The Actuary

The Newsletter of the Society of Actuaries

VOLUME 9, No. 7 SEPTEMBER, 1975

A RECORD BIRTH

By Harold F. Philbrick

The birth (or, more appropriately, the conception) of the *Record* was announced in March 1975 issue of *The Actuary* by John C. Angle, Coordinator of Publications. By the time you read this, the first three issues should be in your bookcase or library. Having put the third issue of the *Record* to bed, I felt moved to make a few remarks about this new publication.

I accepted the job of Editor with fingers crossed, knowing that it would be no simple matter to meet the goals of furnishing our membership with a quality product as rapidly as possible following each Society meeting. To reach these goals, I decided to enlist the aid of the Recorder and Moderator for each Concurrent Session. In essence, this meant that I would be relying on 78 members plus two nonmembers (for a session moderated by a Fellow of the Conference of Actuaries in Public Practice) to produce *edited* copy, ready for the printer, for the Concurrent Sessions at the three Spring meetings this year.

With such a large group of assistants, the quality of the end product varied considerably. Some edited ruthlessly to produce articles that excluded duplications and nonrelevant material. Others merely dressed up a transcription of their session, but always adequately for inclusion in the *Record*. Considering the volume of material, the amount of final editing needed was very small. A quick comparison of the three issues will reveal that some improvements have been made. One change was to recognize in the Cincinnati issue the recorders who did a yeomanly job in getting the material together and editing it. I would like to take this opportunity to recognize the

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Graduate Student Scholarship

The Board of Directors of The Equitable Life Assurance Society of the United States decided to establish a scholarship fund as a tribute to J. Henry Smith who retired on April 1 as Chairman and Chief Executive Officer of the Equitable. Mr. Smith is a Fellow of the Society of Actuaries and a former member of the Board of Governors.

Dr. John T. Fey, Chairman of the Board of the Equitable, acting on behalf of the Board, asked the Society of Actuaries to take over the administration of the scholarship fund, not only selecting the scholarship recipients, but also determining the amount of the annual awards. The Society is honored and pleased to accept this invitation.

The Fund, to be known as the J. Henry Smith Scholarship Fund, will provide scholarships for qualified female and minority graduate students in the field of actuarial science who have a demonstrated need for financial aid. While the fund will be intended primarily to benefit female and minority students, others will be considered in the absence of qualified female and minority candidates.

In announcing the Board's action, Dr. Fey said the scholarship fund is designed as "an appropriate and worthwhile way to recognize J. Henry Smith and in particular his significant contributions to the actuarial profession and deeply felt commitment to equal employment opportunity for all."

Personal gifts from members of the Equitable Board together with a corporate contribution of an equal amount from the Equitable, produced a total of $7,000 to launch the fund. It is expected that this initial amount will be augmented from time to time by additional con-

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ADEQUACY

James Schulz, Guy Carrin, Hans Krupp, Manfred Peschke, Elliot Sclar and J. Van Steenberge, *Providing Adequate Retirement Income*, pp. 330, University Press of New England, Hanover, New Hampshire, 1974, $15.00.

by G. Ashley Cooper

This book proceeds in a series of steps from an analysis of what is meant by "adequate retirement income" through an examination of the social security systems of four countries (Sweden, Germany, Belgium and Canada) to a program of reform for the United States pension system. It would be impossible to find fault with the general concept that "it is time that a broad review of our retirement income maintenance system was undertaken and serious thought given to the requirements of providing adequate retirement income to the future aged." There is no doubt, too, that exploration of the ways in which other countries have approached these problems is worthwhile, since no nation has a monopoly on brains and ingenuity.

However, there is left a feeling of disappointment that the promise was not fulfilled. Moreover, it is difficult to determine the audience for whom the book was intended, since the material is too complex for most laymen, yet too simple for most professionals in the field. The authors are all professors, so it might be supposed that the intended audience is also academic.

The setting of a standard of adequacy is essentially dealt with in two pages only (pp. 40 and 41), which appears to give this subject less space than it deserves. One would have hoped that there could have been fuller treatment of the impact of taxes, the percentage of preretirement expenses that are connected with working, the decline of wants and other data that would define more pre-

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The Actuary

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The Society is not responsible for statements made or opinions expressed in the articles, criticisms, and discussions in this publication.

EDITORIAL

IN the interesting and worthwhile discussion of *Company Regulation Resulting from Consumerism* reported in the first issue of the *Record*, one speaker suggested that the industry should stop using the word "discrimination". We have never been convinced that this form of bowdlerization contributes to progress or to understanding on the part of the listener. And we cannot assume the position of Humpty Dumpty to the effect that a word we use should mean just what we choose it to mean—neither more nor less.

Before the industry adopts this suggestion it might consider the other side the arguments for which are well set forth in the Editorial Comment of *The National Underwriter* of August 16. The author is not afraid of the word and he points out quite properly that "in order for the social system of insurance to work, insurers must discriminate." He also points out that the end result of these attacks on the insurance mechanism may lead to a classless form of insurance where all men (and women) are theoretically equal and pay the same premium for the same benefits. This it would seem, leads to the logical, if not the legal, conclusion that all insurance as now practiced is unconstitutional.

Apparently this is the first time that anyone (including spokesmen for the industry and actuaries) has had a good word to say for "discrimination." The final words of the Editorial Comment should not go unheeded. "The industry must make the consumer aware that insurers discriminate *for* them and not *against* them."

This August 16 issue of our contemporary has some other items worthy of our notice. Mr. Joseph F. Tudor, President of Hawaiian Life has an article on *The Real Issue in Replacement.* He mentions that most jurisdictions have adopted a version of the NAIC model replacement regulation requiring the preparation and acknowledgment of "disclosure statements" for the information of the customer. Mr. Tudor comments that, in his judgment, this case-by-case basis will not work "for the very obvious reason that people buy when they believe or want to believe the sales person." His article, we should add, has suggestions for another approach to the problem of replacement. We wonder if these comments on the case-by-case method hold good for all "disclosure statements," including cost comparisons and the like, intended to inform the customer (sometimes possibly against his wishes).

Finally we come to the actuaries. The following is based on the Bulletin of the William M. Mercer firm. "Employers are warned not to regard an actuary as omniscient or a folk hero who solves problems in some unknown way which has to be accepted because it is too complicated to understand." This is part of a plea for clarity in communication with the public and the plea might well be listened to by the industry and by the actuaries.

A.C.W.

TO BE CONTINUED

Editor's Note: This review has been prepared by the Committee on Health Insurance, one of the component committees of the Committee on Continuing Education and Research. Comments will be welcomed by the Committee and by the Editor.

PHCCS.

Where can you obtain information about 900,000 charges for up to 1,600 different surgical procedures, summarized for 250 geographical areas?

This wealth of information is contained in the 1974 report of the HIAA Prevailing Health Care Charges System.

The HIAA developed the system on behalf of its members to provide detailed information on the level of physicians' fees and the trend in the level of these fees on a geographical basis. The system has already been implementd with respect to surgical charges and can be expanded to include charges for medical, lab, radiology, anesthesiology, dental and other services. A year's information is produced semi-annually and can be purchased by insurance companies and medical foundations with an indicated need for such information.

Confidentiality is assured because no information about the patient or the provider, other than geographical data, is collected. The information that is collected includes the first three digits of the provider's ZIP code, the amount of the charge, the month and year the procedure was performed and a procedure code. Any of three tables of procedure codes can be used, the 1964 CRVS, the 1969 CRVS or the AMA CPT. Data is not collected on charges made under government programs such as Medicare or Medicaid or on charges for multiple surgical procedures.

The output is available in two forms, printed or magnetic tape. The tape includes information on low frequency procedures, currently defined as fewer than five reported charges, which is excluded from the printed report. For each geographical area, the output shows the 1964 CRVS procedure number, the procedure name and unit value as well as the average conversion factor, the number of charges, the mean charge, the mode charge and the charge at several

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ACTUARIAL ECONOMISTS: A REPLY

by Robert S. Kaplan, Ph.D.
Carnegie-Mellon University
and
Roman L. Weil, Ph.D., CPA, CMA
Georgia Institute of Technology

The April issue of *The Actuary* contained a lengthy "Review" by Robert J. Myers of a study we performed for the Treasury Department. Many of Mr. Myers' comments are either trivial or transparently refutable and his penchant for *ad hominem* argument does injustice to his deserved reputation as an actuary. We will concentrate on only a few points to clear up some of the larger misimpressions he appears to create.

First, we are disappointed that Mr. Myers did not exercise the professional courtesy of sending us his comments on our study in advance of its publication. He had a preliminary draft of our report in the summer of 1974 and privately circulated extensive written comments at that time. If he felt strongly that our analysis was wrong or inappropriate, he could have provided us with the benefits of his wisdom before we prepared the final report. We received a copy of his comments only indirectly and many months after they were prepared, even after our final report was submitted. We wish that Mr. Myers had had enough confidence in the cogency of his opinions to have sent them to us before publishing them.

In several places in his review, he decries the "considerable sums of money" spent in our study. To set the record straight, together we received a total of $5,000. Out of this we paid travel expenses, phone calls, computer coding and punching expenses, and similar incidentals. (Both of us have access to consulting opportunities that would have paid us more than we netted from this project.) As far as the trivial cost to the Treasury is concerned, we documented in our report that the Social Security trust funds lose $5,000 of interest income every hour and a half, because they continue to hold low-yielding flower bonds instead of current coupon bonds.

We did not undertake the project for monetary reward. Rather, we were dismayed over the Alice-in-Wonderland projections made by the Social Security Actuary's office. Those projections formed the basis of public policy decisions and had no semblance to reality, as the office has now, in effect, admitted.

Mr. Myers appears to gloat that our report was out of date by the time it was issued. If he had received the short executive summary accompanying (but an integral part of) our final report, he would have seen that we referred to the revised projections of the Actuary's Office, which were then consistent with our analysis. What is important is that at the time our study was started, and up through the time an initial draft was issued in April 1974, the Actuary's Office was continuing to use an obsolete and misleading set of figures to describe the future cost of the system. While we were gratified that the SSA actuaries updated their obsolete estimates during the course of our study, we could have no guarantee when we started that this would occur.

We note that, despite repeated jibes by Mr. Myers at our lack of credentials for performing the Social Security study, our estimates about the future costs of the system were right in line with the estimates prepared by the SSA actuaries, once they decided to use realistic assumptions. So much for the necessity to use actuaries to prepare reasonable estimates.

Mr. Myers comments on our use of a computerized model for developing cost estimates. He claims that such a model is not desirable for all the computations involved and that "too often, people . . . enamored by EDP . . . toss in all sorts of inputs without any recognition . . . as to whether the resultant output will be correct, or even reasonable."

First of all, the fact that Social Security actuaries continued to "toss in" obsolete birth rate projections for many years into their tedious manual computations shows that hand computations do not guarantee sensible input to a series of calculations. Secondly, we used our computerized model only to multiply together the large matrices developed by the Social Security actuaries in their actuarial projections. (Apart from birth rate estimates, we used the same data inputs as the Social Security actuaries). Matrix multiplication is an operation in which computers have a demonstrated advantage over hand calculations.

We were surprised to find that this simple programming task had not been implemented in the Actuary's Office as of mid-1973. As one might expect, we found that the hand calculations by the actuaries led to serious roundoff errors and occasional mistakes, such as transposing digits or computing an incorrect number. We conclude that, contrary to Mr. Myers' assertion about the dangers of EDP, the failure of the Actuary's Office to use computers for routine calculations required that much time be devoted to what should have been a mechanical or routine procedure, so that insufficient time was spent examining the data that were being used as the inputs to these calculations.

Mr. Myers claims that the Actuary's Office does revise population projections as census data become available. He does not explain why it took until mid-1974 to incorporate census data that were available in 1971. Nor does he indicate that data on birth rates, the most critical variable for forecasting the future demographic composition of the U.S. population, are available *monthly* from the "Monthly Vital Statistics Report" of the National Center for Health Statistics, a part of the same Department of HEW as Social Security Administration.

Also, these more current birth rates are promptly translated into future demographic profile by the U.S. Census Bureau and are readily available from this agency. Since the future cost estimates are so sensitive to population projections, which are a function of current and future birth rates, we thought it strange that the Actuary's Office did not make use of readily available current data in projecting the future costs of the system at the times the 1972 Amendments to the Social Security Act and a subsequent liberalization in 1973 were being considered.

If one believes Mr. Myers' claim that Congressional committees do give "careful consideration to the long-range cost estimates for the program," then we can conclude only that much of the present

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Actuarial Meetings

Oct. 8, Actuaries Club of New York

Oct. 15, Seattle Actuarial Club

Oct. 24, Middle Atlantic Actuarial Club

Nov. 20-21, Actuaries' Club of Southwest

LETTERS

The Theory of Interest

Sir:

In the March 1975 issue I saw what was apparently the third in a series of letters arguing over the formula for $S_{\overline{n}|i}$ at simple interest rate i. The problem is that

Formula I: $S_{\overline{n}|i} = \sum_{1}^{n} a(n-t) = \sum_{1}^{n} [1+(n-t)i]$, defended by

S. Kellison, and Formula II: $S_{\overline{n}|i} = \sum_{1}^{n} \frac{a(n)}{a(t)} = \sum_{1}^{n} (1+ni)/(1+ti)$

defended by P. Chouinard, are both correct, even though they almost always give different answers. Consideration of hypothetical cases will clarify the different underlying assumptions used for each formula.

Case I: A city offers bonds for sale, redeemable at any time at 100% simple interest from the date of purchase. I invest \$1000 on July 1 of each of 1971, 1972, 1973, and 1974. I then redeem all bonds on July 1, 1974. I receive $S_{\overline{4}|}$ 100% = 4000 + 3000 + 2000 + 1000 dollars. So Kellison is right and Chouinard is wrong.

Case II. A certain stock sells for \$1000 on July 1, 1971; for \$2000 on July 1, 1972; for \$3000 on July 1, 1973; for \$4000 on July 1, 1974; etc. (i.e., its value is a linear function of time measured from July 1, 1971). Thus anytime I invest in the stock, I shall earn simple interest. I invest \$1000 on July 1 of each of 1971, 1972, 1973, and 1974. I then sell all stock on July 1, 1974. I receive $S_{\overline{4}|}$100% = 4000 + 2000 + 1333 + 1000 dollars. So Chouinard is right and Kellison is wrong.

Personally, I would always interpret $S_{\overline{n}|i}$ to refer to situations like Case I, where the interest rate i is to be applied to each investment regardless of the date of the investment. Then Formula II would be $a_{\overline{n}|i} \bullet (1+ni)$, the value at time n of an one unit at each of times 1, 2, ... n.

When a person presents a proof of a formula by formal algebraic manipulations, he should accompany it with a concrete example to illustrate the formula. Unnecessary arguments might then be avoided.

William C. Jones, Jr.

* * * *

Sir:

Pierre Chouinard's "essential concept" (March 1975) that $a(t)$ is the accumulated value after t periods of unit investment at time zero only, seems an entirely acceptable premise from which to work through the resultant values of other accumulation or valuation functions, depending on the type of interest assumed (simple, compound, or otherwise), but it would surely be a mistake to treat it as the only acceptable premise.

The alternative result for $S_{\overline{n}|}$ cited takes $a(t)$ as the accumulated value after t periods of unit investment at any time, and that too fails to strike me as inherently unreasonable.

As far as theory goes one is as good as the other and provided we remember to firmly attach each premise to the related conclusion there is no reason to view them as in conflict. There is little doubt that the number of days in March is 31, 27, 11111 and others depending on the number of system of your choice.

For everyday usage I personally tend toward 31 and for the same reasons would go for $S_{\overline{n}|} = \sum_{t=0}^{n-1} a(t)$ with attachments.

More important than the theory, it fits in with that pillar of accumulation technique revered by simple interest practitioners everywhere, the coupons-under-the-mattress approach.

George Mason

* * * *

Sir:

In the March issue, Mr. Chouinard seems to feel that a deposit of $1/a(t)$ made at time zero which grows to 1 at time t and to $\frac{a(n)}{a(t)}$ at time n should get the same simple interest as a deposit of 1 at time t. However, a deposit of 1 at time t grows to $1+i(n-t) = a(n-t)$ at time n. He therefore wishes to say that $S_{\overline{n}|} = \sum_{t=1}^{n} \frac{a(n)}{a(t)}$

rather than $S_{\overline{n}|} = \sum_{t=1}^{n} a(n-t)$

When a person makes a series of deposits in a simple interest account, he expects interest on each deposit to be based on the amount of that deposit, not on some fictitious amount that would have been deposited at some arbitrary time in the past (in Mr. Chouinard's case, one period before the first deposit).

The sum of Mr. Chouinard's deposits at time zero is $\sum_{t=1}^{n} 1/a(t) = a_{\overline{n}|}$

and he then establishes

$$S_{\overline{n}|} = a_{\overline{n}|}(1+ni)$$

which, for simple interest, is simply not true. Just because an identity exists between $S_{\overline{n}|}$ and $a_{\overline{n}|}$ under compound interest theory is no reason to believe that a parallel identity needs to exist under different theories of interest.

Steven F. Martineau

(*Continued on page* 5)

Deaths

Kay D. Albright

David M. Good

Edward A. Green

Julian L. Plaut

James M. Roberts

Letters

(*Continued from page 4*)

Economics and The Actuary

Sir:

Is today's Economics actuarially sound? I submit—No!

We are experiencing a revolt against reason in modern accepted economics. The policies being advocated today will not accomplish their intended purpose because generally they are based on incorrect logic and deductive reasoning refuted by correct economists.

Item 1. Overall price inflation of recent years has been caused by government interference in the money supply. Monetary inflation historically nearly always precedes price inflation and correct economics explains why. Inflation is *not* caused by demand-pull, cost-push, greedy businessmen and speculators, or by international oil rich cartels. Consequently, price controls, public works, pressure on the Arabs, sale of gold, and other politically inspired contrivances will not slow price inflation and will in fact only put further restrictions on our free markets' ability to produce.

Item 2. Our current most serious economic problem is lack of sufficient *capital accumulation.* Both deductive reasoning in economics and a study of history show that more accumulation of capital consistently is followed by an increase in the standard of living of the masses.

Item 3. Capital accumulation can only efficiently be effected under free market conditions. We do *not* have unrestricted free markets today in the U.S. We recently have had the highest standard of living for the greatest mass of people the world has yet experienced because we put fewer obstacles in the way of our free market processes. But that circumstance is drawing to a close.

Item 4. We must stop apologizing for profits. PROFITS ARE SOCIALLY DESIRABLE IN AND OF THEMSELVES, for only by allowing unlimited profits are the factors of production efficiently utilized. Not only are profits desirable, but they are absolutely essential to economic progress.

I could cite many more items. These and other basic economic principles have been established over the years, and have not been refuted, either by history or logic. This is not an ideological argument. It is a logical one. Economics does not tell us what we *ought* to do, but it can tell us what will happen if we do certain things. So why do we continue to commit economic suicide? I can only guess it is because our intellectual population is not aware of these principles.

And as actuaries we are very much a part of that uninformed public. As a result we have made the following errors: (1) Understatement of pension plan costs. (2) The variable annuity fiasco (common stocks are not and aren't likely to be a real hedge against inflation) and other wasteful misinvestments. (3) Incorrect life insurance cost statements (incorrect in real terms because they do not adjust for purchasing power of the $). (4) Overstatement of GAAP balance sheets and income statements of life insurance companies (in the aggregate).

Please, fellow actuaries, study economics. Our future economic wellbeing depends on individuals in our society being able *to save,* to accumulate wealth with assurance that it will not be dissipated by currency debasement (inflation), or taxed away, or otherwise confiscated by the government.

The study of economics is exciting and not as difficult as some would have you believe — towards that end, I recommend:

1. *Essentials of Economics* by Faustino Ballvé
2. *University Economics*; *Elements of Inquiry* by Alchian and Allen
3. *America's Great Depression* by Murray N. Rothbard
4. *Human Action* by Ludwig von Mises

Jerome H. Vance

* * * *

Society Examinations Seminars

GEORGIA STATE UNIVERSITY

Seminars for Parts 3-5 and 7 of the Society Examinations will be held between October 13 and 31, 1975.

Complete information can be obtained from:
PROFESSOR ROBERT W. BATTEN
Georgia State University
Department of Insurance
School of Business Administration
University Plaza
Atlanta, Georgia 30303
Telephone (404) 658-2725

NORTHEASTERN UNIVERSITY

Seminars for Parts 7, 9E, and 9I will be held as follows

Part 7—October 13 - November 7

Parts 9E and 9I—October 6 - November 7.

Complete information can be obtained from:
DEAN GEOFFREY CROFTS
Graduate School of Actuarial Science
Northeastern University
360 Huntington Avenue
Boston, Mass. 02115
Telephone (617) 437-2696

Setting National Priorities

Sir:

The article in the February, 1975 issue of *The Actuary* by Donald F. Campbell on "Setting National Priorities: The 1975 Budget" incorrectly attributes cost estimates for the Administration and Kennedy-Mills proposals to Karen Davis of the Brookings Institution. These were prepared by me. The numbers used by Miss Davis are taken from "Estimated Health Expenditures Under Selected National Health Insurance Bills" submitted to the Congress by Secretary Weinberger of H.E.W. All the estimates in that report were taken from actuarial cost estimates that I prepared for H.E.W.

Unfortunately, Miss Davis did not present the information correctly. The $31.8 billion of premiums paid to insurance companies contains only $27 billion required by the Administration proposal. The rest is due to higher than mandated benefits in employer plans as well as individual policies for persons not enrolled in the State plans. For a valid comparison, a comparable sum of $10.2 billion should be included in the Kennedy-Mills estimates.

The addition of this amount as Premiums paid to Insurance Companies (see Mr. Campbell's Table A) brings the Total Cost of the Kennedy-Mills plan to $79.5 billion. This compares with the estimate of $70.8 billion for the Administration Plan.

Gordon R. Trapnell

* * * *

The Enrolled Actuary

Sir:

The following comments are based on the proposed regulations for Enrollment of Actuaries:

(*Continued on page 6*)

Letters

(Continued from page 5)

(1) A young person today who aspires to be a pension actuary can become an enrolled actuary without having any contact with the Society of Actuaries. Perhaps the consulting firms will encourage Associateship if only for nostalgic reasons. Eventually, however, the young pension talent will turn away from the Society and we will suffer their absence in the loss of their papers and participation in Society meetings. If they don't take our exams, will we continue to include pensions in the syllabus? There will be pressure for fragmentation, a reversal of the trend to joint sponsorship. We might have guilds of group actuaries, health actuaries, etc. We will have to explain to the public why a non-pension actuary does not have to be enrolled.

(2) Fellows and Associates of the Society who never joined the Academy are now no worse off in becoming Enrolled Actuaries. The Academy of Actuaries failed its original purpose. Does it merit our continued support? The umbrella has become a roof. Perhaps the Society would be stronger if it retained the energies of its members that is being expended on behalf of the Academy. Should we go back to isolationism or should we continue the quest to discover the elusive central core of actuarial work?

(3) We can rightly praise the efforts of those who worked so hard for accreditation, yet it seems that the goal of accreditation beguiled us. It created a counter-movement that made us appear to be arrogant.

Certainly there are pension valuations that are beyond the bounds of traditional actuarial practice and some that are even beyond the bounds of common sense. Nevertheless, if there are pension plans that failed because of unsophisticated actuarial technique, they are not widely publicized. Actuaries, not plan participants, were the ones who lobbied for an enrollment provision. Poor investments are the more usual cause for failure. Unsophisticated technique typically leads to overfunding. Anyone with reasonable financial sense can calculate the upper bound of a cost, be it pension or insurance. The uniquely actuarial principles such as select mortality, new money, marginal cost, and non-level funding typically work to lower the estimated cost. The essence of actuarial work might be to determine the lower bound of a cost. Yet, by tradition, we are conservative in choosing assumptions. The best estimate requirement of ERISA could be the flower in the ashes.

If we had never even tried for accreditation and let competence be judged in performance, the toughness of ERISA would have driven the amateurs out of business. Now, fortified by the Title "enrolled actuary," they can be confident.

Our attempt to outlaw others failed, and in the process some of us were outlawed. Perhaps that is a just comeuppance, but we lost more than a battle. We lost part of ourselves.

L. Timothy Giles

* * * *

Boleslaw Foundation Awards

The *Boleslaw Monic Fund Foundation* has announced the Prize Awards for 1974 and we are pleased to report that John Haynes Miller received one of the Awards for his paper entitled, *The Underwriting and Control of Long-Term Disability Insurance.*

On behalf of the Society, we extend our congratulations to Mr. Miller.

The subject for which the Awards were given was *Disability Insurance* and the prize-winning papers will be published in book form. We look forward to reviewing the volume.

Life Company Underwriting

Sir:

Mr. Morton's review in the February *Actuary,* was concise and to the point and I have no quarrel with it except for the statement, "the theoretical side is just as important and has not received the same extensive treatment in the book."

I should explain that this apparent omission was deliberate, because the text was written for the Life Office Management Association and was definitely management oriented in line with their program of training management personnel, not specialists. The text should be read with this in mind.

Charles A. Will

Answer

Sir:

John T. Gilchrist in the June issue of *The Actuary* questioned the statutory authority for the NAIC Annual Statement Blank requirement for the use of cash values for reserves when the cash value exceed the statutory reserve (Exhibit 8, Section G, Item 3). Sections 900 through 924 of the California Insurance Code specifically relate to "Financial Statements of Insurers." To implement Section 923, the Commissioner has had printed for use by companies filing statements in California the NAIC adopted annual Statement Blank.

In particular, with respect to life or life and disability insurers, item (8) of Section 916 states: "Amount of any other liability to policyholders or annuitants not included above." Since the guaranteed cash surrender value is available to any or all policyholders under normal company operations, and since lapse assumptions are not authorized at the present time in the calculation of any life insurance statutory reserves, the reserve carried must be sufficient to cover the amount of surrender value benefit available in the year of valuation. It is not likely that this requirement will change under any system of guaranteed nonforfeiture values.

John O. Montgomery
Department of Insurance, Calif.

* * * *

Sir:

In the June issue, Mr. Gilchrist wants some statutory authority for using cash values as reserves when the cash value exceeds the reserve. Stated in that way, the problem is puzzling indeed. But let us look at it this other way: the cash value is a cash benefit which, though it may be left on deposit for the purpose of not terminating the contract, must be valued as a pure endowment, and there is no authority to discount its value with other than statutory mortality and statutory interest which, in the case of a terminal reserve, amount to nothing. Hence there is statutory authority for using the cash value as terminal reserve if otherwise the latter would be smaller.

For those who prefer a less scientific and more legalistic approach, an Insurance Code provision such as, e.g., GA.

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Letters

(*Continued from page 6*)

CODE ANN. § 56-319, might be persuasive: "(The) annual report shall be made in such form and contain such information as the Commissioner may by regulation from time to time prescribe and require . . ."

When the statutes require compliance with the regulations, and the regulations require compliance with the instructions, you've got statutory authority right down the line. There you have it, John!

Claude Y. Paquin

Adequacy

(*Continued from page 1*)

cisely the proper relationship between incomes before and after retirement.

On the other hand, the description of the development of social security in the four countries covered is interesting, informative, and relevant. However, even here, there are troublesome aspects. In the first place, one is left wondering whether the countries were selected by chance or with an eye to proving that U.S. Social Security is "behind the parade," since it happens that three of them (Sweden, Germany and Belgium) have chosen to adopt social security programs far ahead of the "floor of protection" which is the approach followed so far in the United States. Secondly, the treatment of private plans in these countries is very cursory: in the German section they are not mentioned at all, while for Belgium it is stated (quite incorrectly) that "almost nothing is known about the private pension schemes in operation" (p. 149).

The analysis of the foreign benefit programs and their comparison with the United States is performed by a sophisticated simulation system. This is marred by the use of some curious earnings histories assumed for hypothetical employees. For example, the work history given the most prominence (p. 197) provides for a salary of about 82% of national average at age 25, increasing to about 110% of national average in the middle years from age 35 to age 50, then declining to 82% of national average earnings when the employee reaches age 64. Not many actual workers have this career pattern, and it gives rise to some anomalous results in the analysis.

The final section of the book, which proposes a program of reform for the United States, is political rather than rigorously intellectual. Perhaps this is necessary, since the development of a social security program is, quite clearly, a political process. Moreover, it is only too easy to take sides in the controversy, and the authors are no exception. For example, on page 231 it is stated, without any real evidence, that "we *feel* that the minimum guarantee through social security should be about 55%" (emphasis added). Again, on page 270, it is stated that the social security system "has already proved its superiority and popularity" over private pension plans, and that there is "general agreement that current (social security) benefits are too low." These are subjective judgments, and their reiteration without demonstration makes the book a polemic instead of a theoretical treatise. This view is reinforced by the relative lack of consideration of costs. The impression given is that the only need is to design a satisfactory benefit formula and if the resulting contribution rates are high, then general revenue financing can pick up any balance (p. 271).

At this juncture, the American public has not agreed, as the authors suggest, to a "*substantial* transfer of income from the working to the retired population" (p. 275, authors' emphasis). Perhaps they should, but the case as presented in this book is, (as the verdict on ambiguous evidence is given in Scotland) "not proven". □

Graduate Student Scholarship

(*Continued from page 1*)

tributions from friends and associates of Mr. Smith.

As part of the responsibility for the administration of the fund, the Society of Actuaries will receive all contributions for the scholarship program. These are tax deductible. Any individual or organization wishing to contribute may do so by drawing a check to the order of the "Society of Actuaries J. Henry Smith Scholarship Fund" and sending it to the Office of the Society, 208 South La Salle Street, Chicago, Ill. 60604. □

A Record Birth

(*Continued from page 1*)

following Recorders for their assistance in getting out the Los Angeles and New York issues:

Syed A. Ali, Philip F. Ancona, Gerald A. Anderson, James J. Carey, Charles Carroll, Peter F. Chapman, Thomas R. Corcoran, Charles E. Dean, Jr., Nathan H. Epstein, Edward I. Farb, Judy A. Faucett, Alan H. Fougner, Thomas J. Garabedian, Bernard E. Hartt, Paul W. Janus, William C. Koenig, George Y. Longyear, Marshall H. Lykins, Donald B. Maier, Ronald H. Meredith-Jones, Robert Ronda, Beverly S. Rose, Dennis E. Ryals, Dale R. Schuh, Michael E. Sproule, and Martin Stempel.

I am sure that the quality of the *Record* will improve with time and experience. Its value will be increased when an appropriate indexing system is established. However, its contents will always be dependent on the membership taking time to develop and present worthy, and sometimes weighty, ideas on the topics being discussed.

In the final analysis, the quality of the material in the *Record* will be primarily dependent on the panelists and other program participants furnishing the recorders with good copy not later than seven days after the meeting. Each speaker should review his presentation, not from the standpoint of a talk and an open forum, but from the standpoint of what portion of his remarks should be included in the permanent records of the meeting. In editing for the *Record*, he should ask the question, "Will the inclusion of this material be of significant value to the membership of the Society?" □

To be Continued

(*Continued from page 2*)

percentiles. A "bodily system" summary is also produced by area. This shows the number of charges and the average conversion factor for each of 15 bodily systems, e.g., the digestive system.

Additional information regarding the Prevailing Health Care Charges System can be obtained from Donald Jones of the HIAA.

The use of this system is not restricted to members of the HIAA. □

COMPETITION No. 4

Tom Bowls

Trow Bridges (Ed Lewses)

Elizur Writes

Readers are invited to submit up to three similar suggestions for avocations of members of the profession or recognizable personalities, here or overseas. The prize is *The Game of Business* — John McDonald. (A suggestion that the prize be a year's subscription to *Playboy* was rejected).

Rules

1. All entries must be original (and printable).
2. The Editor and Competition Editor are *Ex Officio* not eligible.
3. Only one copy please, to be sent to

   Competition Editor
   The Actuary
   Mail Drop 13-2
   1740 Broadway
   New York, New York 10019
4. Entries must be mailed by September 26.
5. Competition Editor's decision is not subject to appeal.

Rule four was changed for Competition No. 3 to allow overseas readers to compete. The result was a single entry for Competition No. 2. We return to the calendar method which will put results closer to announcement.

Results of Competition No. 3

Competition No. 3 asked for birds, animals, insects or flowers to symbolize the Society or other professional groups. The entries were excellent and we are pleased to award a copy of T. H. White's *Bestiary* to the winner in each category. As we might expect, the Society was a favorite target: Steve White gave us *Adder, Five Year Tern* (*prize*) and *Annuit*ANT while Stuart Marks submitted *Gnuity* and *Poisson Ivy* (prize). Q. J. Maltby suggested the *Deathwatch Beetle* for the Mortality Committee.

Switching professions, Dr. Thomas Kimes' *Chiropodists* — *Centipede* took the bug prize, just inchworming out(ch) Steve White's ambiguous "*Bug* for official *Plant* of the CIA."

Neither did lawyers escape notice, Dr. Kimes proposing *Bar Association* — *Zebra* while Jeff Bash gave us *Malpractice Attorneys* — *Green-backed Vulture.*

Politicians were popularly unpopular being subjected to such suggestions as *Chameleon, Yak, Lame Duck, Drone, Blooming Idiot, Loon* and *Loco Weed.*

The animal prize goes to Vern Lindholm for *National Association of Investment Clubs* — *Hedgehog*. To our surprise, no entrant suggested the *Badger* for loan collectors or *Gull* for a consumers group. The AMA received two proposals: the double-entendred *Leech* and F. G. Swanson's more kindly *Dock* as the official flower, whose candidacy he supports with the following :

The American Medical Assoc
Is in need to assymbol its flock.
With its energies spent
From the winds of dissent,
It can take heart and raise high
the dock.

Totally non-qualifying but extremely clever were the entires of David Holland who foresook field and forest (almost) to give us: *Lumbermen* — $\ln$ (Lumbermen often work with natural logs); *Science Fiction Writers* — $\sqrt{-1}$ (This group deals with the imaginary in a radical and sometimes negative way); *Watchmakers* — $E(e^{tx})$ (A moment generating function might be quite handy for watchmakers). *Tailors* — χ^2 (Tailors are most concerned with goodness of fit).

Keep those cards and letters coming.

C.E.

Reading Lists

The Committee on Research has recently prepared reading lists on the following seven subjects:

- Reading List on Numerical Analysis
- Bibliography—Operations Research
- Bibliography on Theories of Mortality
- Selected Bibliography—Decision Theory
- Bibliography of Credibility Theory
- Readings in Systems Analysis
- Reading List in Risk Theory

Each reading list runs approximately four pages and contains a brief discussion of the important books and papers that the Committee on Research has picked in each subject area. Any or all of these reading lists are available to Society members free of charge by contacting Peter W. Plumley, Executive Director of the Society. □

Actuarial Economists

(*Continued from page 3*)

deficit, resulting from the actuarially unwarranted benefit increases in 1972 and 1973, was caused by the failure of the Actuary's Office to inform Congress about the long-range cost effects of recent birth rate experience.

In concluding, we do not agree that only actuaries can properly understand and reproduce the work of other actuaries. While, in retrospect, our study might more accurately have been described as an audit of actuaries, rather than an actuarial audit, this semantic difference should not hide a fundamental point of our study. Well executed professional quality work should be able to withstand external scrutiny. A profession that is unresponsive to its customers, however, is likely to be unsuccessful in advocating an exclusive policy of self-policing and internal audits. Doctors are discovering this fact of life when they pay for their malpractice insurance these days. To avoid similar "malpractice" claims of actuaries in public policy positions, let us close by posing a question to all actuaries. We accountants and economists do not have an answer to this question although it has an important bearing on Social Security cost estimates.

How many of you are familiar with, or have approved, the procedure that the Actuary's Office is now using for projecting the dynamic cost estimates of the system?

The estimation process is complex. What guarantee do we have that it is reasonable? In matters of this importance, we think that if the actuarial community wishes to preclude criticism from non-actuaries, then it must set up its own committees to validate, or at least to expose to public scrutiny, the procedures and data inputs used by actuaries in sensitive national policy positions. Without independent checks by disinterested actuaries, it is self-serving for actuaries, such as Mr. Myers, to preclude non-actuaries from criticizing actuarial procedures and the demographic and economic assumptions used in these procedures. We note with approval that President C. L. Trowbridge has apparently come to the same conclusion and has called for such independent checks. □