



SOCIETY OF ACTUARIES

Article from:

The Actuary

December 1968— volume 2 - Issue 10



The Actuary

The Newsletter of the Society of Actuaries

VOLUME 2, No. 10

DECEMBER, 1968

ABOUT ACTUARIAL CLUBS AND THE SOCIETY NEWSLETTER

(This is the substance of the talk given by A. C. Webster at the recent Seminar on Actuarial Clubs at the Annual Meeting in Washington).

The Actuary, the Newsletter of the Society of Actuaries, in the judgment of the present Editors has three functions:

(1) to be a means of communication between the Board of Governors and the members of the Society;

(2) to provide a forum for discussion of all matters affecting the Society and to provide space for articles, book reviews, etc.;

(3) to be a channel of communication between the Actuarial Clubs and the Society and among the Clubs themselves.

The results under (3) have not been too good and the Editors would like to bring to the Clubs some suggestions for improving this performance. We recognize that the Clubs are autonomous and that their membership is not necessarily restricted to members of the Society. From the viewpoint of *The Actuary* this is no disadvantage because we welcome contributions from non-members. Much good material is produced at Club meetings and some of it certainly deserves a wider circulation. Such material need not be restricted to Life, Health, and Pensions. We can sometimes profit by the discussion of other forms of insurance.

Our first suggestion is that each Club appoint a reporter who will be responsible for sending material to *The Actuary*. Discussions should be suitably digested where necessary, but any papers submitted should be sent in full.

(Continued on page 6)

To All Our Readers,
A Happy New Year
The Editors

BOOK REVIEW

J. Jewett and C. B. Lindquist, *Aspects of Undergraduate Training in the Mathematical Sciences*, Vol. I, 1967, Conference Board of the Mathematical Sciences, Washington, D.C. (Copies may be obtained from the Board at 834 Joseph Henry Building, 2100 Pennsylvania Ave., N.W., Washington, D.C. 20037, \$1.75.)

by E. A. Lew

The first of a three-volume study being prepared by the Survey Committee of the Conference Board of the Mathematical Sciences (of which the Society of Actuaries is an affiliate member) recently became available. It features the findings of a survey of undergraduate programs in mathematics in 250 four-year colleges and 100 two-year colleges.

The survey disclosed a strong proportionate increase in mathematics courses beyond the calculus, particularly in computer-science mathematics, probability and statistics, modern and linear algebra, as well as a trend for many of these courses to be taught at an earlier level.

There has been a rapid expansion in the number of students graduating with bachelor degrees with a major in mathematics (from about 13,100 in 1960-61 to 21,100 in 1965-66) in the face of a decline in the number of bachelor degrees in engineering and a relatively small increase in the number of degrees in physical sciences.

There has also been a substantial rise in the number of mathematical course

(Continued on page 7)

LIFE INSURANCE TAXATION IN CANADA

by J. Ross Gray

The early issues of *The Actuary* reported on the Royal Commission on Taxation—the Carter Report. In that Report many suggestions were made for a complete revision of the taxation system in Canada. The Report stated that the tax treatment of life insurance was inappropriate and unsatisfactory, and suggested tax methods intended to make the tax on life insurance comparable to the tax on other investments.

The Government has now introduced a budget resolution providing for new taxation of life insurance in Canada. The taxes apply only to life insurance in Canada and apply both to foreign and domestic companies. The emphasis has changed from taxing the policyholder directly to taxing him indirectly through the interest earnings of the company.

The amount of the tax is heavy. For example, the Royal Commission estimated that the earnings of the life companies after dividends in 1964 were \$90 million, whereas the new tax is estimated to produce \$95 million out of 1969 earnings. The probable reductions in dividends and increases in non-participating premiums have been recognized and mentioned by the Minister of Finance.

The reader not familiar with Canadian practice should know that Canadian companies can issue both par and non-par life contracts and that separate accounts are rendered for these.

The taxation proposals take three forms: a tax on the policyholder in certain circumstances; a tax on the investment income of the companies; and a

(Continued on page 7)

Actuarial Clubs

(Continued from page 1)

Sometimes Club discussions are "off the record," but that is no reason why such discussions, and some of them are valuable, should not be summarized and printed. The anonymity of the individuals will be preserved.

At least one Club publishes a volume containing the papers submitted and discussed at its meetings. We would like to see such papers before they are published—some of them could be well worth reproducing in *The Actuary*. This could go further. We would encourage the direct submission of papers by any Club members to the Newsletter.

Our second and simple suggestion is that we have proper advance notice of Club meetings if they are to be listed. Proper advance notice means at least two months notice and if the schedule is complete for 1968/69 we should have a copy. The monthly issue of *The Actuary* will list meetings for the succeeding month.

Other activities of the Clubs are also worth reporting. The reported action of one Club in outside affairs could well stimulate other Clubs to favorable outside action.

Our readers will have observed that we try to find books to review which we hope are intellectually interesting even though not strictly within the frame of our day-to-day work.

The Actuary, like any other periodical, flourishes on the quality and volume of the material submitted. Actuarial Clubs have an increasingly important role to play in Society affairs and their comments and suggestions on the contents of the Newsletter will be as welcome as the reports of their activities. □

Life Insurance in Europe

(Continued from page 5)

guarantees a minimum maturity value because there needs to be a risk charge for this guarantee against loss.

The second type of product involves some highly sophisticated actuarial techniques. Since the company will derive its income from the investment income on the fund, the yield on the equity fund must be forecast and capital growth will have an enormous impact

BOOK REVIEW

Lawrence D. Jones, *Investment Policies of Life Insurance Companies*, Division of Research, Graduate School of Business Administration, Harvard University, Boston, 1968, pp. xxi, 568.

by Dr. Robert H. Parks

(Editor's Note: We are greatly indebted to Dr. Parks for this review. Until recently Dr. Parks was Director of Economic Research for the Life Insurance Association of America.)

The single elemental question that occupied Mr. Jones throughout this study was whether interest yields played the primary role in directing life insurance companies' investment decisions. His answer is a qualified "yes" for the period studied, 1953-1960, based upon an analysis of the allocation of

on the company's income. It is obvious, since the annual allocation generally exceeds the premium, that a substantial amount of cash is required if the company is to fund its liability in full. In fact, most of the plans sold by members of our Group involve a concept we call "actuarial funding"—each year the company invests not the amount allocated in that year but the present value of the amount allocated, and thereafter it reinvests the investment income, thus purchasing the required number of units over the lifetime of the policy.

The concept of under-funding introduces some interesting complications—the company is short sold, having purchased fewer units than value allocated to policyholders; thus a market rise would tend to provoke a loss. At the same time, the company's income is the investment income on the fund and, if the dividend rate remains reasonably constant, the company will report a gain if the market rises since its investment income rises too. In fact, it can be shown that if the running yield on the equity fund remains constant the company sustains neither gains nor losses on account of market movements. This concept of actuarial funding has an important bearing on the financial soundness of the guarantees of maturity value. To the extent that the company has under-funded its liability it tends to make apparent profits when the market declines and these would coincide with the losses sustained on mortality value guarantees. □

funds among competing investments in the form of corporate securities, mortgages on residential, commercial, industrial and farm properties, and direct investments in real estate and real property.

While reaching this conclusion derived from a combination of interviews, study of industry data (primarily that of the Life Insurance Association of America), and statistical regression analysis, Mr. Jones is careful to identify other forces also affecting investment decisions. These include the regulation of investments by the various states, the valuation and reserve rules established by the National Association of Insurance Commissioners, the influence of external monetary and fiscal developments, and the continuing non-yield objectives of reasonable liquidity, solvency, credit quality, and diversification.

Although the author stresses the evidence that life insurance companies in the period studied tried to maximize yield to the extent they could while maintaining credit, quality and solvency, he emphasizes, too, that they did not, in the main, attempt to forecast interest rates to further boost returns by allocating funds over time.

Forward Commitments

Indeed the statistical evidence, he notes, shows that on balance, forward investment commitments tended to reduce life company investment return, at least as compared with the return that would otherwise have obtained under the assumption that all commitments and acquisitions of investments were simultaneous.

Forward commitments, then, were not intended as a mechanism for playing present as against future interest rates to enhance yield. They should rather be viewed, the author suggests, as a "non-competitive" device developed by life company investment officers to woo loan customers who find the forward investment commitment and the subsequent payout of funds to be a desirable and convenient way to borrow money.

Elsewhere the author makes the point that the "noncompetitive" return affords life companies somewhat higher yields at commitment on their direct place-

(Continued on page 8)