



The Actuary

The Newsletter of the Society of Actuaries

VOLUME 5, No. 10

DECEMBER, 1971

FLYING HIGH

by Julius Vogel

The subject of Aviation Reinsurance was discussed Sept. 23, 1971, under the auspices of the Advanced Techniques Section of the Program Committee of the Actuaries' Club of New York. Gordon Shellard moderated a panel discussion in which David Halmstad and Julius Vogel were the principal speakers. What follows is an abstract of their remarks.

Airline hull and liability insurance must essentially be on a per accident basis; liability is governed by negligence principles. Thus, an airline might be liable (in a collision) for two 747 hulls at \$25 million apiece plus 750 passenger deaths. Settlements in 1970 on U.S. domestic flights averaged \$195,000 per death. Since settlements on deaths during coverage now being sold may not be made for some years, the airlines might need to be prepared for \$300,000 or more per death. This total potential liability—\$275 million or more per accident—probably exceeds the current capacity of the world market. The current world annual premium income for airline hull and liability insurance is about \$400 million.

Life insurers have the insuring power to take on amounts of aviation risk at least as great as their net life insurance retentions. Legislation enacted in New York and New Jersey permits life insurers, under Insurance Department supervision, to reinsure any risk arising from, related to, or incident to aircraft manufacture, operation, or ownership. The authorization for reinsurance reflects the market's need for capacity, not necessarily for duplication of existing engineering and claim settlement skills.

The Metropolitan and the Prudential are already providing some aviation re-

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Arthur A. McKinnie to Retire

On December 31, 1971, Mr. Arthur A. McKinnie, Executive Secretary of the Society, will officially retire. He has been Executive Secretary since the Society came into being and so might well be described as "The Establishment"—after all he has been at more meetings than any other individual!

We are sure that Art was not told in 1949 that the membership of the organization with which he was to be connected would increase and multiply from 1074 members in 1949 to 3847 members in 1971. This increase obviously cast many additional burdens upon the Society's office, burdens which have been cheerfully assumed by Art and his colleagues.

At the Toronto meeting, President Lancaster presented Art with a silver tray on which was engraved the signatures of the 22 Presidents under whom Mr. McKinnie has served. There was not room enough on any tray for the signatures of the many many members of the Society who have known Art, officially and unofficially, who would extend their good wishes for a long and happy retirement along with a permanent invitation to attend all future meetings and who would like to say "Thank You" for a job well done. □

International Congress

The *Transactions* of the 19th International Congress of Actuaries, to be held in Oslo in June 1972, may be purchased by individuals not members of the Congress. Interested parties should get in touch with Mr. E. A. Lew.

CONFESSIONS OF A SEMINARIAN

by Edward L. Robbins

I. Introduction and Background

In 1971 I enrolled for an Actuarial Seminar at *Halyard** University and successfully passed Part 8.

A friend of mine, a Fellow of the Casualty Actuarial Society, mentioned that his Society would be most interested in my writing about my experience at the seminar; the Casualty Actuarial Society does not have the benefit of any such seminars.

The following is a set of impressions. The uniqueness of the actuarial exams suggests that you cannot lump classroom dynamics of this educational field with the general state teachers' college fare, that a worthwhile contribution can be made by an actuary's look at the experience.

II. Theory—the Purpose of an Examination Seminar

The advantages of any resident academic preparation over a self-study program at home are as follows:

(1) Exclusion of company and family distractions.

(2) The competitive (yea, cutthroat) atmosphere, and the consequent measure of one's own performance relative to the class average.

(3) The help of a moderator in guiding students through difficult points.

(4) Getting a person into the mood to study eight hours a day. (I had personally never done this before).

(5) A well-organized study schedule and an accordingly well-organized set of text outlines. (As anyone who has taken the later actuarial examinations knows, preparing for them by oneself is—in addition to the learning itself—a large

*Any resemblance to any recognized college or university is purely coincidental.

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The Actuary

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 articles, criticisms, and discussions in this publication.

EDITORIAL

WHAT IS AN ACTUARY? Some seeker-after-truth might have studied the program for the Toronto meeting hoping to find at least a partial answer to the question. Whether he or anyone else could distill any truth from forty or more pages of meeting announcements is a moot question. At least the seeker might well have concluded from the varied fare offered that the Society is a *viable* organization.

Perhaps the E. & E. Committee should consider training students for participation in such meetings, which seem to have more performers and performances than a vaudeville show. A future final examination might have a question like this:

"Assume you have attained Fellowship in the Society and that you are permitted to attend the Annual Meeting. Review the attached Program for such a meeting and choose which sessions you would attend *giving reasons*. Suggest an Alternate Route."

Outside the profession there circulates a base canard that actuaries have but an outside resemblance to human beings and that they especially eschew the weaknesses of the flesh. One of the distinguished and welcome visitors at the Toronto meeting, Dr. Ammeter, President of the Swiss Actuarial Association, presented to the Society, on behalf of the Association, tangible evidence to refute the false report. This evidence is explained in the following extract from Dr. Ammeter's delightful speech.

"To retain this day in memory and to demonstrate our special friendship to your Society, I have brought with me a small present. It is a pewter jug with a set of six matching goblets and a platter. The jug bears the inscription:

PRESENTED TO THE
 SOCIETY OF ACTUARIES
 BY SWISS ACTUARIAL ASSOCIATION
 1971

"I suppose many of you may have read that some of the most fascinating traditions in Switzerland have something or other to do with eating. Nevertheless, as you can see for yourselves, this jug and the goblets have nothing to do with eating but only with drinking.

"Such jugs are used on ceremonial occasions practically all over Europe, but particularly in Switzerland and still more particularly in Zurich, my home town. In Zurich, these jugs are closely associated with guilds which in olden times, in the middle ages, determined the political order of the town. The guilds, however, have now lost their political importance, but they still continue to exist as social fraternities.

"In Spring each year the guilds organize a festival to celebrate the death of the winter and the reawakening of nature. A great traditional procession finally stops at a big fire at which a bogey representing the winter is symbolically burnt. The fire, of course, produces an immense thirst. This thirst is then quenched as best one can in the cellars of the guilds, where the wine is poured out of just this type jug. I have been told that on these occasions people drink slightly more than is strictly necessary to quench the thirst.

"As the potential of thirst varies, there are naturally different sizes and dimensions of pewter jugs. We considered that for our American and Canadian friends a large-sized jug would probably be more suitable, since the enormous tasks of the President and his Committee Members must necessarily lead to very dry throats and to a corresponding degree of thirst.

"I believe this meeting must have imposed considerable burden on these gentlemen. I should straight away act as a fireman and conduct a fire drill. Let me, therefore, pour Swiss wine into these goblets here and ask you, gentlemen, to drink with me "to the Society of Actuaries and its members—and more particularly to our ladies.

"May this toast be a symbol of friendship between our countries and our Associations!"

On this festive note we conclude by wishing all of our readers

A HAPPY NEW YEAR!

— A.C.W.

TO BE CONTINUED

Editor's Note: This is another in the series of articles from the Committee on Continuing Education. The rule is one article to one subject to give the non-specialist in that subject up-to-date general information and to encourage further research in the subject if the reader is so minded. Comments will be welcomed by the Committee and by the Editor.

New Horizons

by William A. Dreher

United States actuaries, unlike our British counterparts, have traditionally focussed attention on the liability side of a pension fund balance sheet. Our concern with pension fund assets has been limited to techniques for appraising the assets as part of an actuarial valuation. Few of us were concerned about measurement and comparison of pension fund investment performance, apart from an occasional comparison of fund results with the "interest assumption" included in the actuarial valuation basis. Even here, the measurement of investment performances was more likely to consider cash yield on assets compared with book values or, in some instances, to include realized capital gains and losses in the performance calculation.

For more than 20 years, pension fund assets have been growing at a rapid rate. Corporate executives, union officials, and governmental officials have been confronted with major decisions affecting pension fund investment management: Should the assets be managed by a bank or an insurance company? By an investment adviser or mutual fund? What should be the proportion invested in bonds and common stocks? Should investment policy be more aggressive? Should fiduciary capital aspire to high levels of investment performance?

The executives responsible for pension funds needed quantitative data to evaluate the results of past policies and to provide a basis for charting their future course. Although every one of these pension funds had an actuary, our profession did not immediately sense and serve this need, despite the fact that we are the only group equipped by training and experience to pull together all of the demographic, economic, financial investment, and social pressures affecting pension funds. This void was filled largely by stockbrokers who seized the enormous

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New Horizons

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conomic opportunity and sold investment performance measurement and comparison services in exchange for commitments to trade securities through their organizations. Even today the bulk of investment performance information is generated by brokerage firms, and comparatively few actuarial firms are yet actively involved with these services. (A tabulation prepared for a special pension fund issue of *Institutional Investor* magazine, August, 1971, included 27 suppliers of investment performance services, and only 6 are actuarial firms).

Fortunately, the opportunity is not lost for actuaries to establish themselves as primary sources of investment-related information and advice. The process of investment measurement and comparison is far more complex than most plan sponsors and supplier organizations had realized. The problems of relating performance results to the fund's investment policy and providing comparisons between funds which adequately reflect cash flow, investment mix, plan characteristics, and other key variables are only now becoming evident. In addition, measurement and comparison of past performance are not enough. Plan sponsors need assistance in interpreting this historical data and developing confident decisions about the future operation of their funds. Effective support in these areas requires a combination of sophisticated numerical analysis and competence with consulting techniques which actuaries are uniquely equipped to provide. Brokers and other suppliers of investment performance services are poorly equipped to provide these consulting services and are often disqualified because of conflicts of interest. (On one hand they provide services to management for directive brokerage, while at the same time actively soliciting commission business from the money managers whose performance they are trying to evaluate).

The private pension system in the United States is now one of the largest sources of national capital. The pension and profit sharing assets of corporations, unions and governmental organizations now total \$200 billion. (The assets of the 50 largest life insurance companies are only \$175 billion; the 50 largest banks in the country have assets of \$275 billion). With persistent pressure being exerted upon plan sponsors to improve

Actuarial Meetings

- Jan. 8-9, Actuaries' Club of the Southwest
- Jan. 13, Chicago Actuarial Club
- Jan. 19, Seattle Actuarial Club
- Feb. 15, Chicago Actuarial Club
- Feb. 16, Seattle Actuarial Club;
Nebraska Actuaries Club;
Actuaries' Club of Des Moines

benefits while minimizing the inflow of new contributions, the principal means of balancing these forces will be an improvement in the quality and effectiveness of investment management. In this challenging environment, actuaries have both a responsibility and opportunity to develop the knowledge and techniques to provide a complete spectrum of services to their clients, including:

- (1) Measurement and comparison of historical investment performance.
- (2) Development of total investment management structures.
- (3) Cash flow analysis and assessment of benefit plan characteristics which do or should influence investment policy.
- (4) Identification, evaluation and selection of investment managers.
- (5) Development of investment performance goals.
- (6) Structuring of management information systems for monitoring future investment activity.
- (7) Assistance with the on-going process of administering the monitoring system.

Actuaries interested in this vital topic will profit from reading the following publications:

Managing Education Endowments, August, 1969, New York (Ford Foundation).

Mutual Funds And Other Institutional Investors—A New Perspective; Irwin Friend, Marshall Blume, and Jean Crockett, 1970, New York (McGraw-Hill).

Pension Funds: Measuring Investment Performance; Peter O. Dietz, 1966, New York (MacMillan).

Measuring The Investment Performance Of Pension Funds: A Management Summary; December, 1968, Parkridge, Ill. (Bank Administration Institute). □

THE BAI INTEREST RATE

by Barnet H. Berin

Pension actuaries have been aware of the Bank Administration Institute's interesting work, *Measuring the Investment Performance of Pension Funds for the Purpose of Inter-Fund Comparison*. (Paul Jackson reviewed the \$100 book in *TSA XXI*, pp. 169-174). Without reviewing all of the BAI output, one example offered in their work is stimulating and goes right to the heart of a very practical problem.

In the example, fund A and fund B are identical in composition at \$1,000,000 each. Investment experience in a one-year period is the same in both funds: 1% (annual force of interest) for the first six months and 29% (annual force of interest) for the next six months. However, fund B, alone, receives \$1,000,000 at mid-year. No payments are made from either fund during the year.

The equivalent annual return (annual force of interest) is 15% for Fund A and about 19.5% for Fund B. The additional contribution at mid-year to Fund B causes the difference.

The BAI report states that these results unfairly reflect the investment ability of the fund managers; the rates should be the same. The conclusion is, of course, correct: definitions of interest yields, over a period of time, may not be helpful in comparing the investment performance of different funds. They propose a time-weighted rate of return of 15% for both funds, or one-half of 1% plus one-half of 29%. The BAI studies are worth reading; note particularly the work of E. F. Fama. Hilary Seal commented on the approach in *The Actuary*, April 1969.

However, there may be another approach. If the fund, in dollars, is expressed in units as well, both fund A and fund B would have moved from a unit value of \$10 (say) at the start of the year, to \$10.05 at mid-year, and to \$11.62 at the end of the year. The increase in both funds would be the same, 16.2%.

A common measure for comparison purposes could be developed by the general adoption of unit values with fund transactions reported both in dollars and in units. This is probably already true in the many commingled trust funds of the banks and in the Separate Accounts of the insurance companies. □

DIRECTORY OF HISTORIANS OF MATHEMATICS

A world directory of historians of mathematics, including actuarial science, is being prepared by the Commission on History of Mathematics of the International Union for the History and Philosophy of Science.

Scholars who are teaching or doing research in the history of mathematics should communicate with the Chairman of the Commission, Professor K. O. May, Department of Mathematics, University of Toronto, Toronto, 181, Canada. Please send name and address (as you wish it for mail), a statement of your special fields of interest, and the languages you read.

The Commission expects to begin publication of an international journal of the history of mathematics in 1973. Meanwhile a newsletter will be issued. □

Flying High

(Continued from page 1)

insurance. However, the hope is for a permanent arrangement whereby life insurance companies share in aviation risks. Such arrangement would become effective Jan. 1, 1972 with approval of the New York and New Jersey Departments pursuant to the laws of those states. The Metropolitan and the Prudential are thinking in terms of contributing \$15 million of risk capacity each. An agreement is now being drafted, which will be submitted to interested life insurers. This plan should increase existing competition in aviation insurance.

It is hoped that other companies with substantial surplus funds will be included in the arrangement and thus a substantial amount of capacity will be provided. A life insurer's commitment of capacity would normally bear some relation to its net life retention. The business should produce a reasonable profit on a long range basis.

This business has catastrophe potential, and it is easy to be frightened—perhaps unjustifiably so. Under all the proposals, the liability for any one accident would have a maximum; in addition, it would normally be only a share of the total loss. With these limitations, common sense tells us the hazard is insurable. Risk theory permits the calculation of conservative premiums. □

NEW FEDERAL ESTATE AND GIFT TAX REGULATIONS

by William H. Lewis

Treasury Decision 7077 introduced new regulations as to decedents dying after December 31, 1970 (Sec. 20.2031-10) and gifts made after the same date (Sec. 25.2512-9). Under these sections of the Regulations, Table LN (separate for males and females) with interest at 6% a year, compounded annually, replaces the former Table 38 with interest at 3½% a year, compounded annually. Table 38 and Table LN are based on the 1940 and the 1960 census, respectively. Table 38 is a Makehamized mortality table for total whites in the United States, whereas Table LN is a mortality table for total males and total females appearing as Tables 2 and 3, respectively, in United States Life Tables: 1959-61.

In comparing Table LN (male) with Table 38, we can expect that the substitution of total nonwhite males in the former for total white females in the latter would tend to increase the mortality rates. A similar comparison of Table LN (female) with Table 38 would lead to the expectation that the substitution of total nonwhite females in the former for total white males in the latter would tend to increase the mortality rates at the younger ages and decrease them at the higher ages. On the other hand, the substitution of 1960 experience for 1940 experience tends to decrease the mortality rates. Actually, in the range of ages from about 50 to 70, Table LN (male) shows about 10% greater mortality rates than Table 38, but shows less for practically all other ages. On the other hand, Table LN (female) shows considerably less mortality than Table 38 for the entire range of age examined, particularly at the younger ages.

Table A (1) (male) and Table A (2) (female) of the Regulations show the present value at 6% interest of a single life annuity, life interest, and a remainder interest for ages 0-109, based on Table LN male and female, respectively. As in Table I in the previous regulations (Table 38 at 3½%), these factors are derived as follows:

Annuity	$\ddot{a}_x = a_x + \frac{1}{2}A_x$
Life interest	$i \ddot{a}_x$
Remainder interest	$\bar{A}_x = 1 - i \ddot{a}_x$

In the case of males, the effect of changing the mortality table is to reduce the value of \bar{A}_x by about 1 or 2% except for the age range from about 40 to 60 where the value is increased slightly. The increase in interest from 3½% to 6% further reduces \bar{A}_x by percentages which vary from 56% at age 25 down to 9% at age 85. The overall effect is to reduce \bar{A}_x by percentages varying from 57% at age 25 down to 10% at age 85. In the case of females, the effect of the combined change in mortality and interest is to reduce \bar{A}_x by percentages varying from 69% at age 25 down to 11% at age 85.

Under Section 170 of the Internal Revenue Code of 1954, no deduction is allowed for the contribution to charity of a remainder interest of property transferred in trust unless the trust is a charitable remainder annuity trust or a charitable remainder unitrust (Section 664), or a pooled income fund [Section 642 (c) (5)].

In the case of a pooled income fund, Section 1.642(c)-6 (d) of the Income Tax Regulations shows Table G (1), male, and Table G (2), female, which contain the factors for the present worth of a remainder interest after a single life, based on Yearly Rates of Return varying from 2.2% to 8.0%.

TAX LAW AND REGULATIONS

In the case of a charitable remainder unitrust, Section 1.664-4 of the Income Tax Regulations shows Table E (1), male, and Table E (2), female, which contain the factors for the present worth of a remainder interest after a single life, based on Adjusted Payout Rates varying from 4.6% to 9%.

Tables G (1) and G (2) are calculated on the basis of the LN mortality tables by applying the Yearly Rate of Return as the effective annual interest rate. For this reason the factors in these tables under the 6% Yearly Rate of Return agree with the corresponding factors in Tables A (1) and A (2), respectively, referred to in a previous paragraph.

On the other hand, it will be noted that the factors in Tables E (1) and E (2) are less than the corresponding factors in Tables G (1) and G (2). The reason for this is that the E tables are calculated on the basis of the LN mortality table by applying the Adjusted Payout Rate, but on the assumption that this rate is equivalent to the applicable effective annual interest rate payable in advance.

p = adjusted payout rate

i = effective annual interest rate

$$= \frac{p}{1-p}$$

An innovation in the new Regulations is the method set forth for valuing a remainder interest which falls in on the death of the survivor of two or more persons

$$\bar{A}_{x_1 x_2 \dots x_m}$$

developed by the late Charles T. Kemmerer in the National Office of the Internal Revenue Service. Mr. Kemmerer, was an able attorney and self-taught in actuarial science. The method is based on Woolhouse's formula and may be found in Chapter IX of "Mathematics for Actuarial Students" by Freeman. By use of the Q and K values in the Regulations, this remainder interest can be valued for any number of persons with relative ease even on a desk calculator, and produces values which are amazingly close to the exact values. The following table shows 2-life remainder factors calculated by this method as compared with those calculated by the exact method. It is assumed that the latter were calculated as

$$\bar{A}_{xy} = 1 - i \ddot{a}_{xy} = 1 - i(\ddot{a}_x + \ddot{a}_y - \ddot{a}_{xy})$$

6% Last Survivor Remainder Factor			
Male Age	Female Age	Kemmerer Method	Exact Method
35	25	.05535	.05535
50	40	.12534	.12535
65	55	.26203	.26206
80	70	.48806	.48805
95	85	.74586	.74594

The actuarial work which went into the new Regulations is superlative, and Robert P. White, Supervising Actuary, Internal Revenue Service, deserves to be commended for his contribution to it and for his recognition of Mr. Kemmerer's contribution. Mr. White is an attorney and an Associate of the Society. □

LETTERS

Net and Other Costs

Sir:

At the Tarrytown meeting of the New York Actuaries Club, there was a panel discussion about interest adjusted costs. That discussion, together with my own personal views on the threat of consumerism to our industry, lead me to suggest that the Society of Actuaries voice its opinion publicly for immediate adoption of the interest adjusted cost basis.

The cost of life insurance, as well as the evaluation of policy benefits or even company stature, is difficult to assess. In this age of consumerism the cost of our product was bound to be questioned, and it has been by such critics as Professor Belth and Senator Hart. After many years the industry formed a Joint Special Committee on Life Insurance Costs. This committee published its findings on May 4, 1970, observing that the traditional method could be improved by the use of the interest adjusted cost method.

The industry has been sluggish in reacting to the findings. It seems that several companies are now planning to make modest changes to incorporate interest adjusted costs into their rate information in the near future. But only two companies have actually adopted the method in the year that has passed since the committee made its report. Many companies seem to be doing nothing about it, or are outright rejecting interest adjusted costs. Now Mrs. Knauer of the Office of Consumer Affairs is making this lackadaisical attitude a consumer issue.

Instead of delaying and confusing the issue, the industry could, as was suggested at the Tarrytown meeting, adopt the interest adjusted method to forestall consumer criticisms of life insurance cost illustrations.

I suggest that actuaries, as experts in this field, should voice their opinion publicly so as to unite the industry and fend off any possible criticisms. Thus, I recommend that the Society consider an expression of its opinion in favor of the adoption by the industry of the interest adjusted cost method.

Steve Cooperstein

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Letters

(Continued from page 5)

Sir:

Your editorial in October suggested another —ism: simplicism. The traditional net cost method met the test of simplicism in that even the agent could understand it. The critics of that method call for another one meeting the test of simplicism in that the critics think they can understand it. The fact remains that complex problems have complex solutions and simplicism is frequently at variance with the truth.

May I also suggest that in one instance simplicism may have some merit. The cost, by plan, of the proposed method may show that term insurance rates are too low compared to other plans. How will someone explain that to the public?

Ralph E. Edwards

* * *

Every 6: but 8 not 6 on 4

Sir:

While I may be beating a dead horse, I take exception to Mr. Peterson's remarks in the November issue of *The Actuary*. He apparently got a five on Part 4 last May and wishes he could have written it again this November before forgetting all he learned for the May exam.

Well, I submit that if the subject is forgotten that much that soon, he really doesn't know his subject and therefore shouldn't pass. However, I agree in part. Let Part 4 be available every six months. I heartily support this. But, I also feel this should be the most demanding of all the exams we write. Every actuary should have a thorough knowledge and understanding of this subject which I feel is the cornerstone of our profession. This is undoubtedly the one major area of expertise which makes an actuary unique.

Incidentally, if a student doesn't have a sound working knowledge of life contingencies, I wish him luck on the later exams with such subjects as gross premiums and valuation. I'm sure he'll then wish he had had to learn the subject much better in the first place.

In summary, by all means have Part 4 written twice a year, but make the pass mark, say, 8 instead of 6.

James A. Loffree

* * * *

Sir:

R. S. Hester in the October issue of *The Actuary* seems quite appropriately concerned about maintaining certain minimum standards to be met before one reaches the apex of zeniths, Fellowship in the Society of Actuaries. I do not feel that offering Part 4 twice per year would affect the current standards.

To be sure, making this exam semi-annual would aid someone having difficulty memorizing the enormous number of formulas. However, mere memorization will not achieve success for this particular exam. Rather, a thorough understanding of a good deal of the material is required. In any event, passing Part 4 connotes that the candidate has acquired a mastery of the syllabus.

One may say that mastery will not be permanent if acquired in the first place by cramming, but it is also true to say that mastery, however well acquired originally, will atrophy if not used and a "crammed" mastery will become permanent if regularly used.

The real point here is that there is nothing wrong with a Part 4 which is easier to pass just because it is offered more frequently. If Mr. Hester's feeling of insecurity is widespread, then a slight decrease in the proportion of those allowed to pass Life Contingencies could be implemented. The consensus is that making this exam more difficult in any other fashion is quite unlikely.

Perhaps Mr. Hester should be more sympathetic of marginal candidates, "As one who failed what is now Part I twice . . ."

Vincent Amoroso

* * * *

Pension Planning and Environment

Sir:

Both Richard L. Ullman's article on pension planning and the environment (June 1971) and John C. Angle's reply (September, 1971) excluded an important opportunity regarding the social responsibility of pension funds.

Of course, the overriding consideration in the investment of pension funds must be meeting as successfully as possible the continuing obligations of the plan. However, a large proportion of pension funds are invested in common stock with voting privileges. Many of these shares are either voted automatically to support the proposals of current

management or not voted at all (which usually amounts to tacit approval of current management's decisions). Why shouldn't those shares be voted more responsibly so as to cause the corporations involved to start acting on improving the environment and some of the other problems Mr. Ullman outlined.

The idea is not new; recent efforts, such as "Campaign G. M.," have attempted to socially motivate institutional investors, but with very little success. The argument that unilateral efforts on the part of corporations will reduce profits and ultimately weaken the position of those pension plans owning stock in such corporations is a weak one; in fact, the opposite effect has often taken place. Perhaps "social responsibility" should become as much an obligation of the investors of pension funds as fiduciary responsibility.

Richard Basofin

* * * *

The First Actuary

Sir:

David M. Holland has suggested in the October issue that King Solomon was the first actuary, based on a quotation from *Ecclesiastes*. Actually there is earlier actuarial literature as recorded in Psalm 90:10a:

"The years of our life are threescore and ten or even by reason of strength fourscore . . ."

Psalm 90 antedates *Ecclesiastes* whether one follows the traditional view or the scholarly view. Under the traditional view *Ecclesiastes* is attributed to Solomon, but Psalm 90 is entitled "A prayer of Moses," who lived some 300 years before Solomon. Incidentally, Deuteronomy traditionally is attributed to Moses, even though Deuteronomy records the death and burial of Moses and the subsequent period of mourning for him.

As for the scholarly approach, no competent Bible scholar would date *Ecclesiastes* earlier than the third century B.C. Some scholars accept the Mosaic authorship of Psalm 90, but the majority hold that it was written at the time of the Babylonian captivity in the sixth century B.C.

It is not clear whether the Psalmist was speaking of life expectancy or the maximum span of human life. The phrase "by reason of strength" might be interpreted as "with evidence of insurability."

Joseph W. Hann

Confessions of a Seminarian

(Continued from page 1)

Administrative job of organizing materials and scheduling time. The time saved by a well-run seminar is substantial).

This seminar has as its single purpose the passing of the exam by as many students as possible, to the extent high professional ethics will allow. This implies both passing of the examination and a permanent understanding of the material covered. The passing results have been most favorable over the years. The statistics indicate that a diligent student has had a 25-35% higher probability of passing Part 8 through the seminar than through self-study.

The seminars have generally had passing percentages (percent of students passing) of between 75% and 95%, which is significantly above the aggregate passing percentages. This has led to the unofficial maxim that if you:

- (1) do all the work assigned,
 - (2) maintain your quiz average at or above the class average,
 - (3) don't panic on the examination,
- then you really should pass. The course is intensive enough so that there should be no essay question on the examination in which you "draw a complete blank."

III. The Halyard Experience Itself

A. The Running of the Course

In preparation for the course, we were advised to read through the material once, but it was found later that you were much better prepared if you had taken the exam in earnest before and flunked.

Classes were held for five weeks, five days per week, three hours in the morning. There were twelve students in our class. Generally, a 20-minute, short-essay quiz was held each morning, and a reading assignment was given out for the following day. Toward the end, large essay tests and large multiple-choice tests were given out as homework assignments. Mimeographed outlines of the textbooks and of the longer study notes were also handed out through the course of the seminar, and these outlines generally formed the basis of the class discussions.

B. Certain Advantages and Benefits Derived from this Course, that do not fit Neatly into Education Theory

Those in the same class generally lunched together and typically, the subject matter of the conversation at lunch revolved about the examination material. This took many forms.

Sometimes we sat around thinking up

sadistic exam questions, and possible answers. There was often competition to see who could come up with a good question based on a page in the reading likely to be ignored by the student.

Occasionally someone would brag about his beautiful mnemonic devices. One was dreamed up to memorize the exclusions from coverage of Medicare, Part B. "Remember the most famous of the World War I fighter planes, the French Spad? Imagine seeing a Spad spraying crops after the war. C-SPAD-WEEDER."*

At still other times, people would talk of their learning techniques, such as:

- (1) Put all the worst, most horrible material to memorize on flip cards, each card containing a bit of information.
- (2) Start taking notes as you go, even though you may not intend to keep those notes. It will keep you thinking in the language of the subject.
- (3) It's good practice, when reviewing text material, to go title by title; that is, each time you get to a section title, cover over the text underneath that section title and see if you can mentally reconstruct that text material.

The point is, by keeping your eyes and ears attuned at lunch and other times, you pick up tricks, techniques, mnemonics, and the like over the five weeks. Osmosis of this type is valuable. Naturally, each person must make his own decision as to what he will use out of the entire available bag of tricks.

Part 8 is an examination especially geared toward huge quantities of material to memorize completely, surrounded by other material that is often irrelevant, unimportant, and/or not nearly as likely to be tested. Very difficult decisions must often be made as to what to memorize, for one cannot memorize it all. Here the seminar technique is immensely helpful in giving you the confidence that you, along with the other lemmings, are making the right decisions as to what to emphasize and what to ignore.

*Custodial care

- Skilled nursing services
- Private duty nursing
- Agency of federal government
- Dental care
- Workmen's Compensation
- Eye exams, physical exams
- Eyeglasses, hearing aids
- Drugs
- Elective cosmetic surgery
- Relative or household member performing medical care

IV. The Moderator

The moderator is either a student who is also studying for the examination or a faculty member who has passed the exam. Each has his advantages.

The advantage of the student moderator is that these exams are so difficult that only one currently studying the syllabus is an expert on the syllabus. The great advantage of the faculty moderator is that he can afford to put more time into planning a lesson, developing good issues for discussion, etc.

A word about the imports. These are experts in their fields, "name" actuaries, who are flown in to conduct one class each. Our imports were all very articulate, expert, and entertaining men who, in addition to providing a nice break from normal classroom routine, helped to integrate the material and answered some long-nagging questions. (In a rather direct way, the presence of these eminent men also imparts stature and an air of officiality to the seminars. It provides a student ammunition, for example, when he has to convince his company to let him go to the seminar, e.g., "After all, Robert Myers is going to be a guest lecturer").

The lecturers, like all good teachers, would sometimes range beyond the confines of the syllabus. This was always interesting and often helpful, but somewhat confusing to any student who might have an incomplete grasp of the subject.

V. Conclusion

This course, like any human endeavor, had its strengths and weaknesses. All things considered, it worked out beautifully for me. Overall, the greatest advantage of the course was that it enabled a student to live, eat, and sleep the exam material. I never studied so hard for anything in my life, and I think the same could be said for most of us who were there for the first time. My study schedule after lunch was 1:00-5:00 P.M., then supper; from 6:00-9:00 P.M., more study; coffee break; from 9:30-12:00 midnight, more study. In actuarial mathematics, that constitutes about eight hours of hard-core studying. The general mood of the actuarial students here—and the chief advantage of the *Halyard* experience—is well expressed in the fact that, among some 30 actuaries at *Halyard* on a Saturday night, it was impossible to find a fourth for bridge. □

Carl J. Singer, Chief Actuary, Veterans Administration, submitted this mortality experience of Servicemen's Group Life Insurance as being of interest to Companies writing military business. (Single copies of the Report are available from the Veterans Administration, Department of Veterans Benefits, Washington, D. C. 20420)

**Table 1 — Non-Viet Nam Experience for Calendar Years 1968 to 1970
Combined by Branch of Service and Age^a**

Branch of service	Age, years								
	All ages	17-19	20-24	25-29	30-34	35-39	40-44	45-49	50 & Over
Deaths, number									
All branches	14,062	1,673	6,626	1,678	1,063	1,280	772	549	421
Army	6,086	856	3,155	630	281	442	300	210	212
Navy	3,178	309	1,527	515	298	232	161	84	52
Air Force	3,267	164	1,140	412	402	529	265	218	137
Marine Corps	1,365	330	726	106	66	65	40	25	7
Coast Guard	149	14	77	12	16	11	3	10	6
Public Health ^b	17	0	1	3	0	1	3	2	7
Annual death rate per 1,000 total									
All branches	1.63	1.57	1.51	1.48	1.40	1.79	2.53	3.36	5.12
Army	1.83	1.79	1.68	1.57	1.56	2.33	2.87	3.89	6.47
Navy	1.52	1.58	1.36	1.69	1.40	1.65	2.38	2.45	4.06
Air Force	1.35	.88	1.14	1.15	1.28	1.54	2.28	3.28	4.12
Marine Corps	2.09	1.72	2.19	2.15	1.93	2.29	3.37	4.50	3.85
Coast Guard	1.33	1.00	1.47	.79	1.17	1.14	.73	5.44	6.26
Public Health ^b .....	.89	.00	.21	.55	.00	.41	1.89	1.92	10.07
Annual death rate per 1,000, accidental^c									
All branches	1.21	1.27	1.31	1.26	1.03	.94	.86	.83	.75
Army	1.32	1.41	1.41	1.23	1.06	1.08	.93	.74	.82
Navy	1.24	1.34	1.24	1.54	1.15	1.05	.84	.61	.70
Air Force .....	.94	.79	1.02	1.00	.89	.82	.82	1.02	.63
Marine Corps	1.65	1.31	1.91	1.88	1.43	1.30	.93	.72	1.10
Coast Guard	1.03	1.00	1.36	.59	.88	.62	.00	.54	2.09
Public Health ^b .....	.37	.00	.21	.55	.00	.00	.63	.96	1.44

^a Excludes all Viet Nam and 4 months post-separation exposure and deaths.

^b Includes National Oceanic and Atmospheric Administration.

^c Includes all accidents, whether on or off duty.

Table 2 — Viet Nam Experience for Calendar Years 1968 to 1970 Separately, All Ages^a

Branch of service	Number of Deaths				Annual rate, per 1,000			
	Three Years	1968	1969	1970	Three Years	1968	1969	1970
All branches	34,257	16,605	11,653	5,999	22.9	30.7	21.9	14.3
Army	23,710	10,590	8,207	4,913	23.7	30.5	23.2	16.3
Navy ^b	1,297	638	450	209	8.0	12.1	10.0	6.9
Air Force	795	311	292	192	4.7	5.3	4.9	3.8
Marine Corps	8,455	5,066	2,704	685	43.3	62.2	36.1	17.7

^a Death claims in this experience are based on actual claims received by the SGLI primary insurer.

^b Includes Coast Guard. The exposure for the Navy has been adjusted to make it correspond as closely as possible with the allocation of deaths to the Viet Nam area.

Table 3 — Four Months Post-Separation Experience for Calendar Years 1968 to 1970, All Ages Combined^a

Branch of Service	Number of Deaths				Annual rate, per 1,000			
	Three Years	1968	1969	1970	Three Years	1968	1969	1970
All branches	2,804	910	908	986	2.96	3.05	2.92	2.93

^a The SGLI policy provides for a continuation of the active duty coverage for 120 days after separation from service without premium payment.

^b The 4 month post-separation experienced for all ages combined is almost double that of non-combat active duty because of the inclusion of many physically impaired lives, mostly service-disabled lives.