* variant of the group annuity form deserves considerable attention today. Sometimes referred to as the "modernized group annuity," it actually was devised in fairly early group annuity days (about 1929); the method came in for some heated arguments, pro and con, back in the early thirties. The D. A. plan was then set at a 1500 employee minimum, but since then has dropped to 500 or even less. It was then applicable to noncontributory plans only, but now may be found for the employee-contribution type as well. It then placed a limit on the duration of its interest rate guarantees whereas today the rate holds all the way—that is, until the deposits are applied to purchase annuities at retirement. (One must recall, however, that the rate of interest itself is rather different today than then.) Under the D. A. group annuity, the insurance company in effect takes "premiums in advance" (though designated as "deposits"), guarantees the interest accumulation thereon, and only purchases immediate annuities for specific persons as they retire, while under the older form of unit-purchase group annuity, purchase of deferred annuities is made each year for all employees covered. In one case the reserve liabilities are unallocated, in the other they are individually "fixed." I think it is wrong to say, as has been said, that the D. A. method was invented to compete with the *Trust-*

Fund approach, since there was very little of that kind of competition in evidence back there. I think it was more in the way of an effort for the large cases to trim costs closer to the "expected," to get away from paper work, surrender charges, good health criteria, etc.; in other words, that it was an intra-group-annuity competition with the general rigidities of the original group-annuity pattern, a "bulk" plan versus a collection of individual items. The original pattern had (and has) considerable to say in its own right, *viz.*, definiteness of accruing benefits (a *fait accompli* each year), employee contributions rigorously accounted for, advance guarantees of employee expectations if the plan should terminate and a stricter requirement of a steady premium payment. Like most dichotomies within the subject of pensions, much is to be said for each side.

There are other insured devices for pensions as yet too undeveloped to describe or classify. Several forms of level-premium group life insurance or paid-up units of group life insurance have a pension possibility at retirement age in the translation of the then reserve values into life income. These values may be supplemented from an outside trust-fund or, indeed, inside, from a particular application of the D. A. principle.

Statistical aggregates for group annuities (the D. A. plans not separated) are readily at hand since they must be classified for annual statement purposes. Not so, however, for group permanent since even where figures are thus classified, the pension or nonpension intention of the coverage is not disclosed by the statistics. Even less may be found from insurance company releases regarding individual-policy pension trusts, where again any ultimate objective relative to pensions is clouded, where numerous very small collective coverages have been issued, and where the companies are probably not too anxious to disclose the information to each other even if available. However, some indications of magnitudes are needed for my figures and from several unrelated sources I have synthesized the following approximations.

There are about 2,200 group annuities taken out by U. S. employers for about 2,000,000 employees (2,200,000 certificates) of whom about 100,000 are actually retired and receiving benefits which probably average about $50 a month. The reserves held on United States group annuities must be in the magnitude of $3.5 billion. If it were possible to find comparable figures for those group permanent cases which have been adapted to pension plans, a small increase in the above figures would be reflected. For pension plans using solely individual policies, a release of the Bureau of Internal Revenue in 1947 reported 4,114 approved cases—perhaps by now about 4,800 would be a reasonable figure; in addition, 584 more cases were reported as of a mixed type and several hundred using individual policies

must be contained in said 584 (or more by now). For the individual policy type, the average number of employees covered is small so that these 4,800 cases would represent perhaps only 200,000 persons covered. The number actually receiving retirement benefits from individual policy plans must as yet be very small since most of them are of recent vintage and imposed a ten-year deferment as a minimum period between date of issue and date of policy maturity. As to the size of reserves held under these "individual policy pension trusts," I have seen no estimates and there is no way of determining it scientifically but I would venture a guess at $300 to $400 million of such reserves.

THE TRUST FUND

Some employers wishing to set funds aside in advance for pension purposes have utilized a reserve account on their own books; some still do. This, of course, does not remove control or recapture of the account from the employer's hands, or establish a guaranteed contract or asset-corpus for the covered employees; hence under such method today no immediate tax allowance is granted by the Bureau of Internal Revenue. I believe many insurance companies use this balance-sheet reserve method for their own employees; others actually issue a group contract. Under the former method, I have wondered where employee and retired employee rights and guarantees stand in priority-relation to those of general policyholders.

The earliest use of a third-party trust fund for accumulating pension funds is not determinable from any sources I can find, but references thereto indicate that the method has been in use for at least forty years. Up until 1940, employers could either recapture these funds or have large discretionary control as to their exact application. Some very large employers have used the trust-fund method for some time,[5] but it was not until recent years, particularly with the Revenue Act of 1942, that banks and trust companies became active competitors with insurance companies for the administration of pension moneys.

The appeal made by the trust companies is in three parts—in flexibility of the plan's provisions, administration and funding, in potentially higher investment increments, and in expense charges being geared to the actual work on the case; in brief, the appeal of "net" treatment all along. They use this appeal in competing with the insurance companies' case for principles of definiteness and guarantees, and for potential dividends or rate credits to reflect actual favorable experience in mortality, interest and expense in reducing the gross premiums charged.

[5] The plan of the United States Steel Corporation dates back to 1911 and the Fund for the A. T. & T. Plan (1913) started in 1927.

The trust-fund method has its variations of application just as does the insured category. Probably four forms of it will adequately represent this variability.

1. The "straight" trust-fund vehicle is that under which all contributions, benefit provisions and other transactions are handled exclusively by the employer and trustee.
2. The trust-fund with option to purchase deferred or immediate insurance company annuity contracts—this is the same as (1) except that, as part of the investment prerogatives, the trustee may invest in insurance company contracts to provide part or all of the benefits or, in theory at least, to use such contracts as a medium for carrying the assets of the trust without even linking any given individual employee's rights or expectations with the policy taken out by the trustee in such employee's name.
3. The trust-fund for mandatory annuity purchase at retirement—on this basis, there is no discretion or nonlinkage as in (2) and the trustee must purchase for all retiring employees as they come up, an immediate annuity policy to carry out the benefit commitments of the plan. The trust company (or other trustee) administers the funds before retirement, the insurance company after retirement; this method, in broad outline, is not unlike the Deposit Administration form of group annuity.
4. The "combination" trust-fund arrangement—under this method, part of an employee's benefit is to be provided from the trustee's accumulation and part from a concomitant insurance company contract (*e.g.*, whole life individual policies or group permanent certificates) whose age-65 cash value, augmented by the accumulation in the trust-fund, is convertible, either as of original age or as of attained age, into an insurance-annuity form ("retirement income," or "income-endowment," or other name) with maturity occurring immediately so that benefits commence at once.

Another aspect of variability in trust-fund plans lies in investment procedure. To illustrate this, the gamut may be set in terms of the trustee's degree of freedom in buying, selling and exchanging securities. Plans may be found where no restrictions are imposed on the trustee, either by the Trust Agreement or by the employer. Next in order is the Trust Agreement which imposes some restrictions on the trustee such that only stated classes of securities may be used, or which imposes limiting investment criteria (*e.g.*, investments permitted to domestic life insurance companies in the State of New York); frequently the employer's own securities are specifically prohibited in the Agreement, which is good pension philosophy. A further step in confining the trustee's freedom is found in plans where each investment transaction proposed by the trustee must be reviewed and approved, before action, by the employer or his delegated representatives (*e.g.*, the employer's pension committee). Finally, the

trustee has the least freedom of discretion and action in that form of Agreement which merely makes the trustee a custodian of the funds and securities, with all investment transactions made only on the direction of the employer, often represented by some employer committee or even by an outside investment counseling service or firm.

One further facet of variability in trust-fund plans needs to be mentioned, namely that of the administration of details of the plan aside from investments. Here, again, the various degrees of freedom and responsibility of the trustee set the gamut of existing practice. On one side, the plan and the trust may be contained in one coordinated instrument which gives the trustee the full right and discretion to interpret and administer the plan and trust. On this basis the trustee must look to many details—who is eligible, what they are entitled to, what records and procedures are established, who is pensionable and when, the actuarial structure, etc. (Usually the trustee under this sort of plan is composed of natural persons of, or close to, the employer, rather than being a corporate trustee.) The intermediate type is where the trustee is charged only with certain duties outside of investments, such as verifying that employees terminating, dying or retiring are entitled to certain benefits, and arranging the payment thereof. Thirdly, there is the form which involves little or no detail, "policing" or responsibility on the part of the trustee, with action taken only as directed by the employer or his committee—in these cases the trustee (speaking of noninvestment functions) has no obligation or liability under the Agreement for acting other than by employer directives.

I have gone to a little detail in listing these different functions of the trustee under trust-fund plans so that, in addition to the information *per se* for those interested, it will be seen that just as in choosing an *insured* approach, the mere choice of the *trust-fund* approach is not tantamount to the finished product—in either instance, further choices by the employer must be made or preferences indicated; in either instance, the actuary, whether insurance company or consulting, is looked to for further assistance.

Information on trust-fund statistics is not even as available as insured-plan statistics. Trustees do not need to make the same sort of annual informational return that is called for from insurance companies by the States, and there is no movement, so far as I know, to pool statistics among the bank trustees; even so, it would leave out the many natural-person trustees. A logical place to assemble a few main statistics of pension plan growth would be the pension unit of the Bureau of Internal Revenue where most plans are reported on yearly. At present, to find anything at all of a quantitative nature, reference must be made to the Bu-

reau's 1947 release mentioned earlier, but this sort of statistical function does not appear to be a continuing service of the Bureau.

The number of straight trust-fund plans was given in the 1947 release as 658 (comprising less than 10% of the pension plans but nearly 60% of the employee coverage). Then of 584 plans of a mixed type, no doubt most of them entailed some trust-fund feature. Thus a rough estimate of 1,200 plans today using a third party trust would, I feel, not be too wide of the mark. (Neither here nor in the insured plan estimates earlier, are profit-sharing plans counted, even where such plans—the lesser number of them—defer distribution to retirement age; there were 2,508 profit-sharing plans of all kinds enumerated in the 1947 release.)

There is just no source that I know of to determine an estimate of the amount of reserves held under trust-fund arrangements. I would like to have a figure, however, for later use even if it is mainly *pro forma*. Therefore, I am going to assume a *per capita* reserve held under these cases equal to 2/3 of the similar average held under group annuity cases. This latter may be seen to be nearly $1,800 from earlier figures herein, so that multiplying $1,200 by a round figure of 2,500,000 employees who may be covered by the trust-fund method, results in a reserve magnitude of $3.0 billion for which trust-fund assets might now be held.

THE UNION-MANAGEMENT WELFARE FUND (PENSIONS)

This fourth vehicle for providing old-age benefits is usually deemed to be relatively a newcomer in the field, but in one sense, it is of long standing, stemming back to the organization of employee benefit associations. Under those associations, assistance to members in old age was not unusual. The differences today are in the character of organization, in the more dynamic objectives, in the employer source of contributions and in the more formal and more publicized status of the benefits. Previously, employees supported the benefits of these associations and the employer merely gave them office space or bore other administrative expenses. The modern Union Welfare Plan either calls for complete support by the employer or groups or employers, or seeks a substantial or major part of the cost from that source. A good example of these statements lies in the International Brotherhood of Electrical Workers (IBEW) where the organization started a pension benefit (among other benefits) back in 1928 to be supported entirely from an allocated portion of each member's union dues. The pension becomes payable after reaching a certain age (65) and period of membership (20 years) in a flat amount (now $50 a month) for each member. In recent years the assistance of employers (National Electrical Contractors Association) has been secured so that now each such

employer who engages a member of the union agrees to contribute to the pension fund a certain percent of the individual's payroll (a rate of 1% now in effect). This employer-subsidized plan is running coordinate with the older employee-pay-all plan, but in one sense they are merely two parts of a whole.

In recent years with the greater activity of organized labor in the field of fringe payroll items and conditions of employment, the demands for pensions have risen tremendously. The tacit approval by the Supreme Court recently that pensions are proper subjects for bargaining will not tend to reduce these pressures; in fact, the Taft-Hartley Act actually sets up certain rules and regulations for the establishment and maintenance of union-gained employee welfare funds in general and the pension trust fund in particular. To separate these from the employee-pay-all association type mentioned above, the term Union-Management Welfare Plan or Fund is used herein, or Welfare Plan or Fund for short. It is important to note the terms Welfare *Plan* and Welfare *Fund;* the former is more general than the latter as there are innumerable Welfare Plans handled by pay-as-you-go or insured methods. Since there are tens of thousands of union contracts, and large numbers of benefit programs under those contracts, even the Bureau of Labor Statistics itself does not have a quantitative expression on the number of Welfare Plans and Funds which might be in effect today. The distinguishing feature of a Fund is that it is a Plan which actually sets up the intermediary of Trustees.[6] All *Funds* are *Plans* but not *vice versa.*

Most of the Welfare Plans (and Funds) in effect today deal with one or more of the provisions for death, disability, hospital, surgical and medical expense, the confusingly designated "social security" issues, and only a few thus far include pensions. While the number of pension Plans (and Funds) is small, the number of employees covered is substantial. As of August 1948 about 3,000,000 employees were estimated as being covered by these Welfare Plans and about half of them had the "protection" of the pension feature. The following figures will give an idea of the industry distribution of covered employees in the year 1948.[7]

Mention was made earlier that the Welfare Fund type of pension plan was assuming some of the features of governmental plans, the implication being that the union pension plans were long on liberality and short on actuarial science. The difficulty is that the government has the taxing power but the union does not. The union does have the power to demand,

[6] See Labor Management Relations Act, 1947 (Taft-Hartley); Sec. 302 (c) (5).

[7] Information and figures drawn in part from *Welfare Funds*, Report of the Joint Committee on Labor-Management Relations, 80th Congress, 2nd Session.

bargain, strike, negotiate, arbitrate and litigate with the employer, but neither can pass laws. Under the Taft-Hartley Act the union has the privilege of equal representation with the employer on a board of trustees or managers of the Fund. If it can control the Fund's administration (*e.g.*, by having a friendly third party on the board) it may be able to effect liberalized benefits or conditions, unilaterally against the employer's objections, apparently even without bargaining the liberality.[8] Theoretically, the employer could similarly control the administration. I am, of course, referring to use of the Fund on hand and not to new employer contributions to, or features of, the Fund.

TABLE 2

COVERAGE OF UNION-MANAGEMENT WELFARE PLANS (1948)

Industry	Employees Covered for Some Type of Benefit	Possible Estimate of Those Having Pension Coverage
Coal Mining	450,000	450,000
Clothing and Textiles	875,000	500,000
Street and Electric Railway	150,000	*
Steel	138,000	*
Electrical	338,000	200,000
Smaller Groups Combined	1,049,000	350,000
Total	3,000,000	1,500,000

* Relatively negligible.

However, with all these rights, including the strike and at least equality in the administration of the Fund (*i.e.*, in the control of the rules and regulations), it is the employer's ability to pay and his acquiescence in the project which really represent such security as may exist in these Funds in lieu of either actuarial reserves or the taxing power. As yet, reserve assets are relatively small. The current predicament of the United Mine Workers Fund is a case in point.

THE BUREAU OF INTERNAL REVENUE

Not a vehicle like the four preceding institutions, but a definite influence on "Pensions—1949," is the U. S. Treasury Department's Bureau of Internal Revenue (BIR). Because of the law and regulations handled in

[8] This, at least, has been the situation in the United Mine Workers Fund the history of which up to mid-1949 will be found in *Welfare Funds*, a report of the Joint Committee on Labor-Management Relations, 80th Congress, 2nd Session, and in Economic Power of Labor Organizations, Hearings, Part 1—Committee on Banking and Currency, U.S. Senate, 81st Congress, 1st Session.

BIR, most nonpublic employers must observe, for their pension plans, the following conditions (*inter alia*) if they want (i) tax credit for their contributions, (ii) tax exemption for interest earned on such contributions and (iii) optimum tax treatment for their employees.

1. The plan must meet the Bureau's definition of pension plan: ". . . a plan established and maintained by an employer primarily to provide systematically for the payment of definitely determinable benefits to his employees over a period of years, usually for life, after retirement."
2. Plan must be intended to be permanent in nature.
3. Employer must not control trust-fund (if used) or be able to recapture contributions or premiums.
4. Plan must not discriminate and must be for the benefit of employees in general within certain broad classes permitted.
5. Plan must "integrate" with Social Security (OASI or, perhaps later, OASDI) by not resulting in combined benefits significantly greater, when related to wage or salary, for higher-paid employees than for lower-paid employees.
6. Plan documents must spell out equities in event of plan's termination, and restrict benefits of higher-paid employees if plan terminates or falls behind in contributions within 10 years after its inception.
7. It must be demonstrated actuarially that employer contributions claimed as tax-exempt expenses for a year are within certain criteria established by the law and regulations; taking unit-benefit, unit-purchase plans for example, not more than 1/10th of the past service liability plus the current service contribution or premium is permitted as deductible in any one year.

It is important to note that item 7 operates only to prevent current tax credit of "excess" contributions, *i.e.*, acts as a brake on "over-funding." None of the Bureau criteria regulates "under-funding" (except as noted in item 6) and the fact of Bureau approval of a plan or of the Bureau's clearance of tax-deductible contributions, is not a license for the plan to list itself as "actuarially sound by Government inspection." This, however, has been done to such an extent in some publicity items that there is concern on the subject in Bureau circles. Dr. Rainard Robbins in his very interesting recent study[9] offers severe criticism of this misleading state of affairs.

The *modus operandi* of securing a qualified plan in 1949 (in fact, since 1942) requires, in demonstration of the above and other items, the filing by the employer of all executed documents and numerous informative, statistical and actuarial exhibits. Much of this material must also be filed each year as part of the employer's income tax return in evidence that the year's contributions are a proper deductible expense item; this filing also

[9] Robbins, Rainard B.; *Impact of Taxes on Industrial Pension Plans*, pp. 57–8; Industrial Relations Counselors (1949).

acts as an annual "touching base" by the plan to show it is still "qualified" under the rules of the game.

Some of these governmental restrictions and requirements have been roundly questioned and condemned. They appear, however, to be necessary irritants wherever high tax rates (or salary stabilization rules) are in effect. (Canada and Great Britain, while taxing somewhat differently, nevertheless have what must seem equally onerous regulations of plans by the state.) The Bureau is staffed with qualified actuaries and assistants who, in my opinion, are conducting their responsibilities with judgment, fairness and perspicacity. The fact remains that the present law and regulations, rules, Bulletins, etc., are restraining in nature and frequently anomalous. They exercise potent influences on the current course of pension events and it seems unlikely that this situation will moderate in the future.

FUNDING CONSIDERATIONS

In some quarters, the term "a sound plan" is coming less and less to be considered as synonymous with the traditional implications of the term "a sound actuarial plan"; for the layman, however, the two will be taken as the same, adding confusion. This is an interesting and portentous development. The new concept of a "sound plan" may be described as a plan which is not blind to what its future costs will be and thinks it knows how these costs will be met when the time comes. This plan may be able to preserve itself for a long way, short of actual "cash" bankruptcy. The "sound actuarial plan" as we know it, on the other hand, is not only not blind to future costs but arranges for their alleviation through stabilized funding structures and reserves. Both types require a "source" for benefits but the former may say that "enough today, is good enough" while the latter wants more—enough more to say, "what is promised to date, is paid for."

Apropos of the distinction in terms made above, it is interesting that Commissioner Altmeyer of the Social Security Administration recently voiced an opinion on the subject in the following words: "Let me point out I recommend an actuarial basis (*sic*) regardless of how it is financed. I think there is a misunderstanding as to what is meant by an actuarial basis. No insurance plan, private or public, ought to be operated on any other basis than an actuarial basis, *which means the best estimate that trained actuaries can make as to future costs*. That must be distinguished from how those future costs are to be financed . . ."[10] (italics supplied). This was probably not a studied definition by Mr. Altmeyer (it was given

[10] Ways and Means Committee, 81st Congress, 1st Session; Hearings on H.R. 2893, p. 1316.

orally at a hearing) but taken literally, it means that a plan would be on an "actuarial basis" merely if an "awareness" of costs is evidenced by the existence of actuarial estimates; note that this more or less agrees with "a sound plan" as defined in the preceding paragraph.

We are all familiar with the "sound actuarial plan," so much so that we often forget the other breed. The insurance company plans, group annuity and the others, and the trust-fund type with competent actuarial consultants, are grounded on the need for rather fixed premiums or contributions due at fixed dates; grounded in the principle of accrued contractual benefits being represented by existing reserve assets; grounded in the principle of secular progression of these reserves at an increasing amount per unit of benefit in force or per covered employee (barring sudden growth in coverage).

For the group annuity business of seven large companies, the reserve per certificate (active and retired) has been as follows:

TABLE 3

GROUP ANNUITY RESERVES

End of Year	Certificates in Force (000)	Reserve per Certificate	End of Year	Certificates in Force (000)	Reserve per Certificate
1940	803	$ 914	1945	1,475	$1,260
1941	980	935	1946	1,662	1,320
1942	1,006	1,076	1947	1,895	1,384
1943	1,130	1,142	1948	2,114	1,485*
1944	1,358	1,155			

* There seem to be about 1.15 certificates per employee for 1948, so the reserve per employee would be about $1,700.

A rather similar trend must have taken place for most trust-fund plans also, since most of these are established on the intention of persistent and orderly funding, usually with at least some actuarial guidance. Even in cases where a casualness or naïveté on the part of trust-fund administrators on the subject of mortality and withdrawal rates has resulted in non-conservative contribution and reserve bases, at least the structure for an increasing reserve has been set up, and within that structure the plans may be deemed "actuarially sound."

Now let us turn the glass to the other side of the field and drop the word "actuarial," just leaving the word "sound" (with as many reservations as the reader wishes to indulge in).

The Social Security (OASI) program is a "sound plan," in the sense of both the payroll taxing power and the Vandenberg clause calling for

federal contributions if and when needed.[11] As seen for OASI in Table 1, there is a large government-bond reserve today with an average of some $270 per "fully insured" person but, without a tax increase before long, it will, unlike a "sound actuarial plan," become a decreasing reserve, at least per unit of benefit accrued.

The Railroad Retirement Act started off with a relatively high claim load and has been less of a reserve plan even than OASI; its reserve fund was actually reducing for a period before the war. The R. R. A. reserve per covered employee—active, inactive (vested) and retired—ran about $35 in 1938, $80 in 1944 and $165 in 1947—small when compared with the group annuity figures of Table 3. The federal civil service fund has seemingly big reserves, about $1,500 *per capita;* the major portion of this is the employee contribution equities and, on the government side, the balance for the nonretired employees is practically nil. State and local systems *as a whole* are probably falling behind as far as employee reserves *per capita* (now, possibly $1,280) are concerned. The State of Massachusetts has faced the issue squarely and, with full knowledge of the actuarial implications, is trying out, through legislation, a prohibition against reserve accumulations in respect of any new public employee plans established in the State, with gradual liquidation of any reserves held by old plans; by previous hypothesis, this is a "sound plan."[12] Of course, all of these governmental plans have the taxing power with which to cope with rising pay-as-you-go costs, and the citizens are the reserve, willing or not.

Another form of "sound plan" may be found in quasi-public enterprises where, although the taxing power is not directly in evidence, a leverage exists in the pricing mechanism of an invaluable product or service. For example, in the city of Chicago, the Chicago Transit Authority has recently been created by state statute as a corporate institution separate from the city government, to take over from private ownership (receivership) the operation of the public transportation systems. The statute calls for "a sound pension plan" and this term was intended, or at least is being construed, to be something different from "a sound actuarial plan" and to go forward without *actuarial* reserve accumulations and to be supported out of fare revenues since the Authority has not the taxing power. A recent arbitration award has given such liberal benefits to the em-

[11] The current House Bill, H.R. 6000, would delete this potential subsidy clause with the intention of having the benefits supported from payroll taxes alone.

[12] The Commonwealth of Massachusetts; Report of the Special Commission Established for the Purpose of Making a Further Investigation of the Retirement Systems of the Commonwealth and of the Political Subdivisions Thereof (May 1945).

ployees that it will be a question whether, with an already high fare, the fare increases needed to keep up with future benefits now granted will be defeated in such purpose by the law of diminishing returns.

In the expanding field of Welfare Plans and Funds, it is a moot point whether even the new definition of "a sound plan" fits these cases very often thus far. In theory, an increase in the price of a product can provide a "royalty" payment or other contribution to a Fund with which to purchase pension annuities or pay pensions directly. Labor union statements have implied a belief that there is enough permanence to an employer or industry, and the products and pricing thereof, so that actuarial reserves can be dispensed with. If that were true, the "sound plan" criterion would be met. But far less stable than the fare paid by Chicago's riding public is the demand and pricing mechanism of general consumer goods or of capital products. Then, too, the benefit incidence on a Fund is likely to be in inverse order to the current level of royalties, cents-per-hour, or other noninvestment device of alimenting the Fund. If, however, Welfare Funds will proceed with modesty and caution, with control against liberal benefits, with use of insurance companies and trust-fund reserves where practicable, and will follow actuarial counsel as far as possible, the beneficiaries will be more likely to receive their anticipated benefits—at least for a longer time.

The layman asks what are the potential differences between the "sound plan," as described, and the "sound actuarial plan"; what are the comparative consequences? Perhaps the briefest answer is that under the latter the equities of all covered employees and pensioners are recognized and preserved in the reserve fund and in careful provisions regarding it if the plan should terminate, while under the former the early claimants are the only sure claimants and careful provisions regarding equities at termination of plan would be mainly empty phrases.

I think the actuary will always have to express his reservations when his work or writings bring him into contact with plans which look to future sources of support for liabilities incurred today. He may have to admit that some of these are "sound plans" under the assumptions set or because of taxing powers implied. Certainly, merely because we may feel that these plans are not entitled to the cognomen "actuarially sound," is no cause for us to exile or condemn them categorically nor to draw away from them professionally. They need us in many ways—to tell them of their dangers, to project their future benefits and costs, to index or compare their liberality and to edit their technical provisions—indeed, to insert a bit of reserve philosophy where possible.

COST PROJECTIONS

If it comes about that low-level reserve systems or pay-as-you-go plans multiply as governmental staff plans or under the Welfare Fund aegis, or even by reason of employer funding limitations, our actuarial techniques should be available as much as possible. These now usually function either in some form of actuarial reserve funding on the one hand, or in a projection of pension load over future years on the other. For example, the actuary says, "your pension load is going to proceed from zero today up to 15% of active payroll in 30 years without a dollar's worth of cushion on hand at that time, whereas if you commence contributing 8% today, your outlay will not only remain about 8% but the pensioners (and actives) 30 years from now will be protected with a sufficient fund on hand."

Now there can be middle-ground figures to deal with, when necessary, which can be rationalized or formularized. While a discussion of these is a little apart from the topic of this paper, I think it is allied to the implications of pensions today and may offer some new ideas to our younger confreres who will be around when some of our projections are ripening, good or bad. The following table, while reaching maturity sooner than is likely in an actual employer's situation, will serve to illustrate the nature of the problems.

TABLE 4

EMERGENCE OF PENSIONERS FROM A STATIONARY POPULATION*

Years Projected	Percentage above Age 65 to Age 20–65 Group	Percentage of Payroll for ½ Pay Pension
1	1.7	0.9
2	3.4	1.7
5	8.0	4.0
10	14.5	7.3
20	22.6	11.3
30	25.1	12.6
40	25.3	12.7

* 1937 Standard Annuity Table.

Shown such a projection for his own case, an employer may well ask what the level contribution on a full reserve basis would amount to. Suppose it comes out to be 8% of payroll; he says that 8% is impossible at present but that he can put in 4%. He wants to know at what point in the projection this annual 4% invested at interest will have run out in meeting pensions; after such point, he realizes he will have to meet the

current load as shown by the projection. Here, we would solve for the number of years the 4% fund would last. This is one illustrative problem.

Another would be where the employer asks how much (as a percent of payroll, say) he should start contributing today such that by increasing this contribution rate uniformly each year (arithmetically, say, by increments of payroll percentage) he will have reached the 12.7% rate of Table 4 in 40 years and will have met all pensions in the meantime. Here, we solve for the starting contribution, and for the yearly increase (both as percentages of payroll). A solution to this problem by finite integration is suggested.

RESERVE POTENTIAL

While our techniques must be available for a variety of purposes and problems, such as those touched upon in the preceding section, we are, most of us, "reservists." We feel uneasy if the equations do not balance, if liabilities for promises (actual or implied) are unprovided for, or are without a prudent structure for building such security. Sometimes I meditate on whether they all *can* be provided for under the usual actuarial philosophy. Is there an economic limit to reserve accumulation, a potential drying up of investment sources? From the several estimates of reserve funds mentioned earlier herein, an amount in the magnitude of $25 billions may now be on hand—$19.1 governmental and $6.5 nongovernmental—and this is for pensions only, old-age protection *en masse*, aside from funds accumulating for other purposes or by other means (including the good old way of doing a large part of it yourself).

This amount of reserve assets, if we exclude $11 billions of Social Security (OASI), may be $14 billions and may represent 15 million persons (empirically adjusted for duplicates, overlaps and vested cases) as covered under what we will call "staff pension plans." But this is relatively early, or low down, on the curve of reserve accumulation because of the limited number of plans as yet and the relative newness of those already in effect. Suppose the pension movement continues to expand; suppose all private employers (or unions involved) with over 50 employees were to establish funded, vested plans. This might mean that, not counting OASI, about 30 million employees[13] would be under reserve systems—public and private—and if the pension, exclusive of OASI, were to average $100 a month at 65, it would ultimately mean a magnitude of $60 billions in reserve assets for all those then on the retired rolls, plus $150 billions

[13] Social Security statistics for 1940 show that about 18,300,000 employees were employed in firms employing 50 or more; adding 1,500,000 for railroad employment, 7,500,000 for governmental and nonprofit employees and a factor for growth and vested terminations makes 30,000,000 a plausible illustration.

for the active employees on the way there, a total of over $200 billions. These are enormous sums even within the big debt magnitudes of modern times. And while these figures are meat-axe conjectures of an outside potential, the contemplation of their size must give us pause as to the investment situation and the opportunities which would be necessary to absorb this sort of savings along with all the other savings needs and available channels.

BENEFIT DUPLICATION

One further point upon which I think it well to comment in reviewing "Pensions—1949," lies in the number and incidence of these manifold plans in their application or relation to the individual in our society. It is customary in this country for a person to change jobs a number of times; in fact, in some types of work to change a number of times a year. Many employees go from private employment to federal or state employment and back to private employment; railroad employment and Union Welfare coverage can be injected, and any number of permutations and combinations brought to mind. In times of war, national emergencies, selective service periods, etc., a person may go into the military for a while and become entitled to partial disability pensions although returning to some other employment; or Veterans' old-age pension legislation may be imposed upon the individual whether he wants it or not. Taken all together, the likelihood of pyramiding benefits is greatly increasing. Of course, pyramiding because of a series of different employments, each developing its share of a vested benefit is not serious; in fact, it is appropriate. But when pyramiding can represent concurrent benefit increments, *e.g.*, disability benefits from both a pension plan and a Workmen's Compensation law, or when disability pension from a plan can be drawn on top of a Veterans' disability pension, or when a military service pension and a civil service pension accrue for concurrent periods, or when benefits are available which call for the "double taxation" of citizens other than the recipient, such as (i) the primary insurance benefit of OASI on top of (ii) military pay pensions on top of (iii) a blanket Veterans' pension, in addition to Union Welfare or private plan benefits, the situation will get anomalous and chaotic and enormously costly. With a greatly expanding number of pension plans, welfare systems, group insurance and governmental plans, the potentialities for this pyramiding will mount. It must be borne in mind that even today it is quite possible for a worker who, by accident or design, has played his cards right to become entitled to OASI, Railroad Retirement, Federal Civil Service Retirement, a benefit from one or more private plans or Welfare Funds, a military disability pension and probably

a blanket Veterans' pension. All of these would not mean a doubling up of benefits for the same service, but they do illustrate how complex the benefit matrix has become and how wide and unfair the gap can be between the person who succeeds in getting covered for many of these benefits and the person who just misses coverage all along the line. In the development of benefits from now on, it seems to me that legislatures, private employers, governmental employers and union planning should take into account the relationship of what already exists with what is being proposed. A sense of realism in how far these things can go must be injected into our thinking.

WHAT IS AHEAD?

This paper has shown that for each major pension vehicle and influence —the State, the Insurance Company, the Trust Fund, the Union-Management Welfare Fund (Pensions) and the Bureau of Internal Revenue— the pot is boiling vigorously. Or is it a pressure-cooker without a safety valve? How long can the steam continue to generate without dangerous consequences, under a spreading system of low-geared funding on the one hand or the problems of enormous reserve accumulations on the other? I feel most inadequate to cope with this question or to don the prophet's robe—the thing is too big, too inextricably woven in with other dynamic forces of good and bad. There are two observations or conjectures, however, on which the prophet should take note in his clairvoyant séance. He sees one line, losing itself in ectoplasmic mist, which has the legend "government control"; he sees another dimming line marked "free enterprise—capacity to pay." Can he discern the distant loci of these lines?

This paper has intentionally been somewhat haphazard. It has no particular moral or conclusions to draw. It has turned the glass briefly on different portions of the field. It has found great activity at each focus. These activities are competitive between government and labor and private industry. Some of them are competitive between the insurance company and trust company categories, or within each such category. Some are competitive within the category of labor unions—that is, one union outbidding another in the benefit demands. Competition is generally a healthy sign; it stimulates invention and low costs. In the pension field, however, I am not sure that invention and low costs are the desiderata which should obtain. On the other hand, can we handle traditional methods and high costs? If these questions, as developed by the paper and such discussion as we may have, induce the reader's interest, stimulate his conjectures and add to his awareness of the complexity of the subject in this year 1949, the paper will have served its purpose.

APPENDIX I

References for Students on the Subject of Pensions Appearing in the Actuarial Society's Recommendations of the Educational Committee at Certain Intervals, 1910 (First Edition), 1918, 1923, 1935 and 1948. (The references are listed by the earliest year of appearance among the above five years; this does not mean, except for 1910, that the item had not appeared somewhat earlier. Dates following an item indicate that it was among the references listed in the Recommendations for that year.)

1910

King, *JIA* XXXIX, Staff Pension Funds, 1910, 1918, 1923, 1935, 1948
Allin, *JIA* XXXIX, Widows' and Orphans' Funds, 1910, 1918, 1923
Bacon, *JIA* XLII, Construction of Salary Scales, 1910, 1918, 1923
Manly, *JIA* XXXVI, Staff Pension Funds, 1910, 1918
Manly, *JIA* XXXVII, Staff Pension Funds, 1910, 1918
Manly, *JIA* XXXVIII, Widows' Pensions, 1910, 1918
Manly, *JIA* XLII, Widows' Pensions, 1910, 1918
23rd Annual Report Commissioner of Labor (1908), 1910, 1918

1918

Burn & Symmons, *JIA* XLIX, Practical Points . . . Pension Funds, 1918, 1923, . . . , 1948
Manly, *JIA* XLV, On Staff Pension Funds, 1918, 1923, 1935, 1948
M'Lauchlan, *TFA* IV, Fundamental Principles of Pension Funds, 1918, 1923, 1935, 1948
M'Lauchlan, *TFA* VII . . . Salary Scales . . . Pension Funds, 1918, 1923, 1935
Walker, *TASA* XVI, Staff Pension Fund, 1918, 1923, 1935
King, *JIA* XXX, Premiums for Family Annuities, 1918, 1923
Report, *JIA* XLV, Report on Railway Superannuation Funds, 1918, 1923
Thomas, *JIA* XL, Special Features of Widows' and Orphans' Funds, 1918, 1923
Act, *JIA* XLIII, Old-Age Pension Act of 1908, 1918
Manly & Ackland, *JIA* XLVI, Municipal Pension Funds, 1918
Report (7th) Carnegie Foundation for the Advancement of Teaching, 1918

1923

Howell, *JIA* LII, Valuing Widows' Funds, 1923, 1935
Maclean, *TASA* XXI, Notes on Problems of Small Pension Funds, 1923, 1935
Marr, *TFA* II and *JIA* XXXVIII, Widows' Funds; the Valuation of a Widow's Annuity, 1923, 1935
Whittall, *JIA* LI, Pension Problems in America, 1923, 1935
Meriam, L., *Principles Governing Retirement of Public Employees*, 1923
Report of Pension Funds, City of New York, Parts II and III, 1923
Review, *JIA* LI, Review of Report on Pensions for Hospital Officers and Staff, 1923

Review, *TASA* XXI, Merchants' Association Reports, 1923
Schjoll, *JIA* XL, Contributions, Widows' and Children's Fund, 1923
Simmonds, *JSS* I, 5, Elementary Principles of Pension Funds, 1923
Walker, *TASA* XXIII, Widows' and Orphans' Benefits, 1923
Woodward, *PCAS* VIII, Industrial Retirement Systems Based on Money-Purchase, 1923

1935

Hohaus, *RAIA* XXIII, Further Remarks on Group Annuities, 1935, 1948
Hohaus, *TASA* XXVI, Reinsurance of Retirement Plans, 1935, 1948
Corbett, *RAIA* XVI, Liability of Pension Funds, 1935
Edwards & Murrell, *Staff Pension Schemes in Theory and Practice*, 1935
Rietz, *RAIA* III, Current Pension Funds, 1935
Rietz, *RAIA* X, Pensions for Insurance Company Employees, 1935
Robbins, *RAIA* XXIII, Railroad Retirement Act, 1935

1948

Canada—Income War Tax Act, 1948
Canadian Taxation Division—Rules—Pensions—Income War Tax Act, 1948
Freeman, *JIA* LXI, Short Method of Valuation of Pension Funds, 1948
Guertin, *RAIA* XXXIII, Valuation of Company Liabilities, 1948
Hohaus, *RAIA* XVIII, Group Annuities, 1948
Marples, *JIA* LXXIII, Analysis of a Pension Fund, 1948
Porteous, D.A., *Pension and Widows' and Orphans' Funds*, 1948
Simons, *JIA* LXXI, Group Life and Pension Schemes, 1948
Stark, *TASA* XXIX, Discussion of a New Annuity Mortality Table, 1948
Stark, *RAIA* XXIX, Group Annuity Mortality, 1948
U. S. BIR Bulletin (June 1945), 1948
U. S. Internal Revenue Code, Sec. 165, 23(p) and 22 (b)(2)(B), 1948
Woodward, *TASA* XXVI, Liabilities Industrial Pension Plans, 1948

APPENDIX II

Glossary of Certain Terms Relative to the Subject of Pensions in 1949

The following definitions, descriptions and comments are entirely those of the author and may not conform in all instances with those of pension actuaries or nonactuarial consultants. The terms are given in the briefest form possible for conveying their nature and implications. Not all of these terms are used in the paper itself, but all are common to the subject today. The author feels there is need for more uniformity in pension terms in use and hopes this Glossary may be enlarged and improved by other actuaries.

The Glossary is divided into four parts by the broad categories of "The Plan," "The Benefits," "The Funding," and "The Bureau." A list of defined terms is

given below as a preface. In describing a given term in the Glossary, words capitalized indicate a defined term elsewhere herein and its key number is given. Wherever the word "plan" is used it means Pension Plan as defined at (16).

THE PLAN

(1) Actuarial Reserve Plan
(2) Balance Sheet Reserve Plan
(3) Combination Plan
(4) Contributory Plan
(5) Deposit Administration Plan
(6) Employee-Pay-All Plan
(7) Excess Plan
(8) Group Annuity Plan
(9) Group Permanent Plan (Pensions)
(10) Individual Policy Plan
(11) No-Death-Benefit Plan
(12) Noncontributory Plan
(13) OASI
(14) Offset Plan
(15) Pay-As-You-Go Plan
(16) Pension Plan (and Pensions)
(17) Pension Trust Plan
(18) Retirement Plan
(19) Self-Administered Plan
(20) Self-Insured Plan
(21) Welfare Plan (Pensions)
(22) Welfare Fund (Pensions)
(23) With-Interest Plan
(24) Without-Interest Plan

THE BENEFITS

(25) Average Pay
(26) Cash-Refund Benefit
(27) Current Service Benefit, Annuity or Credit
(28) Fixed- or Level-Percentage Benefit
(29) Flat-Amount Benefit
(30) Future Service Benefit, Annuity or Credit
(31) Insurance-Annuity Forms
(32) Modified Cash-Refund Benefit
(33) Money-Purchase Benefit
(34) Past Service Benefit, Annuity or Credit
(35) Primary Insurance Benefit (PIB)

THE BENEFITS (*Continued*)

(36) Retirement Annuity Form
(37) Unit Benefit
(38) Vesting

THE FUNDING

(39) Accrued Liability
(40) Actuarial Reserve
(41) Advance Funding
(42) Aggregate Cost Method
(43) Amortization
(44) Annual Premium to Retirement Method
(45) Frozen Initial Liability Method
(46) Good Health Clause
(47) Funding Methods
(48) Master Contract
(49) Money-Purchase Method
(50) Normal-Cost-Entry-Age Method
(51) Over- and Under-Funding
(52) Pay-As-You-Go Method
(53) Projections ((*a*) of Benefits, or (*b*) of Costs)
(54) Reversions
(55) Single-Premium Method
(56) Unit-Purchase Method
(57) Spread-Funding
(58) Trust-Agreement
(59) Trust-Fund

THE BUREAU OF INTERNAL REVENUE (BIR)

(60) Base; 10% Base; Special 10% Base
(61) Bureau Tests
(62) Clauses (i), (ii) and (iii)
(63) Cost of Insurance
(64) Experience Gains and Losses
(65) Integration—(Social Security)
(66) Temporary Limitations
(67) Thirty-Percent Rule

THE PLAN

(1) *Actuarial Reserve Plan*—This term defies precise definition. The usual connotation is probably that of a plan involving a definite structure for Advance Funding (41) under the supervision of an actuary (insurance company or con-

sulting), proceeding on an orderly basis of actuarial accounting towards meeting the Accrued Liabilities (39) of the plan and the expected liabilities to be incurred in the future. (See Actuarial Reserve (40).)

(2) *Balance Sheet Reserve Plan*—That type of plan where Advance Funding (41) is accomplished by setting up a liability item on the employer's books for the past and accruing obligations of the plan; there is usually no segregation of assets or other guarantee of payment.

(3) *Combination Plan*—(a) That form of plan which utilizes both insured contracts (usually individual policies) and a collateral Trust Fund (59); at retirement, original date conversion of the policies, or attained age conversion, translates the equities from both sources into a life annuity policy form.

(b) Any plan which uses both insured contracts and a Trust Fund (59), whether or not merged together at retirement as in (a). (Part of the benefit might be paid by the policy and the balance by the Fund.)

(4) *Contributory Plan*—One under which both the employer and the employees contribute; employees generally contribute only towards service credits after the effective date of the plan. (See (6) and (12).)

(5) *Deposit Administration Plan (D.A.)*—That form of Group Annuity Plan (8) which accepts premiums to accomplish Advance Funding (41), and pays guaranteed interest thereon, but does not actually apply them to the purchase of specific annuities until an employee retires or the contract terminates.

(6) *Employee-Pay-All Plan*—A plan under which the employer meets none of the costs; employee contributions may vary by age or be determined on a general-average basis.

(7) *Excess Plan*—A plan to which are eligible only employees earning over a stated annual compensation (usually the OASI (13) maximum, at present $3,000); allied to Integration—Social Security (65).

(8) *Group Annuity Plan*—That form of insured plan handled in the group department of the life insurance company under a Master Contract (48) and using bulk underwriting, accounting and other group procedures, though individual records are kept.

(9) *Group Permanent Plan (Pensions)*—This is a special application of the group methods of underwriting to a level-premium Master Contract (48) arrangement whereby the certificate-holder's pension is provided from proceeds maturing at normal retirement date as if the employee had been covered by an individual policy of the Insurance-Annuity (31) type, or of the Retirement Annuity type (36).

(10) *Individual Policy Plan*—See (3) and (17).

(11) *No-Death-Benefit Plan*—This type of plan (practically always Noncontributory (12)) provides for pensions only, with no return in the event of death; under Contributory Plans (4) of the Group Annuity type (8), the employer's part is usually on a no-death-benefit basis.

(12) *Noncontributory Plan*—Under this form the employer meets all of the cost, for both Past Service Benefits (34) and Future Service Benefits (30), and the employee makes no contribution whatsoever.

(13) *OASI*—Designation given to the Old-Age and Survivors Insurance Title of the Social Security Act as amended in 1939; usually the Social Security payroll tax provisions of the Internal Revenue Code (exclusive of unemployment compensation taxes) are also implied under this designation.

(14) *Offset Plan*—Generally used to indicate a type of plan whose benefits are directly reduced—approximately or exactly—by all or part of the OASI (13) benefits.

(15) *Pay-As-You-Go Plan*—A plan—formal or informal—without Advance Funding (41) or any Actuarial Reserve (40). (See (52).)

(16) *Pension Plan (and Pensions)*—This title is included for its theoretical interest. For some time certain students and authorities have been favoring the title "Retirement Plan" to indicate a formal Advance Funding (41) system of old-age protection for an employer's personnel—*e.g.*, a "Staff Retirement Plan." The word "pension," it was felt, carried certain imputations of either charity or government, or both, as well as not always applying to the superannuation concept. It appears to date, however, that the terms "pensions" and "Pension Plan" have given little if any ground, apparently being more traditionally imbued with the concept of old-age protection as well as being simpler to use. A Pension Plan, then, is taken here as any formal arrangement which undertakes to provide periodic income, determined by a formula, to employees at retirement for disability or old age, whether on an Advance Funding (41) basis or not. The word "pension" is used interchangeably with "benefit," "pension benefit," "retirement benefit," "retirement income," etc., to express the periodical life income after retirement. (See the definition of "pension plan" of the Bureau of Internal Revenue on page 233 hereof.)

(17) *Pension Trust Plan or Individual Policy Pension Trust Plan*—The name usually given to that type of plan implemented by individual policies, with or without insurance, issued to a trustee in the employee's name; the trustee holds the policies until death, termination of employment, or retirement, and, in fact, sometimes all benefits flow through the trustee, rather than directly from the insurance company, to the deceased, terminated or retired employee. There may be a collateral Trust Fund (59); see (3).

(18) *Retirement Plan*—See Pension Plan (16).

(19) *Self-Administered Plan*—This is a common expression used too liberally to express, in general, a noninsured plan. Actually, its connotation of full administration by the employer does not fit any formal plan observing the rigidities imposed by the Bureau of Internal Revenue. About the only forms of plan to be termed a Self-Administered Plan would be that of the Balance Sheet Reserve (2) type and the Pay-As-You-Go Plan (15). A considerable degree of administrative latitude may, however, rest in the employer under a noninsured disability feature of a plan.

(20) *Self-Insured Plan*—This term, more closely than the term Self-Administered Plan (19), expresses the Trust-Fund (59) type of plan in comparison with the insured plan types; it implies that the employer makes up Experience Losses (64), if any, in past contribution rates (which would be the obligation of the in-

surance company with respect to premiums already paid under an insured plan, hoping to recoup in future premiums), or, conversely, reaps any immediate Experience Gains (64) (which might not be immediately reflected under an insured plan).

(21) *Welfare Plan (Pensions) (or Union Welfare Plan (Pensions), or Union-Management Welfare Plan (Pensions))*—Any form of Pension Plan (16) to which the employer becomes a contributing party upon the demands of, or in cooperation with, a labor union to provide pension benefits for the union members among his employees.

(22) *Welfare Fund (Pensions) (or Union Welfare Fund (Pensions), or Union-Management Welfare Fund (Pensions))*—Any form of Welfare Plan (Pensions) (21) which sets up a Trust-Fund (59) for the purpose of receiving the contributions and implementing the benefits; specifically the type of fund referred to in Section 302(c)(5) of the Labor Management Relations Act of 1947 (Taft-Hartley).

(23) *With-Interest Plan*—This refers to that type of plan (usually a Contributory Plan (4)) under which employee contributions together with stated interest are payable to or for the employee in the event of termination of service or death; the employer's part is usually on a No-Death-Benefit (11) basis.

(24) *Without-Interest-Plan*—Same as (23) except no interest on employee contributions is included in the refund.

THE BENEFITS

(25) *Averag Pay*—The basis of compensation used for the benefit formula involving the pay of more than one year. Forms of Average Pay include the "career average," which means the average from the date of the plan or coverage thereunder, if later, up to retirement date; the "final *n*-year average," which means the Average Pay for the *n* years just preceding retirement (the resulting benefit is sometimes called an "objective annuity"); the "secondary *n*-year average," which means, letting *n* equal 5, for example, the average compensation from age 55 to age 60 when retirement is at 65; the "highest *n*-year average," which means picking out the *n* years (usually consecutive) which would yield the highest Average Pay.

(26) *Cash-Refund Benefit*—This benefit type, under either the With-Interest Plan (23) or Without-Interest Plan (24), provides that if the retired employee dies before receiving in *total pensions* an amount equal to the *death benefit just before retirement,* the balance is payable to his beneficiary. Under a Contributory Plan (4), if the employee's part is strictly on the Cash-Refund form, it would mean that if death occurs before annuities provided by his *own* contributions amount to the total of his *own* contributions (with or without interest) the balance is payable to his beneficiary (*cf.*, Modified Cash-Refund Benefit (32)).

(27) *Current Service Benefit, Annuity or Credit (usually synonymous with Future Service Benefit, Annuity or Credit (30))*—This is the amount of deferred pension benefit accruing by reason of a year's service after the plan's effective date;

it is used mainly under the Unit-Benefit (37), Unit-Purchase (56) type of plan where it can be expressed as a percentage of pay or as a flat-dollar unit.

(28) *Fixed- or Level-Percentage Benefit*—This benefit formula provides a pension at retirement expressed as some fixed level percent of pay such as 30%, usually reduced for short service by some *pro rata* rule.

(29) *Flat-Amount Benefit*—This benefit formula provides a pension at retirement in some flat amount such as $50 a month; it is usually uniform among employees without regard to earnings but can be reduced for length of service below a given standard by some *pro rata* rule.

(30) *Future Service Benefit, Annuity or Credit*—See (27) above; but sometimes refers to the whole amount of pension benefit with respect to service rendered between the effective date of plan or an employee's entry thereunder, if later, and retirement age.

(31) *Insurance-Annuity Forms*—This term is suggested for use to designate the many names for the individual policy form which provides life insurance maturing at normal retirement age with a related life income; this relationship is usually on the basis of $10 a month life annuity (120 months certain) per $1,000 of initial insurance. Among the names for this form used by insurance companies are income endowment, retirement income, retirement endowment, and others. (See (36).)

(32) *Modified Cash-Refund Benefit*—(First, see (26).) Under this *modified* form, if the retired employee dies before receiving in *total pensions* an amount equal to his *own* contributions (with or without interest), the balance is payable to his beneficiary. In other words, the annuity theretofore provided by both the employee and employer contributions is deducted from a sum based on the employee contributions only.

(33) *Money-Purchase Benefit*—Under this arrangement, the employer, or the employer and employees jointly, contribute fixed annual amounts (flat, or percentages of pay) which are applied, usually in the year contributed under insured plans, to provide such units of pension benefits as the premium rates or contribution schedules then in effect will produce. On this basis, the unit of benefit produced decreases with age since the amount, or payroll-percentage, of contribution is fixed.

(34) *Past Service Benefit, Annuity or Credit*—This is the amount of pension which has "accrued" up to the effective date of the plan, representing credited service rendered prior thereto; it is used mainly under the Unit Benefit (37) type of plan, with a unit of pension benefit credited for each year of credited past service.

(35) *Primary Insurance Benefit (PIB)*—This is the name given to the monthly benefit arising at or after age 65 for the fully-insured employee under OASI (13). This PIB does not include any "wife's benefit" or "child's benefit" under the Act.

(36) *Retirement Annuity Form*—This designates the individual policy form which matures at normal retirement age as a life income, usually 120 months

certain. The death benefit before retirement is usually the sum of the premiums paid or the cash value, if greater. (See (31).)

(37) *Unit Benefit*—This is the general name given to the pension benefit, either for years of past service, current service or future service, representing a one-to-one relationship between each such year of credited service and the allocated benefit for each such year.

(38) *Vesting*—By this term is usually meant the feature of a plan whereby the contributions of the employer, or benefits deriving therefrom, become the employee's as a right. Benefits may vest at death, disability, termination of employment, or retirement. The form of the vesting may be a lump-sum payment in cash, cash payments in installments, or a pension benefit, deferred or immediate. Vesting may be for the full amount of the employer part or may be partial; it may take effect in full as of some given time (age and/or length of service) or may increase gradually, "graduated vesting."

THE FUNDING

(39) *Accrued Liability*—(a) Means the present value on the plan's effective date of the Past Service Benefits (34).

(b) Means the present value at any date after the effective date of the plan, of all Past Service Benefits (34) and Current Service Benefits (27) credited up to such date.

(c) Means the actuarial difference, expressed as one sum, or as a percentage of payroll, of the present value of future benefits over the present value of the anticipated regular annual contributions of the future—"normal," or "annual premium" or "unit-purchase" contributions expected.

(d) Funded Accrued Liability means the portion of the total Accrued Liability for which premiums have been paid or assets have been set aside; Unfunded Accrued Liability is the balance of said total.

(40) *Actuarial Reserve*—This is the general name given for a plan's funding structure which uses the building blocks of actuarially determined contributions or premiums, whether the type is single-premium, level-annual premium, graduated premium, etc. It could include a modified reserve system which only undertook to complete part of said structure, such as establishing reserves for pensioners only; or it could mean any of a number of extreme or intermediate reserve systems. (A good reference on this matter is Actuarial Study No. 10 of the Office of the Actuary, Social Security Board, entitled *Various Methods of Financing Old-Age Pension Plans*.)

(41) *Advance Funding*—This refers to any system of financing a plan which, ahead of the actual falling due of the pension payments to retired employees, (i) sets aside funds with an insurance company or trustee, or (ii) sets up liabilities on the balance sheet.

(42) *Aggregate Cost Method*—This is the Funding Method (47) which expresses the present value of all future benefits for present (and retired) employees, reduced by any reserve funds on hand, as a proportion of the present value of all future salaries of present employees. The resulting proportion applied to

the year's covered payroll gives the year's contribution. (See Table of Formulae on pages 252–53.)

(43) *Amortization*—In pension work this term is usually used to designate the installment contribution for an Accrued Liability (39), such as that for Past Service Credits (34) under the single-premium Unit-Purchase (56) funding method, or for the unmet cost under certain other funding methods. (See Table of Formulae on pages 252–53.)

(44) *Annual Premium to Retirement Method*—This Funding Method (47) is that of the usual level annual premium basis with premiums or contributions payable from age of entry, or from date of an increase in benefit, to normal retirement age. (See Table of Formulae on pages 252–53.)

(45) *Frozen Initial Liability Method*—Under this Funding Method (47) the initial Accrued Liability (39) remains unchanged and any adjustments therein are reflected by adjustments in the determination of the contribution for each ensuing year. This is not to say that this method necessarily implies no progress is made in funding the initial Accrued Liability (39). (See Table of Formulae on pages 252–53.)

(46) *Good Health Clause*—Under Group Annuity Plans (8), other than D.A. (5) forms, where the employer contributions are on a No-Death-Benefit (11) basis, terminating employees can create reversions in the form of reserves released. However, to prevent anti-selection, the insurance companies reserve the right in the Master Contract (48) to require some evidence that the terminating employee was not apt to shortly become one of the deaths counted upon by the tabular mortality rate. The clause reserving this right included in each such contract may be called the "Good Health Clause."

(47) *Funding Methods*—Any method of financing the benefits of a plan. Several actuarial methods of meeting benefit costs are described in this Glossary—for a summary, see the Table of Formulae included in this Appendix.

(48) *Master Contract*—This refers to the group insurance contract implementing a Group Annuity Plan (8), D.A. Plan (5) or Group Permanent Plan (9); it is effected between an employer (possibly other contracting parties) and an insurance company. Employees' benefits and rights are governed by the Master Contract and explained in certificates issued to the employer for each of his covered employees.

(49) *Money-Purchase Method*—Under this Funding Method (47) the employer, together with the employee, if the plan is contributory, makes a fixed sum or percentage contribution each year, which premium or contribution is used to provide as much deferred pension benefit as it will according to the actuarial tables used. Usually the employer matches the employee's contribution each year, or pays some fixed multiple or fraction of the employee's contribution. (See Table of Formulae on pages 252–53.)

(50) *Normal-Cost-Entry-Age Method*—Under this Funding Method (47), an age is chosen to represent the usual average entry age for eligibility to service credits for all employees under the plan; a contribution rate, equal to the level annual premium to retirement for the anticipated benefits is determined for

such assumed entry age. This is the Normal Cost. From the total present value of the benefits is deducted the amount in the fund at the time of valuation with a further deduction of the present value of the Normal Cost contributions for future years. The lump-sum balance is one form of Unfunded Accrued Liability (39d) (sometimes called the "deficiency cost"). (See Table of Formulae on pages 252–53.)

(51) *Over- and Under-Funding*—These terms merely mean that the fund or the employer's account with the insurance company is more than, or less than, the proper actuarial reserve for that year, after adjustment for Experience Gains or Losses (64) for that year or the year before. It is a term usually used in connection with Bureau matters.

(52) *Pay-As-You-Go Method*—This is the well-known phrase used to describe the opposite of Advance Funding (41); namely, it is the method of merely meeting the pension outgo, as it falls due, from surplus, general revenue or current assessments. Other names are the "assessment method," the "cash-disbursement method," or the "owe-as-you-go method."

(53) *Projections ((a) of Benefits, or (b) of Costs)*—(a) By this term is usually meant estimates prepared to illustrate the annual pension disbursement load which may be expected for several or many years into the future.

(b) Another meaning of the term is that of a forecast of estimates of contributions for future years where the Advance Funding (41) has been set up on some actuarial structure. For example, to project the single premiums which might emerge in future years under the Unit-Purchase Method (56), taking into account dying, terminating and retiring employees and new eligibles, and sometimes changes in pay.

(54) *Reversions*—This term can be used as the general name for credits arising under the plan because of (i) terminations of employment in excess of a withdrawal rate assumed, if any, (ii) deaths higher than the tabular mortality, (iii) interest earned larger than assumed, (iv) retirement deferments beyond the assumed age, (v) salaries lower than anticipated by salary scale, if used, etc.

(55) *Single-Premium Method*—This is the method of funding a part of the Future Service Benefit (30) each year and of funding the many units of Past Service Benefit (34) for an employee at or prior to his retirement. (See Table of Formulae on pages 252–53.)

(56) *Unit-Purchase Method*—This is the common use of the Single-Premium Method (55) whereby a given year's unit of pension benefit, representing service rendered in that year, is funded or purchased in that year.

(57) *Spread-Funding*—This is an adaptation of the Annual Premium to Retirement Method (44) such that the level annual contribution or premium is payable for a given time beyond retirement age (but ceasing at death). By this method the full Actuarial Reserve (40) does not have to be on hand by the time pension benefits commence. (See Table of Formulae on pages 252–53.)

(58) *Trust-Agreement*—This is the name of the instrument drawn up between the employer (or union, association, etc.) and a trustee (corporate or natural

FUNDING METHODS

TABLE OF FORMULAE

SYMBOLS

w = Age of employment or beginning of credited service
x = Attained age at plan's inception but prior to retirement
y = Normal retirement age
z = An age after age y
n = Years in amortization period
i = Valuation interest rate
S = Annual wage or salary for purposes of plan; may include effect of salary scale
B = Annual benefit of standard form due at age y
B_x = That portion of B due to service for a year at age x
${}_wB_x$ = That portion of B due to service from age w up to but not including age x
P = Amount of premium or contribution available at age x for benefit purposes
F = Fund on hand
L = Initial liability for Method (7)
E = Prospective cost adjustment for Method (7)
Σ = Means the sum for all employees*

FUNDING METHOD	FUNCTIONS INVOLVING AGE MAY INCLUDE WITHDRAWAL OR OTHER DECREMENT IF NECESSARY	
	1st Year Cost (Per Employee Unless Σ Indicated)	mth Year Cost (Per Employee Unless Σ Indicated)
	(I)	(II)
(1) *Single Premiums*		
(a) Current Service	$B_x \cdot (N_y/D_x)$	$B_{x+m} \cdot (N_y/D_{x+m})$
(b) Past Service	${}_wB_x \cdot (N_y/D_x)$	${}_wB_x(N_y/D_{x+m} - N_y/D_x \cdot [{}_mu_x]/\ddot{a}_{\overline{n}\mid i})$, yet unfunded
(c) Amortization n Years	${}_wB_x \cdot (N_y/D_x) \cdot (1/\ddot{a}_{\overline{n}\mid i})$	${}_wB_x \cdot (N_y/D_x) \cdot (1/\ddot{a}_{\overline{n}\mid i})$ when $n>m$; zero when $n<m$
(2) Money Purchase	P; buys $P \cdot (D_x/N_y) = B_x$	P; buys $P \cdot (D_{x+m}/N_y) = B_{x+m}$
(3) Annual Premium to Retirement	$B \cdot [N_y/(N_x - N_y)]$	$B \cdot [N_y/(N_x - N_y)]$
(4) Annual Premium beyond Retirement ("Spread Funding")	$B \cdot [N_y/(N_x - N_z)]$	$B \cdot [N_y/(N_x - N_z)]$ when $m<(z-x)$
(5) *Normal Cost Entry Age*		
(a) Normal Cost	$B \cdot [N_y/(N_w - N_y)]$	$B \cdot [N_y/(N_w - N_y)]$
(b) Deficiency Cost ("Past Service")	$B \cdot (N_y/D_x) - B \cdot [N_y/(N_w - N_y)] \cdot [(N_x - N_y)/D_x]$	$\Sigma[B \cdot \{(N_y/D_{x+m})\} - B \cdot \{N_y/(N_w - N_y)\} \cdot \{(N_x - N_y)/D_{x+m}\}] - F$
(c) Amortization n Years	[Item (I) (5) (*b*)] $\cdot (1/\ddot{a}_{\overline{n}\mid i})$	Σ[Item (II) (5) (*b*)] $\cdot (1/\ddot{a}_{\overline{n-m}\mid i})$ (Note (i))

Funding Method	Functions Involving Age May Include Withdrawal or Other Decrement if Necessary	
	1st Year Cost (Per Employee Unless Σ Indicated)	*m*th Year Cost (Per Employee Unless Σ Indicated)
(6) *Aggregate Cost*	(I)	(II)
(*a*) Value of All Benefits	$\Sigma B\cdot(N_y/D_x)$	$\Sigma B\cdot(N_y/D_{x+m})$
(*b*) Value of All Future Salary	$\Sigma S\cdot[(N_x-N_y)/D_x]$	$\Sigma S\cdot[(N_{x+m}-N_y)/D_{x+m}]$
(*c*) Accrual Rate	[Item (I) (6) (*a*)] ÷ [Item (I) (6) (*b*)]	[Item (II) (6) (*a*) $-F$] ÷ Item (II) (6) (*b*)
(*d*) Annual Cost	Accrual Rate $\times \Sigma S$ (Note (ii))	Accrual Rate $\times \Sigma S$ (Note (ii))
(7) *Frozen Initial Liability* (*Note iii*)		
(*a*) "Normal Cost" for Year	$\Sigma B\cdot[N_y/(N_w-N_y)]+[i/(1+i)]\cdot L$; 1st year form.	$\{\Sigma B\cdot[(N_y/D_{x+m})]-(F+L)\}\Sigma S\div\{\Sigma S\cdot[(N_{x+m}-N_y)/D_{x+m}]\}$
(*b*) "Past Service" Liability (L, say); to remain unfunded	$L=\Sigma B(N_y/D_x-\{N_y/[N_w-N_y]\}\cdot\{[N_x-N_y]/D_x\})$	L is unchanged, same as Item (I) (7) (*b*)
(*c*) Adjustment ($\pm E$, say); to Estimate Next Year's Normal Cost (not applicable for a year if actual contribution P is same as N.C. of (*a*))	$E_1=\{[\Sigma P-\text{Item (I) (7) }(a)]/[\Sigma S\cdot(N_x-N_y)/D_x]\}\cdot\Sigma S$	$E_m=\{[\Sigma P-\text{Item (II) (7) }(a)]/[\Sigma S\cdot(N_{x+m}-N_y)/D_{x+m}]\}\cdot\Sigma S$
(*d*) Prospective "Normal Cost" Following Year	Item (I) (7) (*a*) ± Item (I) (7) (*c*)	Item (II) (7) (*a*) ± Item (II) (7) (*c*)

* Where a summation by the symbol Σ is indicated for B or S, and is then involved in a multiplication with a function involving age x, it means that the total of B or S *for that age* enters into the product for that age and the Σ in such cases denotes the summation of those products for all ages.

NOTES

(i) This expression assumes that as much funding of the Deficiency Cost as possible is to be accomplished by year n; there will be further Deficiency Costs after year n, however, as new employees enter above age w and as salary increases occur of different incidence or size from salary scale used, if any.

(ii) When desirable to have an allocated past service cost, B may be separated for that part applicable to past service (${}_wB_x$) and valued as in (a); this "adjusted (a)" divided by (b) gives the past service accrual rate of (c), except that in years after the first, the fund, F, must be allocated in some rational manner for its past service part and the result deducted from the "adjusted (a)" in the numerator of (c).

(iii) It will be seen that in this example of this method, no changes take place in the initial liability L for actual experience or change in valuation assumptions; also no amortization is assumed here, so that there is required at least interest to be paid on the initial liability. Unlike Method (5), the "Normal Cost" in (7) takes up the obligation of any increases or decreases in "past service" liabilities as well as changes in future service liabilities.

person(s)) for the management of investments and such other functions under the plan as may be agreed upon. (See pages 228–29.)

(59) *Trust-Fund*—By this is usually meant the accumulating invested contributions held by the trustee of a plan under the Trust-Agreement (58).

THE BUREAU OF INTERNAL REVENUE (BIR)

(60) *Base; 10% Base; Special 10% Base*—This refers to the BIR criterion of measurement in respect of the limit of deduction for tax purposes for Accrued Liability (39); namely, that not more than 10% of the present value thereof would be permitted as tax deductible to the employer in any year. Adjustments in such Base due to Experience Gains or Losses (64) are required for later years, and other features or changes in the plan may cause adjustments from time to time. These adjustments will determine a "Special 10% Base" which must supersede, or coordinate with, the original 10% Base.

(61) *Bureau Tests*—By this term is meant the several "Tests" set up in a Bulletin issued by BIR for guidance, but without any committing effect on the Bureau. These Tests represent criteria to apply to the amounts of the employer's contribution to a plan for measuring whether part or all of said contribution is an allowed deduction under one or more of Clauses (i), (ii) or (iii) of (62) below.

(62) *Clauses (i), (ii) and (iii)*—These are the clauses under Section 23(p)(1)(A) of the Internal Revenue Code (IRC) and the corresponding Regulations, which outline the several demonstrations and alternate methods for determining the allowable deductions for tax purposes of the employer contributions to the plan in a given year. Clause (i) sets a limitation of 5% of covered payroll, Clause (ii) uses an Annual Premium to Retirement (44) criterion and Clause (iii) uses a Unit-Purchase (56) (or Normal Cost (50)) basis plus 10% of the Accrued Liability (39) for the appropriate 10% Base (60).

(63) *Cost of Insurance*—In the pension field, this term has come to have two meanings:

(a) The one-year term cost of the net amount of life insurance at risk (that is, face amount less cash value or reserve) which cost, if not met by employee contributions, is taxable to the employee.

(b) The difference between the premium for an Insurance-Annuity Form (31) of individual policy and the corresponding premium for the Retirement Annuity Form (36); under some Pension Trust Plans (17) it is voluntary on the employee to elect the insurance feature, in which case he pays this difference, *i.e.*, he pays the "cost of insurance" expressed as a level annual cost rather than as a one-year term cost for a decreasing amount.

(64) *Experience Gains and Losses*—Experience Gains, in the nomenclature of the BIR, refers to the same sort of elements as mentioned under the term Reversions (54). Experience Losses are the opposite—"negative reversions." While Experience Gains (except those which may be used for later dividends or rate credits under an insured plan) must be reflected all in one year, Experience Losses can only be made up, with current tax credit, at the rate of 1/10th of

such Losses per year, not an encouragement to bring the funding of the plan up to par.

(65) *Integration—(Social Security)*—By Integration here is meant the criterion for a benefit formula under which BIR requires that in a general way, the relationship of the plan's pension benefits to an employee's pay, shall, when taken together with 150% of the Primary Insurance Benefit (35) (50% allowance for presumed wife), be not higher for an employee earning a given rate of compensation than for an employee earning a lesser rate. (The Integration rule has been expressed in BIR Mimeograph 5539, issued July 8, 1943.)

(66) *Temporary Limitations*—This term refers to a condition established by BIR for implementing the prevention of discriminatory treatment in favor of the higher-paid employees under a plan. It requires that for 10 years after the plan's inception (or substantive amendment thereof), any termination of the plan, or substantial Under-Funding (51) of the plan, shall cause benefits for any or all of the 25 highest paid employees to be limited to those provided by employer contributions theretofore made, such allowable contributions not to exceed $20,000 for any employee, or, if greater, 20% of his pay (up to $50,000 a year) times the number of years under the plan. (This rule has been expressed by the Bureau in the form of Mimeograph 5717 issued July 13, 1944; it is quite technical and continues to be in doubt as to exact interpretations and operation.)

(67) *Thirty-Percent Rule*—This is another BIR implementation against discriminatory treatment; this time of stockholder employees. Under it, the employer's contributions to the plan in any year, with respect to employees holding over 10% of the voting stock, shall not exceed 30% of the total employer contribution to the plan for said year. This rule must be observed in respect of qualification of the plan under IRC, Section 165(a), and not alone in respect of limiting employer contributions as tax deductible under IRC, Section 23(p).

DISCUSSION OF PRECEDING PAPER

HENRY E. BLAGDEN:

I think, when Mr. Bronson made up the title for his paper, he must have had in mind the committee that made up the Standard Mortality Table, which they called the 1937 Standard Annuity Mortality Table. So he called his paper, "Pensions—1949." But things in the pension business move very fast. He might better have called it "Pensions—July 1949."

It is a long paper and, judging from the comments I have heard from a number of people in our company who are not in the pension business, it is a very timely and constructive one. It probably lends itself to about fifteen different discussions, each as long as the paper. I have not written a discussion, but I do have a few notes of what I am going to talk about. These are somewhat random comments.

There is a reference in the paper to deposit administration. My company is somewhat associated with the concept of deposit administration contracts these days. There is added to the discussion a general write-up of the operations of a deposit administration contract, because, while it has been mentioned a number of times at these meetings, it is possible that those of you who are not in the group annuity business still do not have a complete understanding of how it works, simple as it is.

For the moment, I will content myself by saying that, in the handling of the employee contributions, you can either set up an individual savings fund account for each employee or, if you prefer, use the employee contributions to buy deferred annuities, just as you do under the more common group annuity contracts. I might add also that a deposit administration contract need not limit itself to accumulating funds until retirement and then buying the annuity at that time. If the employer wishes, he may readily provide that the accumulation will be made until, say, the benefits are vested in the employee, at which time a deferred annuity is purchased. This makes it possible to take advantage of turnover discount during the period for which turnover is a very substantial factor and provide that, at the time when turnover ceases to have much importance or when the benefits are irrevocably vested, a definite guarantee of future payment of benefit can be given.

Skipping down to the discussion of trust fund operation, I am not trying to sell you an insured pension plan, but I am constrained to make some comments on the presentation of the trust fund operation. There is a ref-

erence there to the potentially higher investment return of the fund. The key word in that expression is "potentially." Such statistics as I have seen indicate that very few trust funds are earning as high a rate of interest as most of the life insurance companies. I have seen some companies that did show a very high rate of return on their trust funds. They did it by investing in common stock, which, at the present time, is showing a very remunerative return. I have no objection to investment of a portion of pension funds in diversified common stocks but in many cases it was their own common stock, and Mr. Bronson very wisely questions the desirability of such a method of funding a pension plan.

The author also talks about the expense charges which under a trust operation are geared to the actual work. We in the Prudential think that our charges are also geared to actual work. It is true that, as under all operations of insurance companies, we not only take into account interest and mortality in establishing our rates, but add a loading for expenses and contingencies which our banking friends sometimes call "money down the drain." But, in the actual operation of the experience under our contracts, we try to charge against each of them the expenses which are incurred as a result of the particular contract. So I do not think that the statement in the paper is entirely fair. However, I think one point is well taken. If you have a trusteed plan, you will get the advantages or disadvantages of your own experience—not only your mortality experience, but also your investment experience. Time will show whether that is an advantage.

Again skipping, there is a reference to the Internal Revenue Bureau and its effect upon the operation of pension plans today, and it is a very potent effect, I might add. The Bethlehem Steel agreement, as far as I can make out, provides only that when a man retires there must be enough funds on hand to provide subsequent payments on a sound actuarial basis and there is a question as to what they mean by that. Some of us wonder if such a method of financing meets the requirements of the Internal Revenue Bureau as we have known them in the past, especially in view of reduction of benefits if social security is liberalized. We will all be very much interested to find out whether Bethlehem Steel and other employers who are settling on that basis (incidentally, in the long run it is going to cost more than 6 cents an hour, I suspect) will have their contributions allowed as deductions and whether their employees will get all the advantages that go with an approved pension plan under Section 165(a).

Again skipping, the author talks about this business of building up reserves and I have read a great many articles by people who are concerned about what will happen if we have really comprehensive pension coverage in this country on a fully funded basis. They are worrying very much

about where the funds will be invested and that may lead to setting up larger social security benefits (that is, in excess of a subsistence benefit) on an unfunded basis.

I sometimes ask myself (and I am not an economist) if, as seems to be the case, we are heading toward a population which will contain a smaller and smaller proportion of workers and a larger and larger proportion of nonworkers who have to be supported by the workers, whether the only way the population can retain the standard of living to which it feels entitled is by a heavier capitalization of the worker and resultant increase in his productivity. It does not matter how you finance the pension plan and all the other technicalities that go with it, in the final outcome it is the workers who provide the heat, and so forth, for the people who do not work. The provision of even subsistence benefits under social security—and this should be done on essentially a pay-as-you-go basis—together with private arrangements for supplementary pension benefits may result in lessening the need for private savings by the mass of the population. High taxes make it more difficult for the people in higher income brackets to save, thus reducing that source of capital accumulation. For these reasons I am not sure we should be as concerned with building up too much funds for investment as some people are.

Possibly the most interesting part of Mr. Bronson's paper is the section where he wonders where we are going. We are all wondering. We have had the steel fact-finding board with its suggestion—seized upon by the unions—that pension plans should be financed by the employer and also an implied suggestion that it should be done or could be done for 6 cents an hour and 4 cents an hour for the social insurance portion. As you know, the Bethlehem settlement does not follow such a pattern at all. Bethlehem had a pension plan which was based on the average earnings during the last ten years of service. It was applicable to people who had reached age 65 and had 25 years of service, with a minimum benefit of $50 a month including social security. All that Bethlehem did was reduce the retirement service requirement from 25 years to 15 years, jack up the minimum to $100 per month if you have 25 years' service (with a straight prorate for less than 25 but more than 15). They also put in a contributory insurance setup which was supposed to come to about 2½ cents an hour each for the employee and the employer. I do not know that the final details have yet been decided upon but the unions seized upon the Bethlehem plan and they want the Bethlehem plan.

I have heard stories of union negotiators going in to an employer and saying, "We want the Bethlehem plan."

The employer then asked, "What is the Bethlehem plan? What is it you want?"

The answer was, "We don't know what the plan is, but we want it."

That reminds me just a little of the story you hear about the Taft-Hartley Act and the employer who asked through a questionnaire about various individual features of the act without naming them. A substantial majority of the features were approved, but, when the last question asked whether the employee was in favor of the Taft-Hartley Act, the answer was 99 percent against it.

One of the things that developed in the Bethlehem Steel setup is the delayed financing; you also have a throwback to basing benefits on average earnings of the last five or ten years of service, as the case may be; and you have also what we often refer to as an envelope type of plan, one in which the total benefits include social security.

It was not so very long ago that we were hearing that employees resented that kind of a plan, that they had paid for social security themselves and the employer had no right to deduct all or any part of it. The plan should be set up for benefits which did not include social security benefits, although they were taken into account in establishing the formula. It is a swing of the pendulum. How long it will take to swing back, we do not know.

One of the disquieting things about this latest development is that some employers who put in soundly financed pension plans ten or fifteen years ago may now be called upon to tear down all they have done in the past because of a slogan, "We want the Bethlehem plan."

DEPOSIT ADMINISTRATION CONTRACTS

General

A Deposit Administration Contract is one of the two basic types of Group Annuity Contract; the other basic type is the Deferred Annuity type. Normally, a Deposit Administration Contract is issued to an employer, covering all his employees, or all employees who meet certain conditions. However, a contract may sometimes be issued to another kind of contract holder, such as an association of employers, or the trustees of a fund established by a labor union and an employer. While this description is limited to the case where an employer is the contract holder, the basic features are the same in all cases.

A Deposit Administration Contract may be contributory or noncontributory.

Distinguishing Feature

Under the Deferred Annuity type of Group Annuity Contract, all contributions, both employer and employee, are generally applied as received to purchase annuities for individual employees. The distinguishing feature of a Deposit Administration Contract is that part or all of the contribu-

tions made by the employer are not immediately applied to purchase annuities for specific employees—instead, such contributions are accumulated at interest in an undivided fund and are allocated to purchase annuities for specific employees only after they have fulfilled certain conditions.

Treatment of Employee Contributions

In general, there are two ways of treating employee contributions. A plan may provide either that (*a*) contributions made by all employees are applied as received to purchase annuities—even though the employer does not at the same time purchase an annuity for each employee (this is probably the only satisfactory method which can be followed under a plan that provides for the return of employee contributions *without* interest at death or withdrawal), or that (*b*) contributions made by all employees are accumulated at interest in individual employee accounts, with annuities purchased by employee contributions only in those cases where the employee has fulfilled the conditions for the purchase of annuity by employer contributions.

Purchase of Annuities by Employer Contributions

The most frequent arrangement provides that employer contributions are allocated to individual employees only at retirement, at which time an immediate annuity is purchased. However, some plans have different conditions for the allocation of employer contributions. For example, a plan may provide for the purchase of annuities for employees who have fulfilled the vesting requirements. In such a plan, at the time when an employee first fulfills the vesting requirements, a deferred annuity is purchased in the amount of benefit accrued to that time; thereafter additional deferred annuities are purchased as additional benefits accrue.

A plan may provide that the conditions for the purchase of annuity will vary with the type of benefit. For example, annuities may be purchased for future service benefits accrued upon completion of vesting requirements, while annuities are purchased for past service benefits only at retirement.

Guarantees

Deposit Administration Contracts currently issued generally contain, at issue, complete guarantees with respect to all contributions paid in the first five contract years. The basic guarantees are (1) an interest accumulation rate and (2) schedules of annuity rates. The insurance company generally reserves the right to establish the guarantees applicable to contributions received after the first five contract years on a year-to-year

basis, although guarantees for successive five-year periods may be granted. It might be emphasized that at the time each dollar is received it is given a permanent guarantee as to the interest accumulation rate and the schedules of annuity rates that will apply to it, regardless of how long it is before the dollar is applied to buy an annuity. If it should become necessary to revise the guarantees applicable to contributions received in later years, the "first in, first out" principle applies—that is, employer contributions are withdrawn from the undivided fund and applied to purchase annuities in the order in which they are received.

Disability Annuities

It is possible to provide for the purchase of life annuities, at suitably reduced rates, for employees for whom the insurance company has received satisfactory evidence of disability. However, this approach has the disadvantage that the group for whom annuities are purchased at regular rates thereby becomes superselect. For this reason, it may be preferable to provide for the purchase at disability rates only of temporary annuities to normal retirement date. In that case, life annuities at regular rates are purchased for the employees who survive to normal retirement date.

Benefit Provisions

A variety of benefit provisions may be accommodated with ease. For example: (1) benefits may be based on average earnings, final earnings, or average earnings for a five or ten year period preceding retirement; (2) benefits may be determined as (a) a flat amount, or (b) a flat percentage of base earnings, or (c) a uniform percentage of base earnings for each year of service, or in any one of many other methods; (3) Social Security benefits may be recognized in many ways—for instance, an over-all formula benefit may be reduced by all or a part of actual Social Security benefits; (4) benefits at early retirement or disability need not be limited to the actuarial equivalent of the benefits already accrued; (5) minimum benefits may be determined independently of the basic benefit formula.

Determination of Employer Contributions

The annual employer contribution is not rigidly fixed by the contract. The contract merely sets forth the maximum amount to which the predetermined guarantees apply and minimum amount which the employer may contribute without the specific approval of the insurance company.

Actuarial advice and pension fund valuations are essential under a Deposit Administration contract, since the basis of funding is largely a matter of judgment. This service is generally made available by the in-

surance company, or the employer, if he prefers, may engage an independent consulting actuary. (An insurance company that undertakes to perform such services may find it needs a rather large actuarial staff.) It is possible for an employer to base his contributions on calculations that are, to some extent, independent of the contract provisions. For those cost factors which the insurance company guarantees, the employer may use assumptions that are less conservative than the guarantees. In addition, the employer may take into account the following cost factors: (1) the expected mortality, turnover, disability and retirement rates of active employees and (2) future changes in salary.

The employer may use any of the various actuarial cost methods approved by the Commissioner of Internal Revenue including, among others, the unit credit method and the level percentage of payroll method.

Records

Practice on this varies. Some insurance companies may keep individual records only for those employees for whom annuities have been purchased. Other insurance companies keep individual records for all employees, particularly under contributory plans. In any case, sufficient records must be maintained by either the employer or the insurance company in order that the annual valuations may be made and, in the case of contributory plans, in order that the death and withdrawal benefits to individual employees may be readily determined.

Surrender Charge at Withdrawal

Practice on this varies. In general, under a noncontributory plan, there is no surrender charge of any kind at the withdrawal of an employee for whom an annuity has not been purchased. However, under contributory plans the insurance company may make a surrender charge at the withdrawal of an employee for whom the employer has not purchased an annuity. Sometimes this charge is made only in the case of withdrawals which occur prior to the completion of an established minimum period of service. When this charge is made, it is generally a small percentage of the employee withdrawal value and it is usually paid by the employer.

In the case of withdrawals that occur after a deferred annuity has been purchased by employer contributions, the usual deferred annuity provisions would apply.

Employee Certificates

A certificate is generally given to employees at retirement. However, practice varies on active employees. In view of the basis of funding, an employee certificate cannot usually give any real assurance of the benefits

to be provided. In some deposit administration plans, an employee is given a certificate only when employer contributions have been applied to purchase an annuity for him. Certificates are often issued under contributory plans, even though they cannot state definitely what benefits will be provided by the employer. They are sometimes issued even under noncontributory plans, where their primary purpose is to give the employees an official description of how the plan applies to them.

Discontinuance

If for any reason a Deposit Administration Contract is ever discontinued, the annuities purchased for employees previously retired are left untouched. With respect to his other funds, the employer generally has considerable latitude. There are so many variations of the discontinuance provisions that it would not be possible here to do more than state a few generalities. Great care should be taken in drafting discontinuance provisions in order that there will be no doubt whatever as to their meaning under all possible circumstances. Preferably, the procedure to be followed at discontinuance should be very explicitly set out when the plan is established.

In general, an employer has a choice of two basic methods of applying his funds after discontinuance: (1) he can continue deposit administration funding, or (2) he can switch over to deferred annuity funding. (The employer can change over either at date of discontinuance or at any later date by giving the insurance company sufficient notice. The contract should be clear on what happens automatically, if no notice is given.) In any case, full benefits are generally determined on the basis of service up to the date of discontinuance. If the funds are not sufficient to provide full benefits for all employees, then a previously agreed upon system of prorating, possibly together with a system of successive preferential classes of employees or successive preferential classes of benefits, must be followed to determine the benefits for individual employees. An example of successive preferential classes of employees would be: class (1), all employees eligible to retire early; class (2), all other employees who have fulfilled vesting requirements; class (3), all other employees. An example of successive preferential classes of benefits might be, in a contributory case: class (1), future service benefits; class (2), past service benefits.

Comparison with a Deferred Annuity Contract

By comparison with a Deferred Annuity Contract, a Deposit Administration Contract offers the advantages of greater flexibility in (a) benefit formulas and (b) funding. The first is, of course, of great importance cur-

rently as a result of the benefit formula agreed upon in recent settlements in the steel industry. The funding flexibility, is, of course, all to the good only if it is properly used. It enables an employer to "buy time" at the outset, for he can "borrow" on future service contributions to provide past service benefits. However, the flexibility permitted should not be used to inadequately fund the benefits. The discontinuance of a Deposit Administration plan that has been inadequately funded is likely to lead to criticism of the insurance company. An employer may, of course, keep a Deposit Administration plan as fully funded as a Deferred Annuity plan.

M. ALBERT LINTON:

We are deeply indebted to Mr. Bronson for a valuable paper on what is indeed the topic of the day. In the space of a few months the United States has developed a pension craze, the end results of which no one can foresee. Indeed if the developments are not kept within proper bounds the most serious consequences may eventually emerge. The subject of security in old age is so fraught with fears, hopes and emotions generally that keeping the situation in hand is likely to be difficult. It is so easy to hold out the prospect of future benefits when the current burdens are relatively light.

The problem becomes more acute and dangerous in a population where the number of persons above retirement age is steadily increasing relative to the number of persons in the productive age groups. Today there are about eight persons aged 20 to 65 for each person above age 65. Thirty years hence the estimates would reduce the eight to a figure varying from 4.5 to 5.5. Despite a possible confidence in our ability to increase our productive efficiency to support an increasing proportion of dependent old persons per active worker we would do well to hold our promises to reasonable levels. Otherwise the outcome could be disillusionment and disaster. In helping to spread an awareness of future pension implications the skill of the actuary can be of the greatest value. I hope more and more of our younger actuaries will apply their talents in this field, not necessarily on a full-time basis but as an avocation serving the public interest. Letters to the Editor might help in getting a start.

From among the many specific subjects developed in Mr. Bronson's paper I shall comment upon one in particular which has a direct bearing upon life insurance operations. I refer to the consequences of huge reserve accumulations which may attain a magnitude of the order of $200 billion, exclusive of any reserve that may be built up under the Federal Old-Age and Survivors Insurance program.

Already investment men are pointing to the purchase of corporate se-

curities by pension fund trustees as an important current influence in bidding up the prices of such securities with a consequent lowering of yields. If this is happening when the amount of reserve assets is of the order of $14 billion, what will be the situation when such assets are perhaps 15 times as large?

There can be no doubt that we live in a capital-hungry world in which, given political stability and sound trading and exchange arrangements, vast sums could be invested productively and safely for the benefit of mankind. Unfortunately these conditions do not now obtain. Whether under the aegis of the United Nations or some other agency they will be realized, is anybody's guess. In the meantime, we are faced with the problems of dealing with these accumulations within, generally speaking, the confines of the United States and Canada.

Moreover the broad patterns developed by tradition and legislation require the investment of these funds to an overwhelming extent in senior debt obligations. And the question at once presents itself, will there be sufficient outlets of this kind to absorb all of the funds requiring investment?

We all recognize that debt obligations to be secure require the cushion of adequate junior or equity capital. Hence we must consider whether conditions are going to be such that such capital will be forthcoming unless substantial proportions of the accumulating reserve funds may be invested in equities. This is indeed an extremely interesting and pertinent question. If it is not properly answered we may well see the rate of interest on debt securities reduced to lower and lower levels as the economy becomes top-heavy with debt and short on equity capital.

To discuss in detail the things that would have to be done to make possible or practicable the accumulation and safe investment of large sums in equities would require more time than is available and more ability than I possess. All I can do is to raise the question and comment that it deserves the attention of the best brains in economic and financial circles.

An interesting sidelight on this problem is shed in the recent report of a committee appointed to consider what should be done to make faculty pensions at Harvard University more nearly adequate under present conditions. To date, provision for these pensions has been made by a joint contribution of 10 percent of salaries, applied to purchase deferred annuities in a New York company. The committee recommends that this plan be continued both for old and new entrants. However, a further recommendation is made that an additional 5 percent of salaries be contributed solely by the University and mingled with its general endowment funds. The accumulations resulting therefrom would be used to purchase

annuities at retirement (with appropriate prior vesting provisions) to supplement the incomes from the deferred annuities to be paid by the New York company.

One of the reasons for commingling the extra 5 percent with the University's own endowment funds is the belief, based on the record, that over the years a relatively high rate of return is likely to be realized because the funds can be invested in areas—particularly in certain types of equities—which are forbidden under the New York investment laws. Similar beliefs are, of course, held in other places. However, these clearly expressed recommendations of the Harvard Committee, when they become widely known, may have considerable influence upon other institutions and organizations attempting to solve pension problems.

This may be nothing more than a small cloud on the horizon no bigger than a man's hand. However, it does serve to direct our attention in an interesting manner to an important aspect of the problem of handling the accumulation of the huge reserve funds developed by the business of providing future security for those now below retirement age. The matter is important not only because it indicates a possible way of providing larger pensions for given outlays but also because it may point toward a source of equity capital so greatly needed in our economy.

CLARK T. FOSTER:

Mr. Bronson's excellent paper has put before us a host of problems which the expanding popularity of pensions has created. The problems are the more serious because so few of the people who are affected by them realize their existence. As members of a rather limited group who do appreciate their magnitude, actuaries have the task of bringing them to the attention of employers and employees who are meeting each other at the bargaining tables. We have an unusual opportunity to be of public service.

Mr. Bronson says we are needed "to tell them of their dangers." I should like to go a step further and cite a few of what I see as the most apparent pitfalls.

The primary danger in the drafting of current pension agreements stems largely from the unfortunate wording of the report of the Presidential Fact-Finding Board appointed in the steel dispute. Their final recommendation was that the companies pay 6¢ an hour, and they remarked that, according to union estimates, such contribution would provide $70 a month, which with Social Security would total somewhat more than $100 a month. The words 6¢ and $100 have been lifted from their context and have received universal acclaim but the important modifying clause, "according to union estimates," has not. As a result, many a pension agree-

ment will be merely the cause of prolonged discord between employers and unions. Where an absolute contribution and an absolute benefit are both spelled out, problems are sure to arise. It is only by the purest chance that a definite figure such as 6¢ per hour will produce benefits of $100 per month including Social Security in any one corporation for any one year, let alone during the time a pension plan is intended to remain in effect. Many agreements, notably Ford's, attempt to relate the two factors, cost and benefit, in absolute terms and yet allow for adjustment of one or the other if experience should prove it to be necessary. Such a solution may seem the ideal compromise but it is very probable that sooner or later there will be a claim of misunderstanding by one or the other of the parties. The union may say it understood the benefit was fixed regardless of the ultimate cost level, while the company may insist that the benefits be reduced in order to keep contributions constant. In fact, as I understand it, this has already happened in the Ford case where $8\frac{3}{4}$¢ is held by the company to be the maximum contribution, and by the union to be the minimum. Even with mutual sincerity and understanding at the time an agreement is reached, a pronounced departure from the initially assumed cost-benefit relationship is apt to promote dissatisfaction.

An obvious way to avoid such developments is to make intelligent cost analyses and cost projections, and then to follow one of two courses in preparing the agreement:

1. Know how much benefit x cents per hour may be expected to provide over a period of years, and limit the agreement to a statement that x cents per hour will be contributed, with a description of how benefits are to be determined, or
2. Know approximately how much x dollars of benefits are likely to cost now and in the future, and set forth in the agreement the amount of benefits, with a statement that the company will make whatever contributions are required to provide them.

If the decision is to promise a definite rate of contribution, the conflict between cost and benefits is avoided, but as in the old money-purchase plans the door is left open for future difficulties in determining what benefits the contributions will provide. The possible scale of benefits is dependent on the method of funding. Six cents an hour will provide quite adequate pensions if past service is not funded, but with the prior service liability funded at the rate of 10 percent a year, benefits must be modest. A benefit scale adopted on the plan's effective date may be beyond the range of a 6¢ contribution ten years from now. If the number of hours worked takes a substantial drop, benefits will not decrease proportionate-

ly and cost per hour may rise far about 6¢. How then are benefits to be adjusted? Are pensioners' benefits to be reduced, or will future pensioners only be affected? Will benefits be cut at a flat rate or will benefits already accrued be allowed to stand, with future accruals being at a lower level? Whatever the solution, it will not be popular among employees. An employer who succeeds in getting this type of agreement may feel that he has won a great victory over labor, but must remember that he is dealing with his own employees and that he will have to live with them when the agreement has expired. Employees do not understand the intricacies of pension costs. They only know that if promised or implied pension benefits are reduced, their employer is not treating them fairly. They are not likely to make the same mistake twice and the next agreement will leave no room for misunderstanding.

The better choice would seem to be agreement on a scale of benefits. Contributions will fluctuate, but if careful actuarial cost projections are made and are brought forcibly to the employer's attention before the agreement is signed, and if funding is on a logical basis, the variations should not be unexpected.

If it is necessary to sign an agreement on broad principles before details of a pension plan can be worked out, a reasonable procedure is to agree to provide whatever pension benefits a certain number of cents per hour worked by employees in the bargaining unit would have provided under the desired method of funding during a definite base period such as 1949. In doing so, the number of hours worked in 1949 should be considered and if this number is unusually high, the agreed cents per hour should be somewhat lower than it might otherwise be so that in a normal year (when the number of hours is smaller) the same benefits could be provided at a reasonable cost per hour.

If possible, the basic actuarial assumptions should be set forth in the agreement. An agreement on cents per hour is meaningless unless there is also broad agreement on withdrawal, mortality and interest assumptions as well as on the method of funding.

It would seem desirable for an employer to seek uniform agreements with all bargaining groups represented among the employees, but uniformity on the fixed contribution principle might lead to important difficulties if one bargaining group underwent a decrease in average hours worked while others did not. Benefits which employees had expected to remain level among all groups would soon bear no relationship among the various units.

The cost differential among various funding methods will probably be

emphasized in the informal discussion planned on this subject. I shall only remark that there is a wide choice, not only in the speed of funding past service, but in what constitutes past service—whether it is determined on an entry age normal cost method, or on a step rate basis with benefits accruing over the whole working lifetime of an employee or, for example, during his first 30 years of employment or his last 30 years.

A paradox in the union pension situation is the subjection of a retirement income program (inherently a long-term concept) to the provisions of a one to five year bargaining agreement. Periodic negotiations will undoubtedly juggle the benefit scale and it is difficult to predict how closely benefits granted to future pensioners will resemble those paid to employees retiring today. Perhaps the most probable pattern of future agreements is an expansion of pension benefits and employer costs. It is possible, however, that union leaders, coveting the funds created by company contributions, may partially abandon the pension idea in favor of employee benefits in the more concrete form of fatter pay envelopes. If a pension program is forsaken merely as a result of labor negotiations, the very practical problem arises of whether the Internal Revenue Bureau will approve termination of the plan. The normally acceptable causes of termination are financial inability to continue contributions or adoption of a more liberal plan. If a union agreement is not considered an acceptable reason for discontinuance, all income tax deductions may be retroactively disallowed and the company may be faced with a large tax obligation. If, during the few years of a plan's existence before such termination, most benefits have happened to go to members of a particular group of employees, it is possible a charge of discrimination could be cause for disqualification. If termination occurs without the accumulation of any reserves, the plan might be considered discriminatory in favor of the older employees, if they happen to be the most highly paid. There is a possibility, I suppose, that the Internal Revenue Bureau may even refuse to approve a plan which departs radically from the more familiar patterns on the grounds that it is actuarially unsound. In the past, the Bureau has appeared more concerned in setting the maximum contributions for which tax deductions may be claimed, and it will be interesting to note its reactions to the newer types of plans where even Mr. Bronson's definition of soundness is not a prime consideration.

A one to five year bargaining agreement creates certain contractual obligations. A corporation's accounting department may feel that a liability should be entered on the company's books for all contributions payable into the pension fund during the entire period of the agreement. It

seems that such a line of reasoning could be extended to ridiculous proportions, with liabilities created for all future wages promised in a union agreement. Such an opinion has been voiced, however, and it serves effectively to limit the number of years for which an agreement may be established. It has already been the cause of inserting in several five-year steel pacts a clause allowing the company to terminate the agreement after two years.

Another problem posed by the cents per hour cost concept is the credit in cents per hour allowed to a corporation on account of a pension plan already in effect. If it is a group annuity, will credit be given for gross premiums or will a net cost have to be worked out on the same assumptions used for additional benefits? The same number of hours and employees should be used as a base in determining the cents per hour credit. If benefits under the existing plan are higher for some employees than under the new plan, will the company be allowed credit for their costs or will they remain as an additional obligation?

Cents per hour figures can be manipulated and their significance can be interpreted in whatever way seems most expedient. The actuary has the job of educating the public to receive the unions' cost assertions with the proper degree of credence. The Steel Workers' original claim was that 6¢ would buy $70 worth of pensions, exclusive of Social Security. After the Bethlehem agreement was signed, Mr. Murray announced that Bethlehem was to pay 12½¢ per hour for benefits which were only slightly, if any, better than the $70 plan. Under the method of funding set forth in the Bethlehem agreement it is not likely that the immediate cost is over 5¢ or 6¢, but as long as nobody disputes him Mr. Murray can use the 12½¢ figure as a lever to raise the benefits demanded from other corporations.

In a final comment, I should like to touch on the Social Security problem. It is normally to the company's advantage to negotiate a plan which is deductive of Social Security so that future liberalization of Federal benefits will reduce the plan's costs. However, in considering the cents per hour cost of welfare plans an employer would do well to take into account the possible increasing Social Security tax. The present 1% tax amounts to about 1½¢ per hour. If the tax rate should rise to the 3½% level based on $3,600 of earnings, the employer will be paying 6½¢ per hour for these benefits, and if he should be forced into raising wages enough to cover the increased employees' tax the total effect on payroll expenses could be an increase from the present 1½¢ to a total of about 13¢ per hour for every covered employee.

ROBERT J. MYERS:*

Mr. Bronson has presented a paper which is most fitting for the first issue of the new *Transactions*. He indicates where we now stand in regard to the complex pension situation which apparently may, from this moment on, take off in several directions simultaneously. It has often been said that we are now at the crossroads in so far as pensions and social security are concerned; Mr. Bronson's paper gives a very good description of the crossroads and the numerous highways by which we may have gotten here.

The stated purpose of the paper is to set forth five main vehicles by which pensions are being motivated. The author might well have mentioned a very important influence which is, however, entirely different from these others, but which perhaps has an important effect on all of them. If it were not for the great administrative efficiency possible with modern computing and tabulating devices, we would probably not be in the complicated pension situation which Mr. Bronson describes. It is quite foreboding to consider just how complex the situation may eventually be if we have the "boon" of the predicted and promised electronic machines!

Mr. Bronson states that public employee pension plans, as compared with industrial plans, largely ignore actuarial equities and rely on the taxing power rather than on advance funding. I believe he has somewhat overstressed the latter point since many State and local plans have rather painstaking actuarial guidance and are set up on advance funding just as are many private pension plans. This is also true to a considerable extent for the Civil Service Retirement system.

Moreover in connection with a Federal plan, such as Civil Service Retirement, I believe that there is considerable question as to the real significance of advance funding which I believe to be more of a bookkeeping matter than a fiscal or economic one. For instance, consider the effect of an additional Federal appropriation to the fund of $1 billion in a particular year. What actually happens? When the appropriation is made, there are no new taxes raised to meet the amount due, but rather (and properly) the Secretary of the Treasury issues a piece of paper which is marked as being a $1 billion bond. Accordingly the fund is shown to have $1 billion more in it, and the National Debt is shown to have increased $1 billion. I cannot see that this makes too much difference so long as these liabilities

* The opinions expressed are those of the author and do not necessarily reflect the official views of the Social Security Administration.

are recognized in an actuarial report because eventually, when the benefit load increases enough, there will probably have to be direct Federal appropriations for money actually to be paid out of the Treasury in cash.

I appreciate that there may be psychological reasons for such advance funding in a Federal employee system in that then the possibly large liabilities of the Government as employer may be more apparent through an increment to the National Debt than when stated in an actuarial report which may be considered only of "theoretical" significance. However, under conscientious management and with an informed general public, the method of financing does not have the same degree of importance or necessity of being "actuarially funded" as is the case for private pension plans.

For those who are interested in a specific analysis of the actual situation as to actuarial equities under Civil Service Retirement, I might refer them to an article in the *Social Security Bulletin* for April 1948. Mr. Bronson mentions a bill under consideration in Congress which would have made no reduction in the employee annuity if a joint and survivor annuity were elected for the wife. Perhaps a little more detail would be desirable since the situation is not quite as bad as it would seem at first glance.

The bill S. 1440 (with companion bill H.R. 4036) would have done just that. However, there was not such extreme treatment in the legislation enacted (Public Law 310), where the husband may elect a reduced annuity so that his widow will receive half of his full annuity when she is age 50 or over. For annuities of less than $125 per month a reduction of 5% is made if the wife is age 60 or over, with greater reductions for younger wives; where the annuity is more than $125 per month, the reduction on amounts above $125 is 10% (as in previous law on the entire annuity). Of course, the lack of actuarial equity can readily be seen from the fact that for a husband age 65 with wife age 60, the 5% reduction should properly be about 25%.

It will be noted that the survivor protection in respect to annuitants under the Civil Service Retirement system is "neither fish nor fowl." On the one hand, there is not the individual equity approach of using actuarial factors. On the other hand, there is not the social adequacy approach of the Old-Age and Survivors Insurance system where wife's and widow's benefits are payable automatically without election and without reduction in the worker's benefit.

Mr. Bronson mentions that under the OASI system there is now about $80 billion of life insurance in force and that if H.R. 6000 were enacted, this figure might amount to $150 billion. According to rough calculations, the latter figure will within a few years amount to about $200 billion. The

benefit level will double under the bill for new beneficiaries (although existing beneficiaries on the roll will receive only a 70% increase.) At the same time, coverage and covered payroll will be increased by about 30% so that combining the effect of these two factors will produce the result indicated.

Mr. Bronson's discussion of what is a "sound plan" and what is a "sound actuarial plan" is most interesting. As he will no doubt agree, these terms may have considerably different definitions. I would be very much interested in hearing from Mr. Bronson as to whether he considers H.R. 6000 to be "actuarially sound" under the basis on which it is set up—a basis of being as nearly as possible a completely self-supporting system with a graded upward tax schedule. In my opinion, this plan may be said to be "actuarially sound," but on the floor of Congress there was considerable debate over this very concept. One school of thought believed that the plan was "financially sound," but was not "actuarially sound" because it was not financed on a level premium basis. Here we have still another concept.

Considering Mr. Bronson's general definition, I believe that the concept of a "sound plan" applies to the present OASI program where there is no clearly stated intention to make the system self-supporting. Rather there is the indefinite, unlimited support promised by the Federal Government according to the so-called "Murray-Vandenberg Amendment" which provides for Federal contributions, if and when needed. If I were asked whether the present plan is "actuarially sound," I would say that, because of the Murray-Vandenberg Amendment, the plan is sound because the Federal Government promises financial support, but it is indeterminate as to whether it is actuarially sound because the source of additional funds and the timing thereof is not specified.

Mr. Bronson is especially to be thanked for the glossary of pension terms which he has so systematically developed.

WILLIAM M. RAE:

There is one point in Mr. Bronson's thorough and excellent paper on which I would like to comment.

The Frozen Initial Liability Method which he includes in his table of funding methods differs from the Frozen Initial Liability Method included in the Treasury's Bulletin on 23(p), in that Mr. Bronson never amortizes the initial accrued liability while the Treasury does. Mr. Bronson notes this difference in his Glossary.

I have long felt that word "frozen" might be interpreted by employers

and others to imply nonamortization of the initial accrued liability. Consequently, I feel it is an appropriate word to describe the method outlined by Mr. Bronson but not so appropriate for the Treasury's method.

Actually, the key feature of the Treasury's method is the smooth spreading of gains and losses as a part of future normal costs. This "self-adjusting" feature has much merit. Also, as the Treasury itself infers, its application is not limited to the Entry Age Normal Cost Method. It seems to me it would be preferable to refer to the Treasury's method as the Self-Adjusting Entry Age Normal Cost Method or the Self-Adjusting Other Method, as the case might be.

Since Mr. Bronson has wisely started a Glossary for us, this seemed a good time to bring up this minor point.

W. RULON WILLIAMSON:

Mr. Bronson is one of a rather slender number of our members with the practical experience of working in individual, mass and governmental programs of protection. Most writers on Pensions tend to ignore both individual and governmental plans, though lately the Bureau requirements make it wise to recognize OASI. Mr. Bronson, "on paper," would seem qualified for his task, and he has done well "on this paper."

He uses "pensions" straightforwardly as a designation, though the word had for a time lost caste to "retirement." In these gerontological days it is the word "retirement" that calls for apology, unless "retirement" is not only "from" but also "to" some significant employment.

The breadth of his canvas is a simple recognition of the many facets that may be viewed in this mid-twentieth century sketch. On the one hand pensions are flanked by "governmental largess" (only slightly rationalized by that magic word "contributory") and on the other by the services to the individual furnished by the bank, the insurance company, the stock exchange and the realtor. Since basic economics cannot be ignored forever, it is important that the author consider how these plans look to the employees, the unions, the management. I used to list from five to ten rationalizations. The number has now nearly reached 30. Since a serious national emergency has hinged upon the word "contributory," this section of his discussion could have been somewhat expanded—and will be by various persons.

Cost recognition has gone forward hand in hand with increasing costs during the last twenty years. We know so much more now, but much of what we know we do not like. The falling of the interest rate, the increase in survival, the increase in administrative costs, seem in turn reinforced

by the lower purchasing power of the dollar. The potential buyer of annuities is encouraged to "go collective," where subsidy will help out in restoring the effectiveness of his premium payment or his contribution to premiums. The personal responsibility of the employees, better paid in dollars than ever, is minimized. A leading economist says "everybody wants a pension." Mr. Bronson's discussion suggests that these plans can be inflationary and that their construction requires men of understanding and integrity. Undoubtedly much of our past progress here as elsewhere has taken place because men who didn't know all the answers were not too fearful of rushing in to learn by doing. Yet this valor of ignorance must in turn be replaced by more knowledge.

Enigmas still exist. In one important *milieu* a Federal Judge seemed to ignore the existence of both the Federal Old-Age Benefits and the wide range of individual provisions, in voicing his decision that a certain level of pensions was "little enough to live on." Following the admission that wages include pensions, then the extent of contingent value in pensions has to be recognized. The extent of "don't-know," where "know-how" would be helpful, must be considered. What might have been permissive in the special conditions of the war is not always good enough today. The current release of figures as x cents an hour wage equivalent is probably as full of dynamite as the old assessment company preliminary costs turned out to be. There is another aspect of calling pensions to one group wages to another. It either evidences a very strong sense of brotherly love, or the belief that the power of governmental control will in time "make it work for the younger group." It could add to the sense of self-sufficiency on the part of the employee, the willingness to take risks and share with others—a balanced interchange. It could be, but I doubt that it is!

Because Mr. Bronson's canvas *is* so wide, this story on pensions is *not* a sales document. Perhaps this is the advantage of a consultant. He can in fact represent the client in his customary thinking. As we approach 1950, and its serious over-all problems, we must develop more maturity. We may be actuaries, but we have to flee the letter and cultivate the spirit. We have to give more thought to the individual and his problems. Within the United States, most literally, lies almost the last hope for the individual, provided we can shake pretense, and face subjects like this fearlessly and intelligently. Mr. Bronson has that rare interest and insight that we call "disinterestedness." As students—of all ages—catch the challenges within this area, and seek to preserve to the individual a maximum of personal choice and freedom, a renewed enthusiasm for our profession might ensue.

CONRAD A. ORLOFF:

Having devoted over 17 years to the subject of private employer pensions, I had about determined that this specialty of the actuarial profession was not a simple one. However, until reading Mr. Bronson's paper, I was not aware that the subject was so complex. On reconsideration, I am inclined to the belief that, to some extent, the paper multiplies the existing confusion surrounding pensions by intermingling details with principles—without indicating their relative importance. For example, the paper could state that since the Government gives up generally 38% of the employer's cost of the plan by allowing such costs as a reduction of taxable income, the Treasury Department has established certain rules to determine that the plan does not discriminate between employees and that excessive deductions are not taken in one year. The details of these requirements could be covered in an appendix. Nevertheless the author is to be congratulated on his courage in attempting to cover in one paper so many phases of the subject.

It is generally implied that "Deposit Administration" is similar in its operation to a Trust Fund. Because of the large number of plans recently negotiated between unions and employers under which company benefits are the excess of the amount developed by a formula over the amount payable under OASI, it is important to recognize the reason for the inapplicability of D.A. as the funding medium. Under D.A., the company benefits provided at retirement, being guaranteed by an insurance company, are not subject to reduction thereafter. Under Trust Fund, reductions would be effected when Social Security benefits are increased. Increased Social Security benefits appearing imminent adds importance to this difference between D.A. and Trust Fund.

In the section on Cost Projections, the author's Table 4 would be misleading to an employer. It implies that when the personnel structure of an organization attains a stationary population, the employer's cost for an unfunded plan would be 12.7% of the payroll. This ignores the benefits payable under Social Security, which would certainly be deducted from the employer's plan. It also assumes that the only cause of employment termination is death—although under Benefit Duplication the author states, "It is customary in this country for a person to change jobs a number of times." Moreover, many females who enter employment leave the labor market before death or retirement. The numerator of his fraction should be reduced by Social Security, and the denominator increased by terminations, other than death, resulting in a marked reduction in the eventual cost of an unfunded plan.

WELTHA VAN EENAM:

I am greatly pleased that Mr. Bronson has presented this timely paper and that he has included some estimates, admittedly rough, as to coverage under private retirement plans. His total estimated coverage appears to be approximately 6,200,000, comprised as to methods of funding of the following:

(1) Group annuities	2,000,000
(2) Individual policy type	200,000
(3) Trust-fund type	2,500,000
(4) Union-management welfare plans	1,500,000

With the current trend toward adoption of combinations of methods of funding, it will become increasingly difficult to estimate the "coverage" under retirement plans; also as vesting takes place and employees have worked for two or more employers with retirement plans there will develop considerable overlapping. On the other hand, might it not be said that under insured plans those who have not yet met membership eligibility requirements are potentially covered? Yet they are excluded in statistical data. Of equal significance might be the number who are either covered or will become eligible for coverage upon meeting certain requirements. Probably the only way in which a good basis for an over-all estimate could be obtained would be through a survey of employers with retirement plans.

As a possible means of determining the reasonableness of the estimate of "coverage" under plans of the trust-fund type, I have obtained information from such industrial reports as Moody's and Poor's, with respect to 1948 employment of certain industrial organizations with noncontributory trust-fund or other self-insured plans of which we have knowledge. Those with less than 1,500 employees were excluded, as also were all railroads, banks and insurance companies, estimates for which were separately determined. Current developments in the steel and automobile industries were ignored. Adjustment was made for those plans which were known to fund with respect to only some of the employees and for those which provided benefits for a portion of their employees under other types of funding.

Similar information was obtained for employment of establishments with known contributory plans of the trust-fund type, and the number of employees was arbitrarily reduced by 25% to allow for those who had not elected to join, or who would not yet be eligible to membership. The total coverage thus obtained for 143 noncontributory plans and 20 contributory plans was 2,795,000.

In estimating the coverage under railroad plans a recent study of railway pension plans was utilized.[1] Of 129 Class I railroads and 2 associated companies reporting, 53 companies with total employment of nearly 770,000 had supplementary pension plans—all apparently of the trust-fund or self-insured type. However, these plans covered only those earning in excess of $3,600 per year. Since about $\frac{1}{10}$ of railroad employees are in this category, the number so covered would approximate 80,000 employees. It is quite possible that some railroad companies not reporting may have similar plans.

Insurance companies which have plans on a pay-as-you-go basis, or which set up funds on their own books, may account for as many as 150,000 (including agents' plans). Noninsured plans of banks might account for another 75,000 employees.[2]

So far unconsidered are several hundred noninsured pension trust plans for companies with less than 1,500 employees. If we assume that these account for another 150,000 employees, the grand total under trust-fund and other "self-insured" plans is around 3,250,000 as compared with Mr. Bronson's estimate of 2,500,000 for trust-fund plans only. Some of the difference is no doubt due to the inclusion of some nonfunded plans. More study is indicated. However, it seems probable that about 3 million are covered under plans of this type. Of these over 55% are accounted for by 23 companies with over 20,000 covered employees each; in fact, about 20% are accounted for by one company alone and another 15% by the combined coverage of 3 other plans.

In line with the increase in coverage there should probably be some increase in the reserves for these plans, estimated by Mr. Bronson at $3 billion. The reserves under the largest plan are over $950 million, but these have been accumulating for many years.

As plans come under collective bargaining agreements, there may, of course, be a transfer from the trust-fund type to the union-management welfare type.

RAY M. PETERSON:

Among the notable pension items of 1949, we can include Mr. Bronson's paper, "Pensions—1949," by which he has revived the topic of pensions as a matter of consideration by this body. Mr. Bronson is an excel-

[1] *Railway Pension Plans Supplementary to the Railroad Retirement System* (Chicago, Ill.: U.S. Railroad Retirement Board, 1949). 26 pp.

[2] The 1947 study of the Bankers Trust Company with respect to retirement plans of banks indicates employment of about 58,000 bank employees under pension trust-fund plans; in addition 5 of the larger banks each with employment "in excess of 1,500" had this type of plan.

lent reporter. He has presented the pension picture of 1949 with discernment, understanding and, most important in these days of competitive bias, with laudable objectivity. Mr. Bronson is peculiarly well-equipped to do this job with his background of experience with a life insurance company, in government service, and as an independent consultant.

My comments will serve mainly to supplement the paper.

Anyone who reads the newspapers knows that 1949 has produced the high-water mark to date in popular interest in pensions. This has been greatly, if not primarily, stimulated by the interest and demands of labor unions. The hearings before the President's Fact-Finding Board in the dispute between the United Steel Workers and the steel companies, and the ensuing Report of that Board, have heightened this pension interest. The Report of the Board may prove to be a landmark in pension history. This Report, in its final conclusions, stated:

> . . . (a) Social insurance and pensions should be considered a part of normal business costs to take care of temporary and permanent depreciation in the human "machine," in much the same way as provision is made for depreciation and insurance of plant and machinery. This obligation should be among the first charges on revenues.
>
> . . . (f) The concept of providing social insurance and pensions for workers in industry has become an accepted part of modern American thinking. Unless government provides such insurance in adequate amount, industry should step in to fill the gap.

Those industries without reasonable pensions supplementing OASI for all employees will be under great pressure to provide them. Since the method of financing OASI is essentially a pay-as-you-go system, the real impact of cost is long delayed and it appears to the uninformed that pensions can be provided through government at lower cost than by a private plan. Because of this seemingly lower cost, industries having no comprehensive plans supplementing OASI, and even those that do, will be greatly attracted by the idea of a substantially increased scale of OASI benefits so as to take the heat off them for pensions. The formula of benefits that is developing, involving automatic decrease in private company liability with increase in governmental benefits, certainly encourages this point of view.

This situation underlines the necessity for clarification in the public mind, and in the minds of business leaders, of the respective roles of government and private industry with respect to pensions. The role of government, as many students of social insurance in this country have pointed out, should be limited to the provision of a subsistence benefit for each citizen. The role of private plans is then to provide supplemental pensions

based upon the employer's and employee's capacity to pay for a benefit which will reflect different standards of living and salary levels and serve the need of business management of removing the nonproductive from the payroll in a humane and dignified manner. Where resources are adequate, a supplemental plan might deliberately aim to provide for retirement at a fairly early age, so that, while still vigorous, the individual can spend future years in leisurely pursuits or devoted to an activity of greater interest than the former means of livelihood. The establishment of pensions beyond the subsistence level needs the restraint born of the cost consciousness which naturally exists in full actuarially funded plans. The members of this Society, as individuals, can perform a great public service by re-emphasizing at every opportunity this distinction between the respective pension roles of government and private industry. Only by keeping pension developments along this line may we expect to establish the level of pension promises for the future within the nation's ability to pay.

Who would have dreamed that in 1949 a great steel strike, threatening the soundness of the economy of the nation, would take place over the sole issue of whether the employee should contribute to a pension plan? When the author selected the title for his paper, he was probably not fully aware of what a portentous year in pension history this one may prove to be. I think it appropriate to record here certain significant features of the Steel Workers' demands: (1) nonvarying benefit, (2) noncontributory, and (3) noncompulsory retirement.

The flat benefit idea seems a return to a primitive pattern to those who are accustomed to benefits varying by salary and service. Its justification rests upon the principle of adequacy and average need rather than individual equity. It is consistent with the noncontributory idea. If employees contribute, the principle of individual equity with benefits varying with service and salary is difficult to ignore. It is a rather disturbing trend in the direction of a further leveling of the rewards from our economy without regard to the individual contribution.

It is truly unfortunate that the Steel Industry Board did not leave the matter of employee contributions as an item for bargaining along with the other plan details. This is a matter which should be worked out by each employer in terms of its ability to pay and its own particular relation with its employees, including traditions and existing plans of insurance. For the noncontributory principle to be established on an industry-wide basis is certainly contrary to the Board's recommendation that bargaining should be by companies in view of the varying financial capacity of the companies. It is a curious turn of events that if the unions are successful in

establishing widely the noncontributory idea in private plans, they will not be enthusiastic about increases in *contributory* governmental benefits. Thus, we may find management favoring increases in OASI and labor lukewarm, if not actually opposed, to increases.

The objection by the unions to a compulsory retirement at a fixed age will, I think, result in a re-examination of this feature of pension plans. There are some compelling reasons for making it possible for an employee to continue working as long as he is reasonably productive without regard to his exact age. There are human reasons and there are cost reasons. Perhaps the answer lies in a somewhat later compulsory age than is common now, such as age 68 as adopted for the Ford Motor Company Plan in its negotiations with the United Automobile Workers.

Industry bargaining gives rise to the disturbing thought that industry-wide plans, particularly those that operate on a minimal financing basis, may eventually have to be bailed out by the government, as the railroads were. The movement will then surely be towards that legend Mr. Bronson refers to, "government control." The Steel Workers Union, in presenting its case, argued against the necessity of funding accrued liabilities since such funds would not be needed if the plan were superseded by a governmental plan.

Some other features of 1949 may be noted.

1949 saw a continuing severe competition between the insurance companies and the banks offering trusteed plans. This competition is having one salutary effect—the proponent of each school of thought has been put on its mettle and there is some evidence that the arguments are becoming more fundamental. Despite this approach to fundamentals, 1949 continued to see confusion between "initial outlays" and "realistic costs" supported by the following slogans on the part of the proponents of bank trusteed plans: "we can get it for you 25% cheaper," and "you can adjust as you go along"!

1949 saw at least one insurance company take the unique step of holding conferences throughout the country with its group annuity contract-holders to explain in detail how it operated its business with particular reference to surplus distribution and also to demonstrate the probable effect upon pension costs of mortality improvement trends.

1949 saw, for the first time in pension history, a reduction in the group annuity rates of some insurance companies. This may be due in part to the trusteed plan competition but it must also be taken as evidence of a more common purpose among the insurance companies to offer the services of the insurance industry to aid in financing and solving the pension

problems of this country. Thinking of the former aloofness of some of the companies, this is a very encouraging development. It may not all be left to government, after all!

1949 saw the virtues of the Deposit Administration Plan pressed with increased vigor. Its proponents emphasize that contributions by the employer can be made thereunder at a level fairly comparable to that customarily used under a trusteed plan and the employer can also enjoy the insurance company investment facilities and its guarantees for retired employees. However, the employer assumes responsibility for adequacy of funds, similar to that under a bank-trusteed plan, and does not enjoy the complete assurances of the traditional fully guaranteed group deferred annuity contract.

Now a few comments on certain matters suggested by the paper.

Mr. Bronson observes that there are no reliable statistics relating to trust-fund plans. He also correctly emphasizes that qualification of a plan and establishment of tax-deductible contributions do not mean that the plan is "actuarially sound by Government inspection." To those of us who are familiar with state supervision of insurance companies, the thought immediately occurs: why shouldn't trust-fund plans and union welfare funds be made subject to some kind of governmental supervision and inspection to assure that such plans are adequately funded and that the beneficiaries will not be faced with a cruel disappointment at a future date? With the prospective increase in number of persons covered by such plans, there is an important public interest here that should be served in some way. New York State has a law under which a pension fund may voluntarily place itself under state supervision, but I understand that there are only a very few of such funds and none have taken advantage of the law in recent years.

I don't know the origin of the term "Deposit Administration," although Mr. D. A. Walker of the Equitable Life, who had a great deal to do with the early development of the Deposit Administration Plan, has been accused of naming the Deposit Administration Plan after himself. In the interest of accurate history, let me record my belief that the Equitable issued the first "D.A." contract in this country in 1929, twenty years ago. I have never been happy with the term "Deposit Administration" since it is misleading and not at all accurately descriptive. In the usual sense of the word, there is no deposit in the nature of a bank deposit, which is owned by the contractholder, can be entered in his balance sheet as an asset, and withdrawn at will. In a strict sense of the word, there is no fund similar to a trust fund with segregated assets. The insurance company merely guarantees to produce certain results, with the money paid to it,

emerging in the form of annuity benefits, as it does with the traditional forms of annuity contracts. A more accurate descriptive term is "Collective Deferred Annuity." Indeed, it might be said that this arrangement is the only true group annuity since it represents the payment of a premium with respect to a group. I vote for "Collective Deferred Annuity" when Mr. Bronson's glossary is reprinted or elsewhere published.

The growth of pension funds in this country has caused a number of thoughtful persons to wonder if it is not possible to sell more security than the economy can afford. It is a problem that actuaries might well explore with the economists. It has many facets. Will pension savings replace more and more individual savings? Will there be other shifts of investment rather than over-all increases? How has the apparently much greater proportion of pension funds in England affected the investment situation in that country?

I hope that Mr. Bronson's paper is the forerunner of more papers on the topic of pensions. Truly, there is something more to be explored and examined in the pension field these days than establishing an additional decimal place!

SAMUEL ECKLER:

I found Mr. Bronson's paper stimulating and informative. He has synthesized a lot of information in a remarkably short space and has provided us with a useful dictionary of terms and summary of funding methods.

It might prove interesting to add a few notes on the pension scene in Canada in 1949. Following Mr. Bronson's pattern of discussion, these notes will cover the Department of National Revenue, which corresponds to the U.S. Bureau of Internal Revenue, Dominion Government Annuities, which are indigenous to Canada, Canadian old age pensions, and the trend in Canadian pension plans.

DEPARTMENT OF NATIONAL REVENUE

The statutory authority for the federal income taxes is contained in the 1949 Income Tax Act. The provisions of this Act applicable to employee pension plans are as follows:

Sec. 11(1)

... the following amounts may ... be deducted in computing the income of a taxpayer for a taxation year:

(f) *Employer's contributions to pension funds*—an amount not exceeding $900 paid by the taxpayer to or under an approved superannuation fund or plan in respect of services rendered by each employee, officer or director of the taxpayer in the year plus such amount as may be deducted as a special contribution under section 69,

(g) *Employee's contributions to pension funds*—amounts contributed by the taxpayer to or under an approved superannuation fund or plan,

(i) not exceeding in the aggregate $900 in the year, if retained by his employer from his remuneration for or under the fund or plan in respect of services in the year or paid into or under the fund or plan by the taxpayer as part of his rendered dues for the year as a member of a trade union, and

(ii) not exceeding in the aggregate $900 paid in the year into or under the fund or plan by the taxpayer in respect of services rendered by him previous to the year while he was not a contributor. . . .

Sec. 69

Where a taxpayer is an employer and has made a special payment (or payments) in Canada on account of an employees' superannuation or pension fund or plan in respect of the past services of employees pursuant to a recommendation by a qualified actuary in whose opinion the resources of the fund or plan required to be augmented by the amount of one or more special payments to ensure that all the obligations of the fund or plan to the employees may be discharged in full and has made the payments so that it is irrevocably vested in or for the fund or plan and the payment has been approved by the Minister on the advice of the Superintendent of Insurance, there may be deducted in computing the income for the taxation year the lesser of

(a) 1/10 of the whole amount so recommended to be paid, or

(b) the amount by which the aggregate of the amounts so paid during a period not exceeding 10 years ending with the end of the taxation year exceeds the aggregate of the amounts that were deductible under this section in respect thereof in computing the income of the taxpayer for the previous years.

The pension income of the taxpayer is regarded as income in the hands of the taxpayer.

As I see it, the major difference between the American and Canadian approach is that the employee contributions in Canada are tax exempt whereas in the United States they are subject to taxation.

The Minister of National Revenue has prepared certain rules and regulations which all pension plans must follow before statutory approval is obtained.

1. The pension plan "must be a definite continuing undertaking set forth in writing and communicated to all persons concerned. It must be designed to provide periodical payments during the lifetime of the employees covered when they retire from active employment."

2. Although coverage in the plan may be restricted to well-defined classes of employees, it is necessary that every member of the classes covered be eligible for participation. In general, the Department views less favourably plans which set up restrictive conditions of eligibility with re-

spect to minimum age, maximum age, minimum length of service and class of employee.

3. The amount of pension must be determined by an equitable formula, must not be excessive and must not be discriminatory between employees or classes of employees.

4. All employer contributions must be made irrevocably and must not under any circumstances revert to or for the benefit of the employer.

5. Trusteed plans require an actuarial examination of the fund every five years. Approval of the Department will be withheld if any such examination indicates that the fund is financially unsound. The investments of the trustees are restricted to those permitted insurance companies operating in Canada under the Canadian & British Insurance Companies Act.

6. The conditions of the plan in the event of its discontinuance by the employer must be set out in detail.

7. Employer contributions for past service must be liquidated over a definite period under a specific method. Consideration is being given at the present time by the Department to variable future service contributions by the employer.

DOMINION GOVERNMENT ANNUITIES

Until April 19th, 1948, annuities were sold by the Canadian Government, based on the $a(f)$ and $a(m)$ table of mortality reduced one year, 4% interest and no loading for expenses. These annuities were limited to $1,200 per annum on one life. They could not be surrendered for cash and, if death occurred prior to retirement age, the contributions plus 4% interest were returned. Most Canadian insurance companies were selling group annuities on an interest basis between $2\frac{1}{4}$% and 3% per annum and a mortality basis that corresponded to the Government Annuity mortality basis and with an adequate loading for expenses. As a result of this situation, a major part of the annuity business in Canada, on both a group and an individual level, was issued through the Government Annuities Branch. There were many insurance company group annuities sold because of the $1,200 limitation and the lack of cash values in government annuities and because the life insurance companies provided a more comprehensive service. Many insurance company group annuities were sold in combination with the Government Annuities plan for amounts of pension in excess of $1,200 per annum.

All the rates for contracts issued by the Government Annuities Branch on and after April 19, 1948 were based on the $a(f)$ and $a(m)$ mortality table reduced three years, 3% interest and no loading for expenses. The restrictions referred to above with respect to maximum amount and cash

values were continued. Although the government annuity rates are in most, if not all, cases still lower than the group annuity rates used by life insurance companies, these restrictions have resulted in scarcely any government group annuities being sold since the rate change and have increased the number of group annuity policies issued by life insurance companies.

OLD AGE PENSIONS

Government old age pensions in Canada are all subject to a means test. The present old age pension plan in Canada provides a pension commencing at age 70 of $50 a month in British Columbia and Alberta, $42.50 a month in Saskatchewan and $40 a month in all other provinces. The receipt of this pension is subject to a means test which provides that the total income including the old age pension may not exceed $90 a month in the case of a married old age pensioner and $50 in the case of an unmarried old age pensioner. The monthly old age pension of a married couple is reduced by all the private income in excess of $90 a month. This private income includes pension payments under an employee pension plan. There are very few private or government pension plans in Canada that provide an annual pension very much in excess of the total means test pension paid under the old age pension system to a couple who are over 70. Although the old age pension system in Canada was instituted in 1927, it was just this year that the amount of the pension reached the level shown above. Because of the means test, it is difficult to combine a private pension plan with the government old age pension system although, in some cases, private pension plans have provided temporary annuities to age 70 after which the government old age pension system would come into operation.

TRENDS IN PENSION DEVELOPMENT

The Royal Commission on the Taxation of Annuities and Family Corporations, commonly known as the Ives Commission, prepared a study in 1945 on pension plans in Canada. At the time of this study there were about 927 approved pension plans in Canada. I am uncertain whether this study included pension plans covering the employees of the Dominion Government, Provincial Governments, municipal governments, teachers and crown corporations, but I think it unlikely. It was estimated that about 450,000 employees were covered in the plans approved by the Department of National Revenue. This represents about 10% of the total civilian labour forces at that time. Of the 464 plans studied in detail in the survey, 385 were insured either through an insurance company or the Government Annuities Branch or both. Of these plans 79 were self-admin-

istered, operated either through a pension fund society or a trustee arrangement. These self-administered plans included the bulk of employees covered by pension plans.

A study prepared by the Dominion Bureau of Statistics in 1947 indicated that about 637,000 employees were covered by pension plans which represented about 13% of the total civilian labour forces. There are now just under 200 trusteed plans covering about 500,000 employees, about 200,000 of which are employed on the railways.

SIR GEORGE MADDEX:

If time had permitted I intended to contribute the following comments on the history of pension developments in Great Britain to the oral discussion on Mr. Bronson's most interesting and informative paper. In the early days widows' and orphans' funds seem to have attracted more attention than pension funds (see, for example, a paper by David Deuchar in the *Transactions* of the Actuarial Society of Edinburgh, Volume III, No. 8, published in 1895, and based partly on Dr. Price's work *Observations on Reversionary Payments and on Schemes for providing annuities for Widows etc.*, published toward the end of the 18th century). Some of these early schemes were connected with the ancient trade guilds and Deuchar points out that it was regarded as discreditable to a guild if its poor and its widows and orphans were not properly cared for. Pensions for the members themselves were, apparently, not unknown, although they were probably more in the nature of benevolent grants than of pensions in the modern meaning.

The establishment, by private employers, of pension funds on more or less modern lines can be said to date from about the middle of the 19th century. The Railway companies were among the first in the field and detailed information about their funds is given in evidence submitted to a Departmental Committee on Railway Superannuation Funds which was appointed in 1910. (The report of the Committee, but not the detailed evidence, was reprinted in *JIA* XLV, 27; the full Report and Evidence were published by His Majesty's Stationery Office in 1910, and may be available for reference in the Library of Congress.) Some of the companies established schemes on an actuarially funded plan; others did not. The earliest Railway superannuation fund was started about the year 1852, at which date unfunded schemes for civil servants and other public services had been in force for a considerable period. At the time of the report on the railway schemes, pension funds for other industrial concerns were becoming more general, but the numbers of employees concerned could have represented only a small proportion of the whole field. Other private en-

ployers who started early with provision for staff pensions were banks, insurance companies and public utility concerns such as gas and water.

The widespread development of private pension schemes in this country dates, however, from the passing of Section 32 of the Finance Act of 1921. That Section by affording (subject to certain conditions) relief from income tax both in respect of employees' and employers' contributions to approved schemes and on the interest income of the funds, gave a great impetus to the establishment of private pension schemes.

Comprehensive statistics of the number of pension plans in force and the number of persons covered by them are not available. The latest information is that published in the Ministry of Labour Gazette of May 1938 as a result of a special survey by the Ministry. Some of the more important figures are reproduced in a paper on Superannuation Funds by D. A. Porteous (see *TFA* XVII, Part VIII). There were then (1938) estimated to be some 6,540 firms with schemes, but there was great activity in this field both during and after the last War and the number has probably risen now to something of the order of 9,000 or 10,000; these figures include both self-administered schemes and those arranged through insurance companies.

In the early days of pension schemes few were insured with insurance companies—and these were on the basis of individual deferred annuity or endowment assurance policies—but the position has changed. Group pension schemes of the type now so popular first appeared in this country in 1928. They were introduced by an Assurance Company anxious to give facilities in Great Britain for its existing connections in the United States. The idea at first was treated with some suspicion but this was soon allayed—and there was a rapid growth in this class of business from 1930 onwards. The number of such schemes in existence must now form a substantial proportion of all pension schemes.

The State pensions granted under the National Insurance Act, 1946, do not seem to have had any retarding effect so far on the promotion of private pension plans. There is a natural tendency for new plans to take into account the amount of the State pension. As regards existing schemes, there have not been widespread modifications in their application to existing members, so far as I am aware, although in many cases they have been modified for new entrants. It must be borne in mind, of course, that the "retirement pensions" under the Act are fixed at a flat subsistence level and that the minimum pension age is 65 for men and 60 for women. It is really too soon to say what effect the State scheme is likely to have—and there are other factors of the first importance affecting the position—

but, undoubtedly, all classes of the population are becoming more and more "pensions conscious."

Recent developments in Great Britain include the establishment of superannuation plans—varying considerably from one another—for the several nationalised industries; the growing tendency to include contributory widows' and orphans' pensions in superannuation plans for public services, nationalised industries, etc.; a recognition of the need to indicate in the trading accounts of public services, etc., the effective annual burden of making pension provision, whatever may be the actual method of financing such pensions; some interest in the transferability of pension rights so as to facilitate change of employment—arrangements for which have been recently developed for some public services, but which would involve different considerations and serious difficulties in relation to private superannuation schemes. In this unduly long contribution I can only record these features of interest, without explaining or commenting on them.

(AUTHOR'S REVIEW OF DISCUSSION)

DORRANCE C. BRONSON:

The author is gratified at the response of interest and kind words given his paper generally. He is particularly thankful to those who took the time in these busy days to set down their thoughts in writing for the pages of the *Transactions*. These discussions fall into three categories: (1) those which comment directly on the paper—with added facts or figures, or with gentle criticism; (2) those which supplement the paper either by developing a theme contained in the paper or by injecting some item of more recency than the paper could include when written; and (3) those containing more general remarks on pensions.

I would like to review, by category, these interesting discussions but obviously must pick out only a few of the points in each group which interest me particularly. In the first category, I am glad to have Mrs. Van Eenam's warning, in her usually well-documented manner, that my estimated coverage for the trust-fund type of plan may be some 10% understated and that 2,800,000 employees might be a better figure. In her last sentence, while I do not think she meant it that way, could there be a premonition of a transfer of *funds* as well as *coverage* from an established employer trust to a union welfare fund?

Mr. Myers' estimate of $200 billion "insurance in force" under H.R. 6000 is readily accepted by me as preferable to (or, shall I say, more correct than) my $150 billion. His feeling that I have overstressed the lack of

advance funding under State and local public employee plans may in one sense hold water but in another I will stick to my statement. For example, I have on my desk a copy of a letter received by a participant in a large municipal pension plan. This letter is to the effect that she is not going to get the pension relative to salary that she had earlier been told to expect from her contributions over the period of her participation, because the plan had not guaranteed that she would but only "thought" that she would. The letter goes on to say that the advance funding had not kept up with her pay increases and that a current contribution by her of about one year's pay would bring her "current" in this regard! A responsible private plan would rarely have been constructed with such a result possible or, if so, would not have permitted the obvious government inertia evident above, in correcting it. In any event, it is a good lesson to us in the uncertainties of "money-purchase" promises, especially those involving salary scales in their performance. As to Mr. Myers' ideas on the reserve concept, I am in general agreement, and am inclined to concur with him that H.R. 6000 could be described as an "actuarially sound" plan, though in this case I am afraid that its very quality of actuarial soundness forces on it a companion appellation of "actuarially unwise," paradoxical as it may sound.

Mr. Orloff properly quarrels with my Table 4 as being unreal for any given employer. Even though I was mainly using these figures to illustrate a problem for actuaries, and had prefaced the table with a word of warning, I see that I ran the danger of misinterpretation.

Mr. Rae's point, which he calls minor, is, on the contrary, quite important in its sphere. In these days when all concepts of "past service" are being dusted off and re-examined, the amortization or nonamortization methods he mentions are helpful points in connection with the, perhaps misnamed, Frozen Initial Liability Method. We can expect the whole subject of funding past service to be much more thoroughly explored and debated under the current union pension settlements than heretofore, when it was mainly either an "elegant" accounting problem or a serious question of costs.

Coming now to the second category of discussions, Mr. Blagden has added helpfully to the actuarial literature by describing more fully than I had the right or the space to do, the "Deposit Administration Plan" (Mr. Peterson's "Collective Deferred Annuity"). The balance of Mr. Blagden's discussion stops a moment or two at several interesting points, all excellent conversation subjects for pension actuaries, but I will only respond here on one of them. He suggests that a heavier capitalization of the worker be accomplished—by which I assume he means better plant, equip-

ment, tools, organization, etc.—in order to meet the higher production required for goods demanded by the larger and more numerous pension checks of the future; and that from this more concentrated capitalization a larger channel would open up for the investment of pension funds prior to their becoming pension checks. This is an interesting possibility and leads to thinking of the effectiveness and cost (capitalization) of atomic power. On this subject of investments for pension plans, it may be significant that by far the greater proportion of requests thus far for copies of my paper, arising from the few press notices it had, express an interest or concern on the question of available investments.

I am sure it will be very informative to many, and a valuable reference source to those of us in the States who occasionally work on a Canadian plan, to have Mr. Eckler's résumé of the Canadian requirements corresponding to those of the Bureau of Internal Revenue in this country. He mentions the major difference between Canada and the U.S. as the tax exemption of employee contributions in Canada; I think another fundamental difference is that Canada seems to pass on, and require, a financially sound condition of the fund, whereas our federal government, as mentioned in my paper and underscored in Mr. Peterson's discussion, does not undertake supervision of this character.

Mr. Eckler's summary of Canadian government annuities, and the recent changes therein, and of their Provincial old age assistance plans are both evidences of things done differently above the border than below it. His statistics on pension plan coverage are a welcome complement to those I give for the U.S.

When my paper viewing the 1949 pension arena was written, the stage hands were just readying another display but from where I sat it was still indistinct. I refer to the details of the steel and automotive pension issues —the renewed prominence of the age-old argument of "contributory *vs.* noncontributory"; the fundamental objection by the unions to a compulsory retirement age; the Steel Industry Board (Fact-Finding Board) and its inscrutable 6¢ cost; the Ford settlement for $100 a month inclusive of Social Security, with the seeming actuarial exhibitionism in the publicized $8\frac{3}{4}$¢ per hour; the Bethlehem settlement which followed Ford, being another of the "including Social Security" type (what Mr. Blagden calls envelope plans) and which settlement broke the employers' resistance in the steel strike. I am indebted to Mr. Foster and Mr. Peterson for bringing most of these 1949 developments into their discussions.

With most of Mr. Foster's warnings and counsel I am in accord; in a few instances he seems a bit more of an alarmist than I. For example,

where he suggests that the wording of the Fact-Finding Board's report will perpetuate prolonged discord between employers and unions; since in only possibly one case that I have seen so far has a settlement been based on the Board's 6¢ criterion, I feel the discord, if perpetuated, will be on some other wording or plan. (The Board's wording which I trust will be perpetuated is that contained in a footnote of the report, effectively disposing of the particular purchasing power theory that the union economist had advanced.) Nor do I join in his fear that an employer runs the risk of retroactive disallowance of tax credits for his contributions to a negotiated plan; for one thing, these plans will receive early review as to their conformance with Sec. 165(a). Mr. Foster underlines a number of very important points. I would like to back up his implication of the unwisdom of publicizing a specified cents-per-hour cost as the financing index of the plan. I would also like to draw another line, under his, on the subject of past service funding. It was once considered highly desirable by employers to speed up and complete their amortization of past service; it seems to me that this position is much less clear today especially for large and provenly permanent companies. Because of (i) the high index in cents-per-hour (and its implication of wages) that rapid funding might carry; (ii) the sharp drop therein that would occur when the funding was completed; (iii) the large fund that would be created as a possible target for bigger benefits or for union control (perhaps not as important a point under an insured plan); (iv) the probability that corporation tax rates will again go up; (v) the possibilities of further general cheapening of the dollar after the funding had been completed with more valuable dollars; (vi) the overfunded condition of a plan that large-scale increases in Social Security benefits could bring about; (vii) the difficulty of finding good investment media for large funds; and (viii) other uncertainties of the future, including $100 a month governmental plans—because of considerations such as these, it may well be the part of unwisdom for employers to strive for a rapid completion of past service funding. To some, this may be near heresy, but what are the counter arguments?

An important point in Mr. Peterson's readable discussion is his citing of the path of least resistance taken by some employers toward letting the government do it. Obviously, these employers are not going to be relieved of pension costs for very long by this method and they might well ask themselves if the other consequences are worth the risk. Mr. Peterson adds, to the catalogue of pension occurrences of 1949, several further items of interest, particularly that of a reduction in some companies' group annuity rates. One may ponder a bit on this, or cross his fingers, and turn to the Jenkins-Lew paper in these same covers.

Two discussions appear in the third category of general remarks. Mr. Linton takes up the most popular topic of the investment problems in large reserve accumulations. He lucidly develops his question—of the world ready for heavy investment but the controls and guarantees lacking; of either the potentially substantial lowering of interest rates, or the use of equity investment for pension and insurance funds. One cannot do better than to reread Mr. Linton on this and, with me, add an "amen" after his question mark.

Mr. Williamson, aside from his very generous compliments, has, in his inherently sincere manner, again spoken for the individual in our society. His philosophy on this is always refreshing to me. As we all know, Mr. Williamson has been the champion of low-geared federal pensions and high-geared supplementary plans and personal thrift. He has felt—and I hope I am not putting words in his mouth—that the mechanical trapperies and detail going with a federal pension system based on exact wages and precise incidence thereof were wasteful, unnecessary and confusing. The anomalies of who is in and who out—with their unfairness and windfalls—have troubled him (and others). A universal plan of a modest federal benefit to *all* the aged and the orphaned children—not those just in by accident of birthday—would be his substitution for the complex, wage-following, truncated, payroll-taxed system we now have. With this substitution, he would send the old-age assistance program with its needs-test back to the area of States' rights; he would solve the otherwise perennial problem of the OASI reserve; and he would leave us more freedom to develop supplementary plans and thrift in our own way, or spend the money if we want to.

Well, I think 1949 has seen a widening circle of those who share his views, or who, at least, are not so sure of the established pattern as they once were. The unions, for instance, have plumped for flat pensions from industry, why would they not first favor a basic flat Social Security pension? The dilemma of state lines fashioning huge differences in the federal contributions for and benefits from Old-Age Assistance makes OASI compete to close the gap, toward a more uniform pension result. And now, late in November, Senator Taft, followed in haste by Secretary Tobin, has come out with the proposition that the universal flat federal pension concept deserves serious study. In view of these conditions and developments, I wonder how wise the Senate would be in quickly signing a renewal of the old policy by enacting H.R. 6000.

I am glad that Sir George Maddex has sent in his interesting remarks, received after the above was written. His comments on the British scene, with Mr. Eckler's on Canada, furnish some insight into pension develop-

ments in two countries other than our own. Sir George cogently points out the flat subsistence character of their "Social Security" benefits in comparison with ours which are progressive by wage level, up to a point. He implies that even more reason exists there for supplementation through staff pension plans than is the case here. He also notes the current interest there in contributory widows' and orphans' benefits as part of the staff pension plan. This may follow for the same reason cited above that the survivors' benefits in the British government plan are also of a subsistence (or below) level. In this country, where the survivors' benefits of the Social Security Act can represent, at times, over $15,000 of insurance value for an employee (or more than double that, $30,000 in the proposed H.R. 6000) and where our group life insurance for some 20 million workers totals about $40 billion, the need and interest for widows' and orphans' benefits ancillary to private pension plans are not evident, and the cost would be forbidding on top of all our other security dreams. Sir George's other comments are all pertinent to our subject and we are indebted to him for his interesting observations.

I would like to again thank the discussers for adding so much to the paper. I am rather glad that no one really condemned the glossary of terms and hope that over the years it may be added to and improved, with a minimum of bureaucratic terms. I already have a few additions from the discussions, *viz.*, envelope plan, collective deferred annuity and self-adjusting entry age normal cost. Perhaps we should let them simmer awhile before we accept them.