The Actuary
The Newsletter of the Society of Actuaries

VOL. 15, NO. 7 (SUPPLEMENT) UNIVERSAL LIFE SEPTEMBER, 1981

WHO CONCEIVED THIS INSTRUMENT?

Subject to responsibility being accepted (and documented) by somebody else, we hold that the father is George R. Dinney, and the place of conception Winnipeg, Canada. In response to our enquiry, Mr. Dinney recounts the history thus:

"John Galsworthy said that the beginnings and endings of human undertakings are untidy. I do not recall the exact moment when I first shouted 'eureka', but it most certainly was in the period 1962-63. This conceptive 'eureka' has been followed by other cries of 'eureka palin' (I have found it again) and, belatedly, by a simple, and at times congratulatory 'eurekas' (You have found it).

"In 1962 I was engaged in developing and promoting new Group insurance products. The Universal Life Plan was conceived as an improved Group Permanent plan. The product name, i.e., with Group preceding the other three words, served two purposes. It evidenced my predilection for generic solutions; it also permitted expressing the fundamental characteristic in a simple slogan; 'Make your life insurance problems disappear with one GULP!'."

WHO BROUGHT IT INTO THE INSURANCE WORLD?

Quoting further from Mr. Dinney's answer to our letter:

"In the mid-1960's I explained the plan to Thomas P. Bowles. In 1975 Mr. Bowles' associate, James C. H. Anderson, made a singular contribution to the technical development of modular product in his paper, 'The Universal Life Insurance Policy,' to the 7th Pacific Insurance Conference in California."

IS UNIVERSAL LIFE HERE TO STAY?

by John F. Fritz

Ed. Note: This essay came from Mr. Fritz at the invitation of the Society's Committee on Continuing Education, of which he is a member.

The question that forms my title has often been asked since the first Universal Life product was introduced in 1979 by Life Insurance Company of California, now E. F. Hutton Life. I believe it's good for policyholders, is good for the industry, is here to stay, and will be a major force in life insurance future.

Since 1979, about 25 companies, including some of the larger ones, have entered the market place with a similar product. That number may increase to 100 or more by 1982.

Yet, the product's future rests in regulators' hands. The entity that will have greatest impact within the U.S.A. is the Internal Revenue Service. State insurance department decisions also will be influential. Will the consumer triumph? Here are three of the major questions.

Policyholder Federal Income Tax

In January 1981 the IRS issued a private letter ruling on issues affecting taxability of E. F. Hutton Life's product.

Are death benefits (including the cash value) life insurance proceeds as defined by IRS Code Sec. 101 (a)(1), and thus excludable from the beneficiary's gross income? Are death benefits payable under two term riders attached to the policy likewise excludable? Will there be no constructive receipt by the insured of the inside build-up of cash value, and hence no income tax incurred unless cash values withdrawn exceed premium payments?

(Continued over)

OUR PRODUCTS DO MEET PEOPLE'S NEEDS

by Ian M. Rolland

Ed. Note: This is taken from Mr. Rolland's remarks at LIMRA's 1980 Annual Meeting.

Life insurance products are far from static—they evolve to suit the markets they serve and the public's needs. Companies who look ahead and whose product development cycles are suitably short will keep abreast of change and still yield a reasonable return on shareholders' capital. Thus our industry confirms its role as handmaiden to economic needs.

A new generation of permanent life insurance products not only answers criticism directed at whole life plans but also stands apart as uniquely attractive financial products. Among these are: (1) *New Participating products* with variable premiums, and dividends designed for cost effectiveness in specific markets; (2) *Flexible premium non-par policies*—necessary for stock companies to compete in long-term net cost with participating policies in these economic times; (3) *Variable Life,* an early Seventies innovation now being reintroduced with new funding vehicles and other variations that will make it interesting to watch as an inflation-fighting product; (4) *Adjustable Life,* ultimate in flexibility though its administrative complexities challenge even sophisticated data-processing systems, and specially well suited to the pension trust market; and (5) the "Universal Life" concept, dividing the whole life contract into term insurance and investment elements, giving choice of face amount and premium, and permitting the buyer's term premium to be paid out of the investment fund, which accumulates at current interest rates.

(Continued over)

Here To Stay?

(Continued)

On the first of these, the IRS ruled that such death benefits are to be treated as life insurance proceeds, but cautioned that the cash value must be "equivalent to the cash value or reserve under a more traditional life insurance policy" and not be a "side fund" variety of cash value. The second ruling conceded that term riders too are life insurance proceeds under the section cited. And on the third question, the IRS concluded that the policyholder would not be in constructive receipt of credited interest prior to surrender. Although presumably indicative of the Service's general feelings, a private letter ruling is directed only to the taxpayer requesting it, and may not be used by others or cited as a precedent.

Company Federal Income Tax

There have been no official IRS pronouncements on treatment of Universal Life for company tax, the major question being how excess interest credited to reserves and cash values is to be handled. A consortium of life companies happens just now to be seeking IRS's answer to this excess interest question for annuity contracts; that emerging ruling should indicate the rule that will apply to Universal Life and other products that involve life contingencies. Meanwhile, at least one company has requested a ruling on this point.

State Insurance Departments

In general, state regulators are displaying willingness to accept innovative products that benefit the public. Universal life has, though, encountered difficulties in seven states. And many department approvals are subject to close subsequent monitoring related to company solvency, disclosure to prospects and policyholders, and compliance with valuation and non-forfeiture statutes.

Because of this product's flexibility, tables of non-forfeiture values in the policy aren't much help. Nevertheless, some departments do require them. Since premiums, cost of insurance rates and interest credits all vary, the best and usual arrangement is to furnish non-forfeiture value specifics to policyholders annually. Making the calculations retrospectively, the product can be shown to be in compliance with current valuation and non-forfeiture laws.

As to solvency, insurance departments are most worried about products that tie the interest rate to an outside index such as, to mention one example, the 91-Day U.S. Treasury Bill Discount Rate. Their main concern is whether investments underlying such a promise will satisfactorily match the index in both size and period to maturity. Proper matching can be demonstrated by earmarking the assets that support the reserves—either by earmarking specific assets in the company's General Account or by forming a separate company to write only Universal Life Products.

The Challenge Ahead

The challenge our industry faces was brought on by outside economic and social forces. Erosion of savings dollars, moves into term insurance, replacements, high lapses . . . all are reactions to external influences. If we are to avoid the loss of our share of public savings, we must change. Our traditional products perplex people and lack flexibility. Rates of return are hidden in language and arithmetic that only actuaries understand. We must show competitive results in ways that non-insurance people can measure against other savings forms.

Some charge that Universal Life is a "replacement product." But replacements isn't new; it has been with us and will remain with us, whether or not Universal Life survives. It would be less of an issue if our policies on the books met today's demands. The issue must be, "What is best for the consumer?".

Companies with large blocks of traditional permanent life insurance in force must address the replacement issue in terms not only of other companies but also of their own field force. Should a company openly replace its own business? The answer depends on the specific circumstances. If a company isn't willing to replace its own business, won't it be replaced by somebody else?

Clearly, unresolved issues surround Universal Life. Its present form may or may not be the ultimate solution, but it is a step in the right direction. □

"UNIVERSAL LIFE: THE REGULATORY DILEMMA"

This is the title of a paper written and circulated, specially to regulatory authorities, by Douglas L. Paine, and doubtless obtainable from the author at his Year Book address.

It says that the Universal or Open Life Policy concept may very well represent a turning point for the insurance industry and that the future may see proliferation of such policies.

This paper offers suggestions on non-forfeiture calculations, cost indexes, policy projections (illustrations) and valuation considerations.

Products Do Meet Needs

(Continued)

Today's products do meet people's needs—and will change as those needs change.

Ed. Note: For a distinctly different viewpoint, see "Why Universal Life Is Not The Solution," PROBE, Vol. 28, No. 13, July 1, 1981. Says Probe Editor John L. Lobingier, Jr.:

> "The big question is whether or not the mainstream of life companies will succumb to the current euphoria and bring universal life-type products to market. It would be a mistake for the business to do so, in my view. There are dangers to the universal life approach. There have to be other products and combinations of products that will avoid those dangers and prove to be superior to universal life over the long run—both for companies and for consumers." □

RISK FROM INTEREST RATE SWINGS TO BE DISCUSSED AT ATLANTA

by Carl R. Ohman, Chairman, "C_3 Risk" Task Force

In these hectic times, any actuary who certifies that annual statement reserves make good and sufficient provision for unmatured obligations must take into account the risk of loss from changes in prevailing interest rates. This risk—immediately apparent in Universal Life contracts—was given the symbol C_3 by C. L. Trowbridge's Committee (*Record*, Vol. 5, No. 1, p. 261) in April 1979.

Our Task Force plans to introduce its first report for discussion at the Society's Atlanta meeting on October 20. Our second, final, report will be presented at the Houston meeting in April 1982. The research now underway is expected to prompt extensive subsequent debate and research. □

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INDEX-LINKED SECURITIES IN THE U.K.

by Alistair Neill, F.F.A., F.I.A.

In the U.K., as elsewhere, the merits of index-linked securities have been widely discussed. Debate was given impetus early this year by the "Inquiry into the Value of Pensions" set up by Prime Minister Margaret Thatcher to consider the value of the differences in inflation protection of private pensions and job security, comparing those for civil servants with others. This committee, composed of three businessmen, one academic, and one actuary (R. E. Macdonald, F.F.A.) reported in February 1981.

On one matter the report was short—it said that nobody previously had managed to assess the relative value of job security, and neither could they. The press had been speculating that the committee had been appointed to recommend that index-linking of civil service pensions be abandoned; but it endorsed the idea and urged that private pensions try to do the same. It suggested that one means might be for the Government to issue index-linked bonds.

To general astonishment the Government promptly announced that it would issue an index-linked Treasury security repayable in 1996, for the sole benefit of pension funds and insurance companies with pension contracts. It would pay 2% interest, with both principal and interest indexed to movements in the Retail Price Index (our equivalent of the U.S.A.'s CPI). The issue was made by tender, i e., the whole stock was to be allotted at the highest price at which all the amount offered (£ 1 billion) could be sold to authorized purchasers. It is traded on the London Stock Exchange just like any other security.

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ANNUAL MEETING WILL HAVE NEW SESSION FORMATS

by Robert D. Shapiro
Chairman, Program Committee

Gone are the time-honored Concurrent Sessions and Discussion Forums. After reflecting on evaluation form comments and other evidence, the Program Committee will unveil at Atlanta two brand-new formats:

Panel Discussions (PD's)
and
Open Forums (OF's)

For a *Panel Discussion,* the moderator will assemble experts to present the current state and outlook for the program subject. This format is used when information previously available to the audience has been limited. Time will be provided of course for questions and comments from the floor.

In an *Open Forum,* on the other hand, the moderator's aim, after an explanatory preamble, will be to excite give-and-take exchanges among panelists and the audience. This arrangement is expected to fit topics that lend themselves to broad interplay and a variety of opinion.

The familiar *General Sessions* and *Workshops* will continue unchanged. And evaluation forms will again be furnished and their completion urged. At Montreal a year ago, more than 1,500 of these were turned in. The Program Committee has quickly come to rely heavily on this source of ideas and will welcome suggestions for improving the evaluation procedure still further.

Also, the emphasis in the moderator's role is being changed. The moderator will concentrate on staging a smooth, effective session and do less personal contributing to the topic's subject matter. □

CANADA'S NATIONAL PENSION CONFERENCE

by J. Bruce MacDonald

Ed. Note: This is the first of two articles on this important meeting. As a workshop leader thereof, the author was in a preferred position as an observer.

My overall impression of the National Pension Conference was highly positive. The federal government had stated that its course of action on pensions wouldn't be decided till after it had assessed what it heard there. Nothing I heard led me to doubt its sincerity.

The mix of delegates—about 25% each from government, from employer groups, from labour and from special interest groups — was itself cause for confidence. Speakers generally stated their positions with reason and moderation; delegates listened courteously to opposing views. Even if it achieved no more than getting groups out from their largely self-constructed ghettos, the Conference must be counted a success.

The federal government gives pensions a priority exceeded perhaps only by energy and Canada's Constitution. The Prime Minister and the Ministers of Finance and of National Health and Welfare all were present. Their speeches were moderate and realistic. There were three speeches by left-wingers, but the addresses of the federal cabinet ministers quieted fears that the government might be committed to massive enlargement of the Canada Pension Plan (CPP). An excellent speech was given by Claude Castonguay who was architect of the Quebec Pension Plan and Quebec Medicare.

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The Actuary

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EDITORIAL

AN OPPORTUNITY FOR MATCHING-IN-REVERSE

IT was in June 1970 and January 1971 that this newsletter printed articles by Peter L. Hutchings and Robert J. Randall announcing the Society's then new Minority Recruiting Program. Said Mr. Randall: "(We) are aware that the program is long-term and that results cannot be expected to emerge immediately."

The purpose was and is to encourage and help qualified minority students to seek careers in our profession.

A decade later, we find that it has been more than just worthwhile. Today's Committee can report that five of its scholarship winners are now Associates and two are Fellows. Altogether, 57 scholarships totalling $70,000 have been awarded [to] students, thirteen of these in 1980.

The plan's initial funds having been readily furnished from the coffers of seven life insurance companies (in the New York area), our committee early decided to develop support from employers throughout the U.S.A. who have reason to be interested. Appeals at first were sent to firms that had ten or more Society members in their employ. In due course the Casualty Actuarial Society joined us in this endeavor; now the firms solicited are those that employ six or more members of both our organizations.

To the general funding has been added over the years the fine support of three funds established by individual companies—the Equitable Life Assurance Society's J. Henry Smith Fund, and two funds (one for graduate students, the other for undergraduates) set up by the Connecticut General Insurance Corporation.

All of us are familiar with "matching grants," an arrangement under which an employer puts dollar-for-dollar into a charity or other good work that the employee chooses to support. Here in this Minority Recruiting Program lies the chance for just the opposite. If you can count six actuaries in your firm with headquarters in the United States, your company has already been asked for help in 1981; you have the privilege of becoming the matcher, in whatever amount you choose.

Many of us are retired or are in firms with fewer than six actuaries. Our contributions too are more than welcome, and have in the past been a significant part of the total revenue to the Program. If we happen to be in a firm that has not been invited, we might consider asking our boss to participate.

By the way—the amount the Committee has suggested to employers of six-or-[more] was $20 per actuary on the staff. Contributions are tax-deductible. Write your check to "SOA/CAS Minority Recruiting Program" and send it to the Society or the Casualty Society office.

E.J.M.

LETTERS

Forensic Actuaries Wanted

Sir:

The work of a "dissolution actuary" does not qualify an actuary as an "Actuarial Nomad" (February issue). Many consulting actuaries in California do dissolution assignments, although but a few of us specialize in this. Divorce is a growth industry, and it is a rare consulting pension actuary who isn't asked by attorneys to take on such engagements.

Some of us also work for attorneys in cases of lost earnings arising from personal injury or wrongful death litigation—assignments that also qualify a consultant for the title of forensic actuary. The question then is, Is a forensic actuary a species of actuarial nomad?

A paper to the Fourth International Congress of Actuaries (1903) by our famous Miles M. Dawson, and one to the Institute in 1968 by J. H. Prevett, F.I.A., establish that forensic activities have long been part of a consulting actuary's practice.

There's need for more forensic actuaries. It appears that at least half of that work is now being undertaken by persons without actuarial expertise.

Murray Projector

* * * *

Force Of Mortality

Sir:

Why should Paul W. Nowlin (Letter, March issue), or any of us, be concerned whether μ_x exceeds one?

The upper bound of q_x is another matter. It represents the probability of death over an arbitrary period (one year). When $q_x=1$, survival past the end of the year is impossible—it's an actuarial death warrant.

But μ_x is an instantaneous probability, though again measured over that arbitrary one year. When it reaches infinity, its upper bound, survival past that instant is impossible.

The expression at the foot of Mr. Nowlin's letter simply expresses the relationship between q_x and μ_x when the latter is constant throughout the year.

Michael Cohen

* * * *

(*Continued on page* 5)

ONE LIFE, 10 JOBS . . .

by Joseph R. Brzezinski

The New York Times last year published an article with the above title, on the job changes of American workers (November 25, 1980). The writer relied on disparate studies by the National Bureau for Economic Research, the Personnel Journal, and the National Personnel Associates.

The Times article tags the average worker as a "job jumper," holding ten jobs during his or her career. Frequency of this jumping has been increasing; average tenure is said to have declined from 4.6 years (1963) to 3.6 (1980).

LIMRA's 1979 Agent Termination Tables, reported in *The Actuary* (January 1981), can be used to calculate average tenures for life insurance agents, with the results shown below.

The criterion in the Times article is working for one employer in any job; the LIMRA study applies a stricter test, working for one employer as an agent.

While agent turnover is widely recognized as an expensive industry problem, the Times article does help to place the matter in clearer perspective. It is not isolated, let alone unique; job changing by the American worker in general is shown to be substantial and becoming more so. Even though the comparability of these figures must be rated as flimsy, the life companies with the lowest agent turnover rates may take heart.

Ed. Note: We await with interest a definitive study of job tenure among actuaries. For whatever the snippet may be worth, we find that the fifteen Society members in Canada and the U.S.A. whose obituaries printed in the Transactions, *Vol. XXXI* (1979) *give sufficient information for calculating, seem to have experienced average job tenure of about* 12.7 *years, i.e., fewer years than Mr. Brzezinski's study attributes to agents of multiple line companies.* □

Distribution System		*Average Job Tenure*
Ordinary Cos., not Multiple Line —	Best One-Third of Agents	3.9 years
	Middle " " "	2.3 "
	Worst " " "	1.4 "
Combination Companies		2.1 "
Multiple Line Companies		16.6 "

ACTUARIAL SOFTWARE OUTLINES WANTED

by Matt B. Tucker

This enquiry is directed to readers who have information about an actuarial software system or who work for a vendor or supplier of such a system, and who would like to have the system listed in an Actuarial Software Catalog being planned by the Society's Computer Science Committee.

The list would cover programs that can be bought or leased, whether for a computer, minicomputer or time-sharing; the time-sharing items will be listed separately. Our catalog will be compiled as soon as we have enough particulars, and will be revised regularly.

We seek the following particulars:

1. A 50-word-or-less description of what the system does.
2. How it may be acquired—purchase?, lease?, usage charge?
3. Whether it is available for in-house, mini-, or micro-computers or via time-sharing.
4. If for in-house computers, who are the hardware vendors.
5. The system's price range.
6. Name and address of the software vendor or supplier.

Please send your response to me, Matt B. Tucker, at my *Year Book* address. □

Deaths

George W. Bourke, F.S.A. 1925

Reginald Catling, A.S.A. 1965

Charles Mehlman, A.S.A. 1930

Franklin C. Smith, A.S.A. 1949

Andrew M. Stiglitz, F.S.A. 1962

GOVERNMENT BORROWING

Our April Query, on the assertion by two Harvard economists that government deficits are being exaggerated unless allowance is made for the declining value of the dollar, brought us nine welcome responses which we undertake to summarize here in the order received.

John C. Maynard believes that subtracting the inflation rate from the interest rate emphasizes the borrower's viewpoint to the neglect of the lender's. If the lender has aimed for a 4% real yield (rather than the 2% that the economists' post hoc arithmetic has given him) he will raise his future interest rate, thus aggravating the inflation. The government, unlike the ordinary borrower, is in a position to lower the borrower's real rate of return after the borrowing terms have been set—but to the extent they do so they push up future financing costs and future inflation.

Charles M. Underwood, III, perceiving an analogy to the AICPA's insistence upon constant dollar footnotes to corporate financial statements, regards the view as sound provided it gets only a footnote's-worth of emphasis, but he thinks such reasoning likely to lead to further excesses. "To say 'The government is not really living beyond its means' is not to say, that it isn't living beyond OUR means."

Albert K. Christians says that the phrase "living beyond its means" (rather than, e.g., "financing its activities by illegitimate means") isn't conducive to reasoned discussions of such complex issues. He by no means concedes that the intuitively reasonable relationship, Increase in Debt = Expenditures − Income, holds true when the measure is a dollar of constant purchasing power.

If economic conditions cast doubt upon inter-temporal comparisons of financial quantities, then actuarial science is greatly impaired, for such comparisons are fundamental in almost all actuarial work. If actuarial science is unsound, so are the financial institutions that stand upon it. There are two great challenges to actuaries here. The first is to adjust actuarial thought to inflationary times so that we don't become confused by the paradoxes in the non-Euclidian world of the rubber ruler. The second is to

(Continued on page 4)

Government Borrowing

(Continued from page 3)

create an awareness in those who con-[illegible] economic policies that insurance arrangements depend upon some predictable store of wealth, some reliable mechanism for inter-temporal financial transfers.

James H. Murta also contrasts the differing viewpoints of borrower and lender. The borrower may look at the illustrated transaction in any of at least four ways, each with its own implications, viz., (i) comparing the debt's future value in today's dollars with current income; (ii) comparing it with expected future income; (iii) same as (i) but with emphasis on the borrower's ability to repay; (iv) comparing the debt's future value in today's dollars to expected future income, which is the Harvard economists' way. A weakness in (iv) is that it diverts attention from the borrower's ability to repay the debt.

Frederick J. Sievert views the true dollar cost of borrowing as the difference between the interest paid on the borrowed funds and the interest earned on their reinvestment. He offers this example:

> Suppose an automobile is purchased for $10,000 at 12% simple interest, and sold one year later for $9,500. The interest paid is $1,200; the interest earned is −$500. This makes the true cost $1,200 − −$500, ie. $1,700. This translates to a 17% rate; inflation is immaterial except to the extent that it has affected the resale value of the automobile.
>
> One would be hard pressed to determine the earnings rate for investment of the national debt. If it's positive it does reduce the deficit below the stated $59.5 billion level. But to suggest that the earnings rate is even close to the inflation rate is preposterous.

Edward H. Friend is inclined to agree with the Harvard economists, seeing a parallel between their approach and the PRNCHLAR ("pension reform normal cost and half-life amortization of the ratio") designed as a funding method for public sector pension plans and presented by him in *Vols. 28* and *29* of *Proceedings of the Conference of Actuaries in Public Practice*. The argument he then made is that funding is consistent with the underlying objectives if this ratio is diminishing by at least 50% over a designated half-life such as 35 years. The point he was making in the pension discussion (which he considers applicable here also) is that the absolute dollar growth in the unfunded obligation is not ominous in an inflationary economy if the underlying payroll is growing perhaps twice as fast and the ratios of unfunded obligation to payroll are the same in both the non-inflationary and inflationary environment.

Godfrey Perrott considers the economists' adjustment correct as far as it goes, except that it raises two other problems: first, the budget, even adjusted, isn't balanced; second, a large component of the inflation rate is the expectation of future inflation. The government, using inflation-adjusted accounting, tends to institutionalize the inflation that none of us wants.

Bruce E. Nickerson takes issue with the economists' arithmetic in dividing the 12% into 2% interest and 10% debt repayment; he finds the interest to be 1.82% and the repayment 9.09% under the circumstancs specified. But the critical question to him is what "true" interest rate is needed to produce adequate savings and capital formation. If, as he suspects, this rate is about 3.5% rather than 1.8%, then the government is making a 1.7% profit by accelerating inflation beyond lenders' expectation and by discouraging savings to the extent necessary to reduce that "true" rate to 1.8%—a smart, if unethical, debt management practice. Smart in the short term but destructive of both nation and government in the long term.

Allan W. Ryan regards the economists' concept, that what appears to be a level amortization is really one of decreasing payments, as acceptable, and possibly having applications in the structure of mortgages and other long-term private debt. He sees the effect as a disproportionate burden to the borrower in the early years, and proposes that the principal be amortized using a "true" interest rate—say, 3%, and that both the monthly payment and the outstanding balance be increased by an inflation factor (measured by either an index or an agreed-upon rate). The result would be equal instalments to the borrower in real terms.

E.J.M.

ALFRED N. GUERTIN

An Appreciation by W. Harold Bittel

When I first visited Al Guertin in his office in the New Jersey Insurance Department in 1943, he was in the spotlight for his recent key role in developing the new approach to statutory nonforfeiture and valuation requirements that had become known as the Guertin legislation. Al pointed out the extent to which such activity had been possible for him in the system set up by F. Bruce Gerhard and developed further by the late Bruce E. Shepherd into the Department's Actuarial Division. Al successfully stimulated my interest in becoming part of a regulatory system in which an actuary could be engaged in more than technical matters; though Al was never unduly modest in discussing his activities, his description of these opportunities was, if anything, understated.

Al was a prodigious worker, never content unless he had at least one project "in the works." He was deliberate in personal matters—I am told that he "kept company" with Rhoda for almost four years before they were married. She died in December 1980; they both had been in poor health for years. Her personality was a perfect complement to Al's—he could work at home on his projects as often and as long as he wished provided he made himself available for the joint activities that she decided were desirable.

Aside from Al's major professional attainments, two consequences of his many activities deserve special comment. The first is the impact that his campaign for the legislation that bore his name had on Insurance Commissioners around the country. I am satisfied that this and the work he did on numerous NAIC committees laid the groundwork for later recognition by most Insurance Departments that qualified actuaries are essential for proper regulation and supervision of insurers. The other item is the work he did for small member companies after he went with the American Life Convention. Many of them needed actuarial guidance but would not otherwise have sought or obtained it. These activities caused unfavorable comments at the time but I have always considered any efforts to improve insurer operations and safety commendable.

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Letters

(*Continued from page 2*)

Describing Ourselves

May I suggest a broader definition of an actuary than was proposed by Frederick W. Kilbourne (June issue), one that would cover areas not necessarily involving direct financial implication, such as demography:

> The work of an actuary involves analysis of a clearly defined status (one or more, such as life, disability, unemployment, habitat) for a group of individuals through a definite period of time.

This perhaps is even less "melodious to the man-on-the-street" than Mr. Kilbourne's QAV, but of some help with that identity crisis. I first offered it in my December 1951 *CLU Journal* paper, "Developments in Actuarial Work."

Manuel Gelles

* * * *

Not Dividends

Sir:

Some are saying that the excess of the ceiling premium for a non-par indeterminate premium policy over the premium charged for any policy year is a dividend under the Life Insurance Company Federal Income Tax Act. But this is at odds with the definition in the Act's para. 1.811-2, which reads thus:

> "The term (dividend) includes amounts returned to policyholders where the amount is not fixed in the contract but depends on the experience of the company or the discretion of the management. In general, any payment not fixed in the contract which is made with respect to a participating contract (that is, a contract which during the taxable year contains a right to participate in the divisible surplus of the company) shall be treated as a dividend to policyholders. Similarly, any amount refunded or allowed as a rate credit with respect to either a participating or a nonparticipating contract shall be treated as a dividend to policyholders if such amount depends on the experience of the company."

My assertion is that the premium charged on one of these policies is not surplus distribution related to the company's experience. Such a premium is determined in advance of the policy year; it is guaranteed; if it proves too large, nothing is returned; if it turns out to have been too small, no assessment is made and there may be no recouping the loss from future premiums.

Furthermore, there are precedents for charging a rate lower than a maximum guarantee, in which the difference isn't treated as a dividend. One is on life annuity settlement options—another is the so-called fifth dividend option (purchasing one-year term insurance with dividends on a participating policy).

Donald R. Sondergeld

* * * *

(*Continued on page 6*)

BOOKS ACTUARIES SHOULD KNOW ABOUT

Robert J. Myers, *Social Security*, Second Edition 1981. pp. xxxiv, 925. Richard D. Irwin, Inc., Homewood, IL 60430. $20.00.

This is a thorough revision of Mr. Myers' authoritative 1975 book, bringing facts and figures right up to the end of 1980. This text was locked up before its author was appointed to his present post, Deputy Commissioner of Social Security.

Little remains unrevised except the book's structural division into five major sections. The following table gives a clue to where the largest changes have been made:

		pp. in 1st Ed.	*pp. in 2nd Ed.*
Part I.	Introduction	18	18
II.	Old-Age, Survivors and Disability Insce.	200	374
III.	Medicare	178	206
IV.	Allied Programs	202	228
V.	Foreign Programs	38	38
	Appendixes, Bibliography & Indexes	55	61
		691 pp.	925 pp.

This new release makes its forerunner obsolete. Among many examples, the issue of taxation of benefits, explored on new pages 359-60, wasn't even listed in its predecessor's index.

The author has rearranged his material so that many details have been segregated in footnotes and chapter appendices, helpfully for the general reader.

D. Don Ezra, *Understanding Pension Fund Finance and Investment*, 1979. pp. 239. Pagurian Press, 335 Bay Street, Toronto.

This solidly practical book by a Society member has just recently come to our attention. Its purpose is to explain, for the benefit specially of those engaged in pension investment and administration, the roles of actuaries and investment managers, and to show how these roles can be co-ordinated. In our opinion the book achieves this goal.

This volume's five major sections are:

Part One	The Financial Background to Pension Funds
Part Two	Characteristics of Assets and Liabilities
Part Three	The Importance of Understanding
Part Four	Investment Policy and Asset Mix
Part Five	Control

Although references and examples naturally are largely Canadian, this doesn't seriously detract from the book's usefulness in other countries.

E.J.M.

Now You're An F.S.A., So What!!!

The above is the title of a new kind of workshop specially for *new and recent Fellows*, to be introduced at our Atlanta meeting in October. It will feature informal exchanges of ideas between our young Fellows and experienced practicing actuaries. Pension actuaries and insurance actuaries will gather in separate sessions.

Subjects will include the alternative ways for continuing professional development, the role of the Society, and the responsibilities involved. If you're eligible, don't miss it!

STOCK EXCHANGE AGGREGATES IN TWO COUNTRIES

Compound Annual Growth Rates of Average Common Stock Values (Including Dividends)

Ten-Year Period	*United States*	*United Kingdom*
1960 - 1970	7.05%	9.7%
1970 - 1980	7.56	15.9

The U.S.A. figures in this table are derived by Herbert W. Hickman from a set of unit values that he has calculated back to 1871—see *XXII TSA* (1970) and our May 1979 issue. The basis since 1927 has been Standard and Poor's 500-stock index, less 0.25% for investment expenses.

Mr. Hickman's indices (1871 = 1.00) for the latest three years were:

	Average Value	*December Value*
1978	2,161.81552	2,218.19567
1979	2,429.96712	2,605.89674
1980	2,932.33852	3,368.67049

Mr. Richard H. Pain, F.I.A., who is Chairman of the Financial Times—Actuaries' Share Index Committee, has kindly contributed the United Kingdom figures above, and has also sent us growth rates without dividends for decennia back to 1900:

1900 - 1910	−0.9%	1940 - 1950	5.7%
1910 - 1920	6.2	1950 - 1960	9.6
1920 - 1930	0.5	1960 - 1970	3.8
1930 - 1940	−2.6	1970 - 1980	8.0

Mr. Pain describes his figures thus: "These figures are for Ordinary Shares of U.K. companies, derived from the London & Cambridge Economic Service up to 1930, the old Actuaries' Index from 1930 to 1962, and the F.T. Actuaries' 500-Share Index from 1962 onwards. Mr. Hickman assumed dividends reinvested, but my figures show growth in share prices plus average dividend yields." □

Letters

(Continued from page 5)

Infant Qualifiers

Sir:

In response to Conrad M. Siegel's "Bare Facts" (January issue)—years ago I helped install a pension plan, the data sheet for which showed many employees as having birth dates identical with dates of employment. We returned the sheet for correction. The employer assured us that the facts were correct.

Back in the 1930's when the firm first set up employment records, they asked their employees when they were first hired. Many stated they had worked there all their lives, and it proved impossible to dispute them. Long ago, as children barely able to walk, they had performed duties such as carrying water to their fathers. All the life they could remember, they had worked at the plant.

Preston C. Bassett

* * * *

Up With We Will Not Put

Ed. Note: Here is the gist of some income letters during the hot months.

Sir:

Down we have long played your journal's miscues. But up we must speak when you print the outrage ("Actuarial Offspring," June issue) that .9 is less than 1.

For, if $x = .\dot{3}$

then, $10x = 3.\dot{3}$; $9x = 3$; $x = 1/3$

$$3x = .\dot{9} = 3 \times 1/3 = 1$$

J. Feldman, G. Frisch, M. Grant,
L. Gulbrandson, J. B. Hey (F.I.A.,)
D. W. Loring, B. B. Murphy,
D. F. Ogden, J. Philips, E. Scher.

Ed. Note: The demonstration above is one of many that our gentle correspondents suggested.

* * * *

Sir:

Rephrasing would have enabled you to avoid the awkward "xxx" means "he or she" (Whom Should I Have For My Actuary, April issue), and to have concentrated on the qualities that matter.

The following keeps out the sex issue:

An ideal actuary:

i) has demonstrated competence . . .;
ii) is personable and tactful;
iii) has management ability;
. . . .
iv) represents a reputable firm.

While a client probably wouldn't bar a competent male actuary from consideration if our description referred to him as "she", why risk it?

Marianne G. Brackey

* * * *

Sir:

The use of "actuarily" for "actuarially" by otherwise literate persons has caused me great orthographic agony.

Ray M. Peterson

THE E. & E. CORNER

Ques.: Are test papers kept forever? If not, for how long?

Ans.: Examination papers are kept for at least six months, then are destroyed to make room for the incoming batch. If you have a question about your results, you should take it up with the Committee Chairman no later than the next exam date. If you do, your paper will be kept until your query has been resolved.

Ques.: Is it true that an essay answer sheet onto which the question has been copied earns more points than an empty answer sheet? What if I copy down the question and name the book where the answer can be found?

Ans.: No credit is given for either of these. The exams aim to test your understanding of the material, not your copying skill or your familiarity with syllabus pages. Credit is given for salient, relevant facts only. So, if a question is beyond you, spend your time on another question about which you do have knowledge.

Happy to have these questions! Keep them coming.

J. J. Murphy

DEATH BENEFIT INCREASES ON OLD NON-PAR POLICIES

by Andrew C. Muirhead-Gould

Manufacturers Life on January 1, 1981 unilaterally raised the death benefits on our non-participating permanent life policies issued before 1965 in North America. This article describes why and how we did this.

Originally a stock company, we mutualized in 1968; both before and since then we have issued both par and non-par policies. Roughly 30% of our pre-1965 portfolio was some 30,000 non-par whole life and endowment contracts issued with, at the time, markedly low premiums per thousand. Nevertheless, changed conditions have made these policies vulnerable to replacement.

Since profits on these policies are used to support surplus and to increase dividends on our participating policies, it is in the participating policyholders' interest for us to take whatever action will maximize future such profits. One possible way to do this is to offer these non-par policyholders benefits higher than were contracted for at issue.

Actuarial Analysis

To determine how best to protect these policies from replacement, we developed a simplified model of our in-force business, and calculated how these policyholders would fare if the policies were surrendered either for cash or for reduced paid-up, and their cash values and future premiums were applied to new policies. Of course, not all the policyholders would be insurable and many small policies wouldn't be replaced in this way, but this analysis gave a good indication of the size of the problem.

For each cell in the model, prospective asset shares were calculated using the present cash value as the starting asset share. In this manner we constructed a 10-year revenue projection assuming no action taken. We then tested the effects on profit of various possible enhancement patterns and several lapse assumptions, thus arriving at a measure of the financial effect of any enhancement program.

The Action We Took

The percentage death benefit increase that we decided upon varies by policy duration only: 25% or 30% for the oldest policies, grading down to 10% for more recent issues and for policies already converted to reduced paid-up. Total added coverage on the 30,000 policies amounts to roughly $50 millions. Cash and endowment values were not increased.

Although, subject to conditions remaining favourable, we expect these liberalized death benefits to remain in effect, they are not guaranteed beyond one year in the United States, nor beyond five years in Canada. The short guarantee in the U.S.A. is necessary because of nonforfeiture value requirements in that country.

This program has met with no objection from state insurance departments, and has been warmly welcomed by our policyholders and field force. □

ASSOCIATE EDITORS

Frederic Seltzer is leaving our Editorial Board, having set a lustrous record of twelve years journalistic service to the Society. Many thanks to Fred for his labors on—let's see now, that's 121 × 8 × 3 columns.

Welcome to Joseph W. S. Yau who becomes Associate Editor after having quickly shown his interest and talents as proofreader and general helper to the cause.

HOW TO HELP US WHEN A MEMBER HAS DIED

by Cynthia M. Keele,
Society Headquarters

It is indeed helpful if we can be notified promptly of a member's death. Far better if two people tell us than if everybody (especially when the person has retired) assumes that somebody else is doing this. The best procedure is this:

1. Do take extreme precautions to keep us from confusing the deceased with another member whose name is similar.
2. The information we need is:
   a) The deceased's date of death, and date of birth if known.
   b) Name and address of next-of-kin, to whom the President will send condolences.
   c) Word on who will write the obituary for the *Transactions* and when we may expect it. □

CONGRESSIONAL SEAT APPORTIONMENT

The "Alabama Paradox" was prominent in the responses to our $\sqrt{N(N-1)}$ article (May issue). The apportionment system that had been most recently revised in 1850 became notorious in 1881, we learn, because it ticketed Alabama for a one-seat loss even though the House size was to be increased and Alabama's population had grown since the prior redistribution.

Our appreciation to Messrs. Frank S. Irish, Newton L. Bowers, Charles W. Dunn, James E. Hoskins and Roy A. Saunders for their enlightenment on a mathematical problem that we discover wouldn't be simple even were it free from political gamesmanship. Messrs. Irish and Bowers obliged us with the following references from among many published accounts of a fascinating algebraic problem:

"Congressional Reapportionment," Zechariah Chafee, Jr., *Harvard Law Review,* 1928-29, 1015.

"The Quota Method of Apportionment," M. L. Balinski and H. P. Young, *American Mathematical Monthly, Vol.* 82 (1975), 701.

Mr. Irish was even able to say that our article "brings to mind" the Chafee essay, written more than half-a-century ago!

Mr. Hoskins gently pointed out that the system we described as "Our Method" works just as well if the preliminary step of setting aside the required single seat to each state is omitted, since none is so small as not to qualify for a seat anyway.

Several correspondents went through the math for us. We have now grasped that the square root comes in as consequence of choosing geometric means.

E.J.M.

Al Guertin

(Continued from page 4)

Al loved to talk about his accomplishments. This he had every right to do because they were outstanding, but one of his motivations for doing this, I believe, was to draw out ideas for projects on which he was working. □

Index-Linked Securities

(*Continued from page* 1)

The Issuing And Subsequent Price

Opinions on the price at which tenders should be made varied widely. Stockbrokers suggested prices at about 110, 115, 120, or even higher. Some of our large actuarial firms argued that the 2% yield was too low and that tenders should be at less than par, even down to 80. Also debated was whether the security should be compared with normal Government fixed-interest securities or whether it was more akin to a common stock investment; and whether the need really was for a security indexed to earnings rather than prices.

As it turned out, the issue was sold at exactly 100. It remained there for a while, but following further weakness of interest rates it tended downwards. Its high was 100¾ and its low 96¼ until it suddenly fell to 92¼ when the second security described below was issued.

In July the Government issued a second security, similar to the first with the same 2% interest, but maturing in ?? rather than 15 years. This was to be issued on the same basis as before but the prices tendered were clearly much lower and the striking price was 86, to yield almost 3%. Not all that stock was allotted; it was, however, sold by the Government at a slightly higher price on the first day of dealing.

The Government finds the low servicing cost of these securities in their early years attractive. But their valuation is causing much interest and disagreement among the experts.

Ed. Note: We welcome this from our newsletter's new Edinburgh Correspondent. □

Canada's Pension Conference

(*Continued from page* 1)

General Impressions

Few speakers maintained that a citizen has any obligation to take care of his own old age. The view that the state and employers between them should provide an adequate pension prevails.

The case against expanding the Canada Pension Plan was not voiced strongly. If the CPP continues to be funded pay-as-you-go, the ultimate cost may be unacceptable, while if it's funded on conventional actuarial lines, the enormous pool of capital under government control raises frightening questions.

Employers—who will have to pay for pension plan improvements—were under-represented and curiously silent. And young people—who must ultimately pay the bill—weren't represented at all. Youth's attitude about the contribution level that CPP might require early in the next century would be interesting and perhaps salutary.

The faith of so many, especially labour, in government is, in the light of the government's track record in labour relations, perplexing. Surely labour would, as in Eastern Europe, oppose government control of trade unions; yet its leaders seem blithely willing to give complete control of the public pension system to governments not yet elected.

Too many delegates displayed no more than rudimentary knowledge of pensions. Apparently the federal government is shocked at this naivete; a well-financed educational programme on pensions is in the offing.

Ed. Note: The next article will report on coverage, women and pensions, portability, vesting and locking-in, and protection against inflation. □

DIRECTOR OF RESEARCH

James L. Cowen A.S.A. 1959, has been appointed the Society's first Director of Research. Jim is widely known as a former Chairman of the U.S. Railroad Retirement Board. □

Review Seminars For Parts 1, 2, & 4

Review Seminars for the above Fall 1981 exams will be held on Thursdays—to—Saturdays in October, cosponsored by CAMAR (Casualty Actuaries of Mid-Atlantic Region) and Temple University. Starting dates: for Part 1, Oct. 15; Part 2, Oct. 22; Part 4, Oct. 1. For particulars and fees, ask Dr. Murray Silver, A.S.A., (215) 787-8153.

MORTALITY ANALYSIS SEMINARS

by Philip F. Finnegan

Actuaries in selection of risks are familiar with the 1976 reference volume, *MEDICAL RISKS: PATTERNS OF MORTALITY AND SURVIVAL* — a monumental undertaking, co-sponsored by the Society and the Association of Life Insurance Medical Directors of America (ALIMDA). It brought together in standard abstract format mortality and morbidity statistics gleaned from more than 2,000 articles in medical and actuarial literature. Its editors were Louis Levinson, F.S.A. and Richard B. Singer, M.D.

Dr. Singer, now retired and a consultant to ALIMDA's Mortality and Morbidity Committee, is actively producing fresh mortality abstracts and has been conducting, under ALIMDA's sponsorship, a series of seminars on Mortality Methodology and Analysis. These seminars undertake to teach participants how to evaluate statistics portraying death and survival rates.

Although designed primarily for medical directors, these seminars are of value also to actuaries. An actuary will find the theoretical concepts elementary but yet will benefit from reviewing basic principles and having a refresher in translating data into the standard format employed.

The seminar is a mix of lecture period and small group workshops. At the workshop each participant presents work he or she has done in advance on furnished material.

Dr. Singer has conducted 8 day-and-a-half seminars in different cities, attended by 68 ALIMDA members, 8 actuaries, and assorted underwriters and research people. Registration fee is $100.

The next two seminars are scheduled for Boston, October 22-23, 1981, and New York City, November 9-10, 1982. For particulars and registration forms, see your own Medical Department. Announcements are in ALIMDA's Journal of Insurance Medicine. □