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FELLOWS' VIEWS ON SOCIAL SECURITY ASSUMPTIONS

From Benjamin I. Gottlieb in Washington we have his summary of responses to a questionnaire that had been sent to a random sample of 500 Society Fellows with U.S. addresses in our 1981 Year Book. This was a topic by Stephen G. Kellison in the July 1982 Academy Newsletter; we believe actuaries interested in either Social Security or actuaries' economic and demographic prognostications would do well to get a copy from Mr. Gottlieb at his Yearbook address.

Three features of the summary specially struck us:

(1) The gratifyingly high response—500 enquiries, 449 heard from. Our own cynical estimates of our colleagues' inability to handle their mail may warrant revision.

(2) The large proportion of our Fellows who have thought about the subject sufficiently to express their opinions. Only 11% rated themselves not qualified. 25% considered themselves "very well" or "well" qualified; the other 64% placed themselves in "moderately" or "somewhat" qualified classes.

(3) The long-term economic and demographic assumptions that actuaries in 1981 picked as their preferences, e.g.,

Inflation: 4%-7% range, mostly reached after 6 years—81% of replies.

Fertility: 1.7%-2.1% range—88% of replies.

E.J.M.

E. & E. QUIZ

(*Answer to Quiz on page 6*)

Question: In Spring and Fall 1970, 1,185 *students put Part* 1 *behind them* (180 *by the Graduate Record Exam route*). *How many of these were F.S.A.s no later than* 1981 (*Spring exams*)?

THE U.S. MILITARY RETIREMENT SYSTEM

by Toni S. Hustead
Chief Actuary, Department of Defense

The military retirement system is an unfunded non-contributory defined-benefit plan. The Service Secretaries currently approve voluntary non-disability immediate retirement annuities upon credit of at least 20 years of service at any age. There is no vesting before retirement, so only 12% of new entrants ever become eligible for benefits. Retirement annuities are indexed annually to the Consumer Price Index.

On September 30, 1981, there were in the system 2.1 million active duty regular and reserve personnel, 0.9 million selected drill reservists, 1.1 million retired non-disability annuitants, 0.2 million disability annuitants and 73,000 survivor benefit families. Fiscal year (FY) 1981 benefits totalled $13.7 billion. The most common age at retirement was 43 for officers, 39 for enlistees. Apart from reserve retirees, the average gross monthly annuity in September 1981 for non-disabled officers was $1,751; non-disabled enlistees averaged $761 a month.

Valuation, September 30, 1981

Valuation results show an aggregate entry-age normal cost of 47.0% of basic pay. The corresponding figure a year earlier was 46.2%, but this increase arises from a mixture of a regular increase, changes in actuarial assumptions, and tightening of the system, as set forth in the next paragraph.

The pay-as-you-go unfunded liability totalled $590.4 billion, a $67.1 billion increase over the previous year. Of this increase, $15.4 billion arose from changes in our actuarial assumptions; plan deliberalizations reduced the lia-

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"PERSONAL LIFE ASSURANCE—WHAT THE PAST TELLS US"

by Gary Chamberlin,
London Correspondent

Eric Short, F.I.A., actuary and journalist with the London Financial Times, presented his paper under this title to the Students Society of the Institute earlier this year. His conclusion was bleak; he quoted from Hagel:

> "What experience and history teach us is this—that people and governments never have learned anything from history or acted on principles deduced from it."

But surely actuaries must be the exception. —else why would more than 100 of us with our guests have turned out to discuss Mr. Short's finding with him? This was his account:

Backing A Horse

For a start, observe the conventional "participating" policies. Suppose that 10 years ago you, a man aged 30, had started paying a £10 monthly premium for a 10-year endowment. What would your proceeds be in 1981? Answer, if you picked the very best company from the field, £1,999. But the average was £1,742, and at worst you would have received little more than £1,500. Conclusion, it *does* matter which horse you choose in the Life Assurance Stakes. And, the longer the race, the more important the choice. At 25 years (same age and premium) endowments yielded in 1981 anything between £5,000 and £10,000. The mean was £7,524, and the standard deviation £1,125.

The paradox, says Mr. Short, is that people who buy policies don't pay enough attention to past results; they look at the brokers' projections which depend on pure assumption as to future bonuses (dividends). If you rank the

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EUROPEAN 1972 PROPOSAL ON ACTUARIAL NOTATION

by Frank G. Reynolds

(This is Article No. 3 in a series.)

The proposal by Adam, Boehm and thirteen other European actuaries to the 19th International Congress simplified theirs of four years earlier, made it more systematic and overcame ambiguities. Again, upper and lower case symbols and the Greek alphabet were used, making the system still not directly useable by computer.

The base symbol followed by five blocks was retained, but the blocks redefined thus:

Block (i):	Age and order of succession of events.
Block (ii):	Time elements.
Block (iii):	Periodicity of events.
Block (iv):	Interest rate.
Block (v):	Mortality or other table.

As examples:

Current	*Proposed*
$\ddot{a}^{(4)}_{x:\overline{n}\rceil}$	a t (x, x:n, 4)
$\ddot{a}_{\overline{xy}}$	a t (x) + a t (y) - a t (x:y)
$\bar{A}_x$	A c (x)
${}_tV_x$	V(A(x), P(A(x); ä(x)); t)

A few common symbols were given special short forms. Translation to computer-useable form was to be made by using capital P in conjunction with upper case letters for normally lower case forms, e.g., a became AP. Punctuation marks were also translated.

This proposal was well thought through but problems of clumsiness persisted. □

"The Actuarial Profession"— New and Improved

A revised version of the Society's recruiting booklet, "The Actuarial Profession", is now available. The language has been simplified; the booklet is now suitable for high school as well as college students.

The new booklet encourages prospective actuaries to develop a wider range of interests than just math, as it stresses that actuaries are business executives, not technicians. Casualty insurance is integrated into the new booklet, and a table of broadly estimated salary ranges is included. Another addition is an order form for examination and other career information.

For copies of the new booklet, ask Linda Delgadillo at the Society office, Chicago.

D.A.P.

ADIRONDACK ACTUARIES CLUB

We welcome the newly formed Adirondack Actuaries Club, whose territory includes all of upstate New York and adjacent western New England. Membership totals more than 100, over 60% of whom attended its initial meeting in Albany on June 4th.

Readers interested is joining, write or phone Burl V. Bachman at his Yearbook location.

BOOKS NEEDED

The Actuarial Science Program, University of Nebraska-Lincoln, seeks to acquire copies of Proceedings of International Congresses. Need volumes for First (1895) and any of Tenth and subsequent (1934-80) Congresses. Donations are tax-deductible. Write or phone Prof. Walter B. Lowrie at his Yearbook location.

Personal Life Assurance

(*Continued from page 1*)

companies by their projections of 10 years ago, the coefficient of rank correlation with emerging results is a ludicrous 20%. Yet, companies that perform well tend to do so consistently.

With-Profits vs. Unit-Linked

Moving on to look at our important unit-linked (variable life) market, Mr. Short finds the comparison instructive. Mean proceeds at £1,778 are slightly higher than the with-profits figure of £1,742; but against this, the standard deviation for the former is £282 compared with £106 for the latter. A slightly higher mean return, but a greatly increased risk—so the investor's choice between them would have to depend on his own utility curve; is he a steady man, or a punter with an eye for a sporting chance? It's noteworthy that in this particular comparison the traditional policies came out surprisingly well against their brash younger cousins.

Mr. Short gives further figures for equity-linked as opposed to property-linked funds, and takes into account the difference between single premium and monthly premium policies. His statement that the timing of surrender of a unit-linked policy is crucial will be appreciated by all familiar with volatility of prices on the stock markets, whether on Wall Street or Throgmorton. The paper confirms what commonsense would have suggested, but teaches the lesson that when choosing or recommending a life policy you need to do your homework and to disregard those enticing projections.

It would be interesting to know whether these points apply as much in America as they do in the U.K. Readers may get Mr. Short's paper from any Institute member or from G. Chamberlin, Clay & Partners, 70 Brook Street, London W1Y 2HN. □

BOOKS AVAILABLE

Another retired actuary is contributing a set of the *TRANSACTIONS*, complete back to Vol. I (1949), to somebody willing to pay shipping cost. Apply to: Daniel W. Pettengill, 1028 Farmington Ave., Apt. 3A, West Hartford, CT 06107.