The Actuary
The Newsletter of the Society of Actuaries
VOL. 17, NO. 10 DECEMBER, 1983

EXCELLENCE

by Deborah Adler Poppel, Associate Editor

I just read a book that both excited and embarrassed me. From that description you'd think it was a Harold Robbins novel, but instead it was a rather dry management text—*In Search of Excellence—Lessons from America's Best Run Companies.* The authors, management consultants Thomas J. Peters and Robert H. Waterman Jr., studied America's best-run companies (based on bottom-line performance) and distilled the eight qualities they had in common.

Why would this excite and embarrass me? Because the eight qualities are wonderfully simple and achievable, and yet insurance companies in general and actuaries in particular don't achieve them.

For example, one quality is "a bias for action"—the willingness to experiment and take risks. The obverse of this trait is the tendency to over-analyze, scrutinize, committee-ize and write a voluminous report before any action is taken. Of course you shouldn't dive in to a huge risk head first, but sometimes it's cheaper, quicker, and more enlightening to dip a toe than to delve into every possible consequence of getting wet. Actuaries aren't the only culprits here, but I often get the sense that we don't feel we've earned our pay unless we regularly practice all the techniques of the first five exams.

Another watchcry is "productivity through people"—the art of treating people as adults and partners, with dignity and respect. How often do we couch our ideas in jargon rather than translate them into English, with the excuse that "it's too complicated for a non-actuary to understand"? Are we afraid that if we make our jobs more understandable, then we won't seem so smart?

Of course, actuaries aren't alone in this crime; doctors and lawyers also hide be-

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THANKS & GREETINGS

Michael B. McGuinness of Toronto, an Associate Editor ever since April 1979, has left our Editorial Board to become the Society's new Treasurer. We are grateful for his faithful labors and always cheerful help.

Canada's new Editorial Board member is David S. Williams, who has been serving this newsletter effectively as a reporter. A steady flow of Canadian actuarial news is assured.

NON-ROUTINE BUSINESS OF BOARD OF GOVERNORS AND EXECUTIVE COMMITTEE, JULY TO OCTOBER 1983

by Kenneth T. Clark, 1980-83 Secretary

1. Discussions with the American Society of Pension Actuaries of future use by ASPA of our examinations in qualification for the FSPA designation are under way. The Executive Committee has approved this idea in principle.

2. The Board has approved certain refinements in the Society's investment policy, and appointment of Ernst & Whinney as our new auditor.

3. To streamline our elections procedure, the Board has amended Article V of the Society By-Laws.

4. A favorable report on the Society's compliance with United States anti-trust laws has been received from the firm of Paul, Weiss, Rifkind, Wharton & Garrison.

5. The Board discharged the Committee on Futurism, its functions having been assumed by the Futurism Section.

6. The Society is now a full member of the Committee of Presidents of Statistical Societies (COPSS).

7. The Board received and approved the final report of the Task Force on Smoker/Non-Smoker Mortality.

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DO MUTUAL LIFE COMPANY STATEMENTS CONFORM TO GAAP

by Daniel F. Case

The financial statements of most or all mutual life insurance companies are presented as being in conformity with GAAP, but the standard for judging that conformity has not been established. What should that standard be?

The natural suggestion is that to judge the conformity, the accounting rules applied should be the same as those applied to a stock life company. The assets (bonds, mortgages, etc.) should be valued by the same rules, and the obligations (guaranteed death and annuity benefits, etc.) should be valued by the same rules. But various objections to this straightforward approach have been raised. Let us examine these.

Objection #1: A mutual company has no stockholders.

Answer: Let us call the excess of assets over obligations the "net worth". A stock company's net worth is the amount of money available, subject to future financial results, for future distribution as stockholders' dividends. A mutual company's net worth is the amount available for future distribution to policyowners as policy dividends. This amount will not be comparable to a stock company's net worth if the assets and obligations are measured by rules different from those for the stock company.

Objection #2: Future dividends to mutual company policyowners must somehow be recognized, but they are not "benefits".

Answer: Future dividends to stockholders, not already declared, are ignored in a stock company's statutory and GAAP balance sheets. Future dividends to policyowners, not already declared, are ignored in a mutual company's statutory balance sheet; they should, likewise, be ignored in a mutual company's GAAP balance sheet.

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The Actuary

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EDITORIAL

WANDERING ACTUARY

It is, naturally, a pleasure to print this message from our Edinburgh Correspondent:

> In case your editor is too modest to mention it, I think it should be known that in a very hard working spell in the United Kingdom in October-November he gave addresses to eight actuarial societies in Scotland and England. In a wide ranging talk—or talks, as I am told that he changed his material a bit depending on the mix of his audience, e.g., proportions of students and consultants—he covered such topics as the early history of the actuarial profession in North America and its connection with the Institute and the Faculty, the education and examination system (where some of us were astonished by the prevalence of multiple choice questions) and various current topics including unisex mortality tables (are not they an abuse of democracy?)
>
> I would think that all his audiences much appreciated Jack's efforts to further Anglo-American understanding, and hope he enjoyed his hard working holiday.
>
> *Alistair Neill*

In recent years many U.K. insurance companies have moved away from London so that now there are perhaps three times as many major insurance centres as before World War II. This has given rise to substantial congregations of actuaries and actuarial students elsewhere than in London, Edinburgh, Manchester, Norwich and other longtime insurance cities, and has caused actuarial societies (akin to our actuarial clubs) to spring up. The trip which Mr. Neill describes in such generous terms was to six of these newer groups as well as to the Students' Societies in London and Edinburgh.

FIASCO's editor has been asked kindly to print the following comments by the two Moorheads who made the figure-eight journey by British Rail to all those delightful places:

> My wife and I would like actuaries in the United Kingdom to know how greatly we enjoyed our visits to so many of you. The welcomes accorded us were heartwarming, and the thoughtfulness towards us shown at every city made us feel indeed pampered. To the extent that time permitted we were "shown the sights", and have returned home with memories to treasure.
>
> The trip was conceived—and then so excellently planned by Mr. Gary Chamberlin and the Hon. Secs. of the host societies—in the belief that actuaries on both sides of the Atlantic Ocean stand to benefit by increased awareness of the similarities as well as the contrasts between what we are doing and how we are trying to fulfill our responsibilities and grasp our opportunities. The impression that the similarities outweigh the differences was heightened by conversations with you.
>
> And it was again the Moorheads' privilege to be guests at the Institute's Biennial Dinner—a glittering occasion, unmatched by any actuarial gathering over here, at which 1,400 actuaries and guests were accommodated with nary a delay or a hitch. It seems safe to speak for the representatives present from American and other actuarial bodies in congratulating the Institute upon that memorable evening, and thanking Tillinghast & Co. for their reception the next afternoon.
>
> We boldly suggest that our actuarial clubs over here, especially the large regional ones, would be glad if from time to time they might be hosts to actuaries from overseas willing to speak to them about their experiences, triumphs and disasters.

E.J.M.

LETTERS

USSR Social Security System

Sir:

In the Soviet Union last summer, I came across an article, "Our Social Security System Is Free", in their English language newspaper, *Moscow News*, reading thus:

> "In this country 124.2 million people benefit from social security, or practically all the industrial workers, collective farmers and office employees . . . A characteristic trait of social security in the USSR is its emphasis on preventive care. Each branch of the national economy devises and implements complex plans for the improvement of working conditions and labour safety, and also for sanitation and health measures. In 1982, over 55 million people made use of the vouchers provided by the trade unions to take treatment and to go on holiday. Of this number 21 million received accommodation free of charge or at a discount, the difference being made up from the social security funds.
>
> The trade unions in the Soviet Union have been in charge of social security for more than fifty years. They have at their disposal a special fund composed partly of contributions from industrial enterprises, offices and other organizations, and partly of a state budget grant, equal to half of the entire fund. The fund is used to pay sick-leave, pregnancy and child bearing benefits, and to make the relevant payments in cases of loss of ability. The workers themselves contribute nothing towards the benefits. In the USSR, the retirement age is among the lowest in the world—60 for men and 55 for women, with some sections of the work-folk retiring at an even earlier age."

It's most interesting to see what can be accomplished through socialism, hard work, sex discrimination, and perhaps some help from elements peculiar to their authoritarian system.

Michael Pikelny

* * * *

A. & H. Experience

Sir:

Gerald A. Fryer's observation (Oct. issue) that in most cells in the 1978-79 Experience under Individual Loss of Time Policies, claim costs in the first five durations are higher than thereafter, has

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Letters

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several possible explanations. Among these are: early anti-selection by buyers, a more liberal definition of disability on recent issues, more liberal underwriting or simply looser selection, higher underwriting requirement limits, adverse impact of higher average size policies and the general overinsurance problem, and lack of homogeneity in the contributing companies and the mix of business within our broad occupation groups.

Although no definitive conclusions can be reached, several observations can be made. First, accident disability experience appears significantly higher for early durations for all elimination periods, most age groups, both occupation classes and almost all individual companies. But in sickness disability the pattern isn't nearly as significant; experience for several elimination periods and for at least half the companies was slightly more favorable in early durations.

In summary, there appears to be some anti-selection relative to the accident risk, but underwriting against the sickness risk seems more effective, the degree of effectiveness varying by company and perhaps being masked by differences in mix of business, definition of disability, and individual company practices.

Sam Gutterman,
Chairman, Individual Health Experience Studies Committee

* * * *

Speechifying

Sir:

I strongly second Denis W. Loring's complaint (Sept. issue) about speakers who waste our time at Society meetings by reading prepared speeches.

Often the most interesting portion of a Society session is the question-and-answer period. Perhaps the Program Committee should consider cutting down on prepared speeches to allow more time for open discussion.

John West Hadley

Ed. Note: We believe the distinction between Panel Discussions and Open Forums was designed to accomplish this. Perhaps the time has come for analysis, from the Record, *to see whether or not the latter are giving audiences more Q. & A. opportunities than the former.*

* * * *

Acquaintance Ships

Sir:

Your analysis (Oct. issue) of how many in a 219-member sample were known to our Board members is an instance of the interest, variety and editorial ingenuity of our newsletter.

It seems to me that the maximum number of acquaintances would have been 1,586 (26 × 61), hence 13.8% of the possible acquaintances materialized. This could be worse. One thing that has impressed me over many years has been the friendly attitude shown me by officers and Board members whom I encountered. It was always sincere and meant a great deal to this member.

On p. 5 of the same issue, Dr. Marta Holmberg is described as a Staff Edition. I hope she's a first edition and thus of great value to our E. & E. operation.

Samuel L. Tucker

Ed. Note: Mr. Tucker has cast a happy and appropriate light on our typo.

* * * *

Sir:

It might be interesting also to survey members not on the Board to find out how many of them know our Board members.

I've had extensive contacts with our elected leadership over the past decade; most actuaries are not so fortunate, although they may still have exposure. All of this gets compounded in our election process wherein the majority of voters have to choose among people they don't know, or know only by reputation. A tough challenge for our Committee on Elections.

Robert E. Hunstad

* * * *

Challenge on Replacements

Sir:

Prof. Joseph M. Belth, in the June 1982 issue of *The Insurance Forum,* defined "replacement artist" and "conservation artist" with very similar words. At that time, perhaps because I worked for a mutual company, some of whose in force business was replaceable, I was unhappy to see words like "dubious methods" and "deceptive or even false" applied to conservation activities.

Now that I am involved with a new stock company operation, it is easier to look at blocks of existing business from the consumer's viewpoint and ask, "Which policies ought to be replaced?". In answering this, should actuaries follow the CLU's "golden rule"?

Prof. Belth proposed a method for separating the sheep from the goats. I challenge readers to develop a method better than his for determining which policies ought to be conserved, which ought to be replaced, and which are on the fence.

James L. Lewis, Jr.

Ed. Note: See also our "Query for Actuaries", Nov. issue, to which no reply has yet arrived.

* * * *

Our Exam System

Sir:

Looking through our syllabus I find it hard to be encouraged about our profession's future in general, and the Society's future in particular. I advise all Fellows not intimately connected with our exam process to read the syllabus thoroughly and then answer the following questions, keeping in mind that rote memorization is the key to passing the Fellowship exams:

1. If you were just starting out, would you undertake the Society exams?
2. Could you unreservedly recommend our exam process to a college math major? Would you do so to your son or daughter?
3. Is the decrease in early exam takers just a temporary phenomenon, as the E. & E. Committee maintains?

If your answer to any of these questions is No!, I suggest that you exert yourself and demand rationality from the E. & E. Committee while there's still time to save your organization.

Peter A. Fox, Jr.

* * * *

Mixed Company

Sir:

The industry description in the Illinois Department of Labor's Industrial Classification Report reads thus:

> "Providing specialized services, includes authors, music arrangers, inventors, lecturers, radio and television commentators, artists, song writers, industrial psychologists, consulting physicists, chemists, actuaries, cloud seeders, etc."

Given the current state of pension laws, I feel closest to that final group.

Arthur H. Tepfer

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THE (DOLLAR) STATE OF THE SOCIETY, 1982-83

by Robert J. Johansen, 1980-83 Treasurer

FINANCIAL SUMMARY (Amounts in thousands)

	Income				Expense		
	1981-82	1982-83	Budget 1983-84		1981-82	1982-83	Budget 1983-84
Educ. & Exam.	$ 951	$1,112	$1.092	Educ. & Exam.	$ 955	$1.036	$1,127
Seminars	369	328	393	Seminars	328	385	406
Meetings	323	364	427	Meetings	321	351	433
Dues	906	1,050	1,171	Member Svcs.	998	1.085	1,149
Interest	171	112	90	Public Info.	79	90	91
Other*	469	531	464	Research	89	80	99
				Gen'l & Admin.	339	421	304
Total	$3,189	$3,497	$3,637		$3,110	$3.448	$3,609

*Includes income from sales of books, Academy and Conference reimbursements for office services, and assessments for costs of compiling mortality and morbidity reports.

	1982	1983
Total Assets	$2,184	$2,441
Membership Equity	576	625
Equity per Member (Dollars)	67	70

The Society's 1982-83 income exceeded its expenses by less than 1½%. Net investment income, hit by lower market yields, was $59 thousand below its 1981-82 peak, but dues income went over the million mark reflecting both membership growth and small dues increases. Income from our education and examination system also passed the million dollar mark, reflecting a sharp increase in Part 1 and 2 candidates; it exceeded expenses by $76 thousand. The E & E budget, apart from a 10% subsidy of costs of Parts 1-4, is set to be self-supporting.

Seminars and meetings are intended to be self-supporting, but last year's income from seminars fell by $41 thousand while expenses were rising by $57 thousand, yielding a $57 thousand loss. Income from meetings exceeded expenses by $13 thousand.

Expense of membership services, including our publications, increased by $87 thousand. General and administrative expense rose by $82 thousand, a large part being the cost of moving our office to Itasca. Future costs at Itasca will be lower than if we had stayed in downtown Chicago.

The coming year's budget reflects a small 1984 dues increase ($10 for Fellows and long-term Associates, $5 for others), and higher meeting fees. Investment income is expected to continue its decline, although $500,000 has been invested in Treasuries maturing over the next 5 years to lock in current rates thereon. A drop in E & E income is expected, while expenses will rise; the difference will be made up by the Parts 1-4 subsidy already mentioned.

The Society is in strong financial condition as we provide additional and improved services to our members. Our staff is studying ways to reduce expenses, such as the costs of producing the Transactions and the Record. The Society recognizes our debt to the tremendous efforts of our hundreds of committee volunteers carrying on their essential and ofttimes burdensome activities.

DEATHS

Robert C. Bailey, F.S.A. 1950
Lyle F. Drake, A.S.A. 1950
William L. Kronholm, F.S.A. 1945
J. Edwin Matz, F.S.A. 1950
Odon Niox, F.S.A. 1953
Felicitas Reich, F.S.A. 1949
Henry G. Sellman, A.S.A. 1917
Murray Silver, A.S.A. 1980

ACTEX STUDY MANUALS

Study manuals are available for all May 1984 exams except Part 10. Those for Parts 3, 4BC & 6 are new, rest are our 1983 editions. There is also a manual for Part EA-1. Particulars, if not in your company, from: ACTEX, Box 2392, Framingham, MA 01701.

Richard L. London

SAVINGS BANKS RETREAT FROM MUTUALITY

by John C. Angle

As we ponder the future of mutual life insurance, we should be aware of the winds of change sweeping through the mutual savings bank industry. Consider, for instance, an editorial "The Mutual Bank Fiction" in The New York Times last fall. That editorial writer found that mutual ownership of savings banks now conveys no benefits at all on depositors. He saw ample reason to favor an amendment to the New York State Constitution (which the voters proceeded to approve handily on November 8th) allowing mutual savings banks to become "profit-motivated stock corporations". He was positive that such conversion would give depositors higher interest rates on their savings and a prospect of lower rates on loans.

He could find no continued advantage to mutual savings banks. Their safety, he wrote, comes from government insurance and adequate regulation, and he viewed them as less accountable to the public than are private savings banks. That editorial concluded that mutual ownership limits the services that can be offered, and that it is competition not structure that's important.

It is worth recalling that the mutual savings bank movement began in Scotland in 1810, when the Rev. Henry Duncan convinced his parishioners and townspeople to begin a "savings and friendly society" to be operated not-for-profit by officers donating their time as a philanthropic service. That bank had ordinary members who made regular deposits, and extraordinary members who contributed to a surplus fund whose earnings were paid to ordinary members to encourage their thrift.

The idea reached the United States before 1820 and ultimately led to mutual savings banks in seventeen of our northeastern states. An early one, the Philadelphia Savings Fund Society, has just completed a successful conversion and an offering of common shares in an underwriting managed by leading Wall Street firms. The prospectus evidences the toll taken by our recent high interest environment and also the assistance that the Federal Deposit Insurance Corporation had provided during a recent merger. Clearly, both state and federal regulators are

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Savings Banks

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highly interested in seeing fresh capital brought to the savings bank industry; they regard conversion as a way to accomplish this.

Deregulation also has brought a quantum increase in competition from other financial institutions and from money market and mutual funds. All these developments have plunged parts of the savings industry into difficulties for which conversion is seen as a palliative.

Contrast With Life Insurance

I do not see a direct similarity between the problems just recited and the vexations now giving rise to arguments (see "Mutual Companies in Chains", October issue—Ed.) for conversion of mutual life insurance companies. In briefly reviewing our historical background I shall use the word "conversion" which strikes me, and others, as a better term than "demutualization". Mutualization implies transformation from a stock to a mutual form of organization; demutualization the reverse. But some of our leading companies started as mutuals—the oldest in London where the old Equitable was founded in 1762 to employ the principles espoused by James Dodson and Richard Price.

Eight decades later, mutual life insurance arose in America. J. Owen Stalson, author of our best history of life insurance marketing, speaks of "The Revolution of 1843". "This year," he writes, "saw the mutual idea take America. From 1843 to 1847 seven notable life insurance companies (were formed)... Each devoted itself exclusively to life underwriting and each made mutuality the prime element of its corporate character"... "Marketing efforts of a vital and positive character became a reality when the mutual idea seized America". In New York State it was not until passage of the laws resulting from the Armstrong Committee investigation of 1905 that mutualization of stock life insurance companies became possible. ☐

MAIL ALERT

Transactions, Vol. 34 (1982) should have reached you. Note that it doesn't contain Book Reviews that you have received in preprint pamphlets.

VALUE OF POLICY UPDATE PROGRAMS

by Thomas E. Dyer

Three times in the last seven years, Northwestern Mutual Life has offered its policyowners UPDATE programs that incorporated into their contracts pricing characteristics available to new buyers. One of these, UPDATE '80, raised the reserve interest rate to 4%; death benefits were increased by about 15%, and future guaranteed cash values were adjusted. Approximately 1.3 million policies, 67% of those eligible, issued before 1978 accepted this offer.

The following table summarizes comparative lapse experience, between 1981 and 1982 anniversaries, for the policies that accepted the amendment and those that didn't.

Comparison of Voluntary Lapse Rates
(by volume)

Standard Issues—All Life Plans
All Age Groups Combined

Issue Years	UPDATE '80 Accepted	UPDATE '80 Rejected
1977	.035	.074
1976	.036	.076
1975	.025	.064
1974	.028	.056
1973	.034	.056
1972	.029	.062
1967-71	.022	.050
1962-66	.014	.038
1957-61	.012	.032
1956 & Prior	.013	.025

We do not know to what extent the much lower lapse rates experienced by those who accepted result from satisfaction at having been offered that privilege, or reflect ingrained characteristics of the group itself. We have compared the distributions of the two blocks by policy size, age, sex and plan, and have found them strikingly similar in these important respects.

I believe these results confirm the value of UPDATE programs. Certainly there are increased values generated for the policyowner. The lower lapse rates show that the business has increased value for the company. And the agent has benefited by having more business still in force and clearly more satisfied clients. ☐

PRIZE AWARDS

The Committee on Papers announces that the winners of the Society's Annual Prize (Yearbook, p. 66) are Michael F. Davlin and Shane A. Chalke for their paper distributed in March 1983, "Universal Life Valuation and Nonforfeiture: A Generalized Model".

Announced at our Annual Meeting in October was award of the L. Ronald Hill Memorial Prize (Yearbook, p. 68) to Barnet N. Berin and Anthony B. Richter for "Constant Replacement Ratios in Retirement: A Theoretical Approach", to appear in TASA XXXIV.

Our hearty congratulations to all these four authors.

MR. AND MRS. MYERS WERE THERE

Both The Washington Post of October 27 and The New York Times two days later told their readers that Robert J. and Rudy Myers were in Grenada for eleven days ending just before the U.S. invasion. They arrived there October 13th, planned to leave on the 19th but could not because of the curfew, and did leave on the 24th when the curfew was lifted one day before the U.S. invasion.

Mr. Myers gave no indication that they were much worried during their enforced stay. Quizzed on why he was there, he informed this reporter that six months ago Grenada had adopted a social security plan—essentially OASDI with cash sickness benefits—and he had been invited to look into its installation and its suitability for the country's needs. *E.J.M.*

Letters

(Continued from page 3)

Responses to Catherine Roberts

Sir:

With no obvious fear, trembling or trepidation my husband pointed to "My Life and Other Contingencies" (October issue) and said "Read it"!

In time Mrs. Roberts will no doubt experience some of the questions and explanations I have lived through, viz.

1. Explanation to my parents as to what my husband was spending so much time studying for. In later years I overheard my mother tell a friend, "An actuary is the highest form of mathematics". I smiled benignly.
2. Explanation to my tearful children after they had sought their father's help with fractions in their homework and heard him say, "Not in this world".
3. Explanation to my grandchildren who find their grandfather spending much time with his feet up on his desk laughing into the phone.
4. Explanation to neighbors who asked about actuarial exams, "Are they as hard as accounting?"
5. Explanation on credit forms when the clerk asks, "Is that a profession?"

I wouldn't change one minute of the 38 years of knowing this particular actuary, but now when people ask what he does for a living, I say "Insurance executive".

Rita Hazelcorn

* * * *

Sir:

Mrs. Roberts notes the lack of a simple definition of an actuary. Having recently graduated from the high-tech environment of MIT, I now respond to the usual queries by describing myself as an "insurance (or pension) engineer".

I find that apt; actuaries design insurance or pension products just as an engineer designs chips or widgets. Perhaps others will find this useful.

J. P. Kinney III
(a student)

* * * *

A 5000-Member Family

Sir:

Now that the Society is selling our membership lists, we are getting lots of mail, some of it even obliquely related to the profession's possible interests.

These "personalized" bulk mailings tend to put us all into the same family. I think it is great that we now share the same surname. Now we can change our meetings into family gatherings (unless this means that they will no longer be tax-deductible).

And maybe our new family name will create a whole new body of knowledge. Imagine:

1. A new element is named Fsanium.
2. A new planet is discovered and named Fsanus.
3. A new drug discovery is called Fsamycin.
4. A new philosophical concept is dubbed Fsanetics.

The possibilities are limitless!

Ralph H. Fsa

Ed. Note: Before this name change, our correspondent was known as Ralph J. Healey, Jr.

* * * *

Room for More

Sir:

Several committees of the Reinsurance Section are in need of additional members. Those with a special need are:

Committee	*Chairperson*
Program	Monica Hainer
Newsletter—Editor	Michael R. Winn
Reinsurance Administration	Steve Radcliffe
Statistical Research	Melvin C. McFall

Any section member interested in becoming active on one of these (or any other) committes, please identify yourself to the chairperson or me.

The E. & E. Committee's Reinsurance Task Force, having suggested major syllabus revisions and written several new papers, is turning over the duty of keeping the reinsurance portion of the syllabus current to our Section's Education Committee chaired by Denis W. Loring.

Melville J. Young
Chairman, Reinsurance Section

* * * *

RESEARCH IN INSURANCE AND INVESTMENT

by Bernard Benjamin, F.I.A.

Ed. Note: At the Florida meeting we asked for this account of what a longtime friend of American actuaries is doing these days.

I send greetings to your readers on the occasion of my, I think, third visit to a Society annual meeting. I am devoted to the profession; I try to be a "whole" actuary (I resent the need for specialisation); and I am an internationalist—so it's a great pleasure to be here.

I must tell you what I have been doing in what is sometimes called retirement. While the rest of the profession in the U.K. (except my namesake Sidney) have been worrying about funding and solvency, inflation, interest rates and government intervention, I have been worrying about ideas. We need more science, especially in non-life insurance and investment. Many problems involve other disciplines—mathematics, economics, banking and finance, even medicine and engineering. So I invented a multidisciplinary Centre for Research in Insurance and Investment under my Honorary Direction, and I persuaded the British Insurance Association (BIA) to fund its ongoing costs (secretarial assistance, office expenses, etc.).

At the Centre we try to fit the right mix of disciplines to each problem and we call on appropriate departments to help. My Centre itself has at any one time about six post-graduate students preparing Ph.D. theses on some aspect of insurance or investment, and two full-time Senior Research Fellows funded by the Institute of Actuaries and the Life Offices Association. Shortly we shall have a further Research Fellow funded by the BIA, who have invited me to set up a U.K. register of academic research—this will be a computer-based register using a key word retrieval system developed by City University's own Information Science Department.

One project we have on board is a thoroughgoing examination of the economic implications of the growth of liabilities of occupational pensions, both state and private—this is an expanded replay of a study that Messrs. Bacon, Elphinstone and I were commissioned by the Institute to undertake in 1954.

Another is writing a history, not of the actuarial bodies (we have that), but of

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MORE ON JOINT AND SURVIVOR FACTORS

by James Ramenda

In the April issue, Ralph Garfield developed a method for determining the impact of a change in interest rates on the factor which converts a life annuity to a 100% joint and survivor annuity. This factor, defined as f(100), is multiplied by the benefit under the life annuity form to derive the new benefit. Thus, for a participant aged x with a beneficiary aged y, the factor is:

$$f(100) = \frac{\ddot{a}_x}{\ddot{a}_{\overline{xy}}}$$

Mr. Garfield observed that by assuming y to be immortal, one could deduce that the factor is positively correlated with interest rate changes. I would like to suggest an alternative method of solving this problem which can also be generalized to other optional forms of annuities. This alternative approach utilizes the concept of duration, familiar to actuaries from the literature on immunization theory. The duration of a series of payments, $C_1, C_2, \ldots C_n$, is defined by:

$$D = \frac{\sum_{t=1}^{n} tv^t\ p(t)\ C_t}{\sum_{t=1}^{n} v^t\ p(t)\ C_t}$$

where (pt) is the probability that the t-th payment will be realized.

Students of finance have long used this concept to estimate the percentage change in the price

$$\left(P = \sum_{t=1}^{n} v^t\ p(t)\ C_t\right)$$

of a bond which results from a given change in the interest rate (Δi) in the approximation:

$$\frac{\Delta P}{P} \doteq -D(\Delta i)$$

This result can be derived using calculus by noting that

$$\frac{\Delta P}{\Delta i} \doteq \frac{dP}{di}$$

and 1+i is dropped in the denominator.

This formula implies that the longer the duration of a series of payments, the more its price will move in the opposite direction of interest rates. With this in mind let us consider the following cases:

(1) Conversion from a life annuity to x to a joint and survivor annuity with beneficiary y. The factor in question is $\ddot{a}_x / \ddot{a}_{\overline{xy}}$, the denominator of which has a longer duration than that of the numerator. Therefore, the denominator will fall more, relatively, than the numerator will with an increase in interest rates. This, of course, causes the factor to increase. Obviously, the opposite is true for a decrease in interest rates.

(2) Early retirement. The factor that converts a deferred life annuity benefit with payments commencing at age x to an early retirement benefit commencing immediately (assuming retirement five years early) is

$$_{5|}\ddot{a}_{x-5} / \ddot{a}_{\overline{x-5}}.$$

In this case the numerator has the longer duration so that a result directly opposite of that in (1) above, is reached. Thus, an increase in interest rates will decrease early retirement benefits.

(3) Deferred Retirement. The factor in this case is the reciprocal of the factor in the early retirement case if one now assumes normal retirement at x—5 and a five year deferral period. Thus, its behavior will be inversely related to that of the early retirement factor for a given change in interest rates. That is, it will increase with an increase in interest rates.

The method outlined above is fairly safe as long as reasonable judgments can be made as to the relative durations of the annuity forms in question. Furthermore, the approximation can give some indication as to the size of the change in benefits that a change in interest rate will produce if one actually has the values of the necessary durations. These durations, as one can easily see, will typically be functions of increasing annuities. □

INTERNATIONAL SUMMER SCHOOL

The Association of Swiss Actuaries has announced its third Summer School, the topic this year being Statistical Forecasting Techniques. Lecturers will be our own Prof. James C. Hickman and his colleague at University of Wisconsin, Prof. Robert A. Miller. Registration forms from Rene Held, Swiss Reinsurance Company, Box 172, 8022 Zurich.

Research

(Continued from page 6)

actuarial ideas. My American colleagues will be interested in that.

Another ambition I must achieve before I really retire is to establish a formal unit for medico-actuarial studies. It is time that actuaries understood what medicine does; and that doctors understood what actuaries do. Doctors are now heavily engaged in cohort studies involving survival analysis; they need guidance—indeed Edward A. Lew and I have just run a workshop on the subject for the American Cancer Society in New York. Actuaries want to know more about the insurability of impaired lives—they need to know what "impaired" means. I hope our Assurance Medical Society will sponsor such a unit with a doctor and actuary working together, and that this will be soon. □

INTERNATIONAL CONGRESS NEWS

1. Word from Canada's National Correspondent, Michael Rosenfelder, is that the nearly 80 who have registered provisionally for Sydney next October have filled that country's quota. But others interested are welcome to be placed on the waiting list, to replace those who change their minds; just notify Mr. Rosenfelder at his Yearbook address.

2. Provisional registrants in both Canada and the U.S.A. should be aware that the deadline for final registration is January 31, 1984. You need, and should already have, instructions in Congress Announcement No. 3.

3. Those going to Sydney may like to consider a General Insurance Seminar planned at Macquarie University in that city for October 18-19. Its theme—Bridging the gap between the theory and practice of general insurance. For particulars, ask Dr. B. Zehnwirth, School of Economic and Financial Studies, Macquarie University, North Ryde, N.S.W. 2113.

E.J.M.

ANOTHER INVESTMENT GAME LAUNCHED

Chicago Actuarial Club has followed the lead of Canadian Institute of Actuaries (September issue) by sponsoring an investment game among its members. Organizers are John A. Dewan and Donald S. Boger.

The game will run through calendar year 1984.

GAAP

(Continued from page 1)

It is important not to try to apply to a mutual company the rules for a stock company's participating business. A stock company's participating business has no parallel in a mutual company. The stock company must allocate its net worth between its stockholders and its participating policyowners. By contrast, in a stock company that has only nonparticipating business the entire net worth is available for future distribution to stockholders, just as a mutual company's entire net worth is available for future distribution to participating policyowners. Accordingly, the accounting rules to use for mutual company GAAP are those used for the nonparticipating business of stock companies.

Objection #3: Mutual companies have no "earnings" comparable to those of stock companies.

Answer: Mutual company financial reports need not show an "earnings" figure. Statutory statements, however, do show net worth and change in net worth. If these amounts differ materially from the net worth and change in net worth determined by GAAP accounting rules, the mutual company's report is not comparable with the GAAP reports of other kinds of enterprises.

Some observers, noting that a mutual company has zero "earnings" over its lifetime, conclude that the company can be regarded as having zero "earnings" in each reporting period, and therefore suggest that its GAAP balance sheet show a zero net worth. Such a balance sheet would, in effect, tell the reader that the company was holding the amount of money that management considered appropriate. But this would be tantamount to showing the assets alone, hence is inappropriate for use in financial reporting.

Objection #4: Mutual life companies have an obligation to try to furnish insurance at cost to identifiable blocks of policyowners.

Answer: Some observers have argued that a mutual company, in order to be confident that it can furnish insurance at cost, needs to keep a conservative level of funds on hand, and that the total amount needed at any time may reasonably be about equal to the statutory reserve. Hence, the argument goes, the GAAP reserve might well be about equal to the statutory reserve.

But this argument confuses the form and content of a report with the accounting rules to be followed. It is possible to prepare a balance sheet that would help show how successfully a mutual company is furnishing insurance at cost; such a balance sheet would show the "net worth" of each of a number of blocks of policies. During the course of each block's lifetime, the amount of net worth shown for it as time progresses would give a measure of the company's progress toward running that block off the books (upon maturity or expiry of the last policy) in neither a surplus nor a deficit position, and, hence, toward furnishing insurance at cost to that block.

Such a report would, of course, necessitate allocating income and expense to the individual blocks. The net worth of each block could be shown on a statutory, a GAAP, or any other basis, depending on the accounting rules used. Similarly, a balance sheet showing only an aggregate net worth, as is the practice today, can be prepared on a statutory, a GAAP, or any other basis by using the appropriate accounting rules.

Conclusion

All this leads me to conclude that the standard to be applied in determining whether a mutual life company's financial report is in conformity with GAAP is the GAAP standard for the nonparticipating business of stock life companies. If there are objections other than the above four, they should be brought forward and discussed. I am not suggesting that mutual companies necessarily ought to prepare GAAP statements, but only that a standard is needed for determining whether or not their statutory statements conform to GAAP. □

Excellence

(Continued from page 1)

hind jargon. A difference is that the public has an accurate sense of *what* doctors and lawyers do, even if it doesn't understand *how* they do it. As for actuaries, the public doesn't even understand *what* they do. We (as a group) seem to revel in this fact. As hard as the Society office tries to educate the public, many of us delight in the arcane nature of our profession. For example, the Academy newsletter has been publishing definitions of "actuary" from various sources, including "average citizens". Why can't we tell people what we are rather than chortle at their ignorance? And how about "Sightings"—does the AMA Journal publish references to the word "doctor"?

The third quality that I'll cite is being "close to the customer", and, as a corollary, close to the sales force. Many of these well-run companies' primary motivation is to provide a quality product with quality service, and the whole operation is geared to help the sales force do this. These companies have discovered that the financial results then take care of themselves.

Unfortunately, we often think of our agents as an obstacle to productivity. And our response to consumer needs has traditionally been slow, although, in all fairness, it's improving lately.

The five other qualities in the book elicited similar but not as heated responses from me.

I welcome both positive and negative responses to this. As I said, this embarrasses me, and I'd love for someone to explain why I'm wrong. I'm just worried that our peculiarly actuarial behavio: means that our own (and our industry's) Search for Excellence will come up empty.

Non-Routine Business

(Continued from page 1)

8. The Board has approved new Guides to Professional Conduct replacing our present Guides and Opinions.

9. The Board approved a policy on continuing education developed by the Services to Members Policy Committee.

10. The Board received and approved a report from its Committee on Planning exploring major present issues before the Society. The Board decided not to pursue seeking accreditation for Society Fellows to sign annual statements.

Ed. Note: In closing this, his swan song, at our Annual Meeting, Mr. Clark paid graceful tribute to the Society's staff, particularly Catherine (Kathy) Keller, for their help during his term of office. "The Society's affairs," said he, "have becom so large and complex that, without o. competent and dedicated staff, the job of a volunteer Secretary would be impossible." □