



SOCIETY OF ACTUARIES

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The Newsletter of the Society of Actuaries

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## ERAS IN LIFE CONTINGENCIES THEORY

by Roy Goldman, Part 5A Chairman

In the history of actuarial education on this continent, the subject of life contingencies has been successively presented to students in four major textbooks embracing almost exactly a century of instruction. The first two were written by British actuaries, viz.,

"Institute of Actuaries' Text Book, Part II", by George King, F.I.A., F.F.A., (later F.A.S.), published in 1887.

"Life Contingencies", by E.F. Spurgeon, F.I.A., published in 1922.

Soon after the Society of Actuaries was formed in 1949, the task of preparing "a modern text . . . capable of being applied directly to the benefits commonly offered by life insurance companies of the United States and Canada" was entrusted to C. Wallace Jordan, FSA 1946, then Associate Professor of Mathematics at Williams College. Jordan's first edition of "Life Contingencies" was published in 1952.

One way, surely, to differentiate among generations of actuaries is in terms of allegiance to King, or to Spurgeon, or to Jordan. Though they have served the profession well, these books were written for eras now gone in which the primary objective was to present calculating formulas and computational methods needed in the actuary's daily work. Today, computers perform the calculations; modern statistical methods have been developed to analyze the data. The actuary of the future will be called upon to explore the financial contingencies of wide ranges of random events, not just the expected values of insurance functions that the formulas of Jordan and its predecessor texts will furnish.

In June 1978, the Society selected Professors Newton L. Bowers, Jr., Hans U.

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## NON-ROUTINE BUSINESS OF BOARD OF GOVERNORS AND EXECUTIVE COMMITTEE NOVEMBER 1982 TO MARCH 1983

by Kenneth T. Clark, Secretary

1. For future Fellows' votes on amendments to the Society's Constitution, the Board adopted a new policy aimed at assuring adequate discussion before a vote is called for, and appropriate communication of results.

2. The Board adopted a new policy for investing Society funds, distinguishing between funds for daily and seasonal cash needs and funds in excess of those needs.

3. Relocation of the office, which subsequently took place on May 6th, was approved.

4. The Board approved a notice, which then accompanied the February 1983 issue of this newsletter, inviting support of a Pension Section.

5. Now that several Sections are in operation, the Executive Committee approved organizing a Council of Section Chairmen.

6. The Executive Committee authorized exposure of the Report of the Committee on Annuities containing the 1983 Group Annuity Mortality Table.

7. Distribution for members' comments of proposed new Guides to Professional Conduct was arranged.

8. Having received at its request from the Task Force on Smoker/Non-Smoker Mortality scaling factors that may be applied to a composite table to develop separate smoker and non-smoker mortality rates, the Executive Committee approved its distribution.

9. The Board has from the E. & E. Committee, for its consideration, extensive recommended changes to the Society's examinations. If the Board ap-

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## ACTUARIES NEED FEDERAL STATISTICS

by Robert J. Johansen

Since 1981, U.S. federal budget cutbacks have clamped down hard on the federal agencies that produce all kinds of statistics—demographic, economic and regulatory data. Some programs were dropped; many were curtailed; survey samples have been cut in size and frequency. Studies aimed at improving quality of data have been postponed, and the federal statistical coordinating unit was disbanded. Throughout this chaotic period, the Council of Professional Associations on Federal Statistics (COPAFS), of which the Society was a founding member in 1980, has worked effectively with Congress and the agencies to preserve essential programs.

At the requests of various Congressional Committees, COPAFS has arranged hearings and workshops so that Congress could be apprised of the concerns of those who depend on federal statistics. These valuable efforts have been the work of COPAFS' small professional staff, its Executive Committee (on which I have served from the beginning), and representatives of its member associations.

### Our Role In All This

We actuaries use federal statistics to develop mortality tables, to make marketing studies, to examine economic trends, and to study health costs. Yet input from Society members has been almost nil so far.

Through our representation on the Council and on its Executive Committee, we can make our voices heard. Shouldn't many of us think hard about our direct and indirect use of federal statistics, then make concrete suggestions to the Society's Committee on Government Statistics or to its COPAFS representatives? Those who do will be influential.

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## CONGRESS PAPERS FROM NORTH AMERICA

From our respective National Correspondents—Michael Rosenfelder, Canada, and John C. Angle, U.S.A.—comes word that the following papers have been received for presentation and discussion at the International Congress in Sydney, in October 1984:

### From Canada

Computational Techniques in Reinsurance

by Harry H. Panjer and Gordon E. Willmot

Introducing Employee Choice Into Benefit Design

by Frank Livsey and John C. Roberts

Models of Moral Hazard

by Phelim P. Boyle, John E. Butterworth and Piet de Jong

### From U.S.A.

Partial Disability Insurance

by John H. Miller

Life Company Policyholder Protection in the United States: An Examination of the Options for Assuring Reserve Adequacy

by Robert L. Collett

Optimal Allocation of Assets for Pension Plans

by Irwin T. Vanderhoof

Managing Relationships Between Assets and Liabilities for Insurance Companies and Pension Plans in a Changing Interest Environment

by James A. Attwood

Political, Social and Other Influences on the Actuarial Profession in the United States of America

by William A. Halvorson

Inflation Rates and Investment Yields: The Interrelationships

by John M. Bragg

Women, Pensions and Mitigated Injustice

by Ralph E. Edwards

Reserves and Solvency in a Fluctuating Interest Rate Environment

by Charles Greeley and Harold Leff

Variable Actuarial Assumptions and the Solvency of Private Pension Plans

by Paul H. Jackson

The New Era of Tax Effective Employee Contributions

by Arthur B. Kagan

Mandated Equality By Sex In Pension Plans

by Ardian C. Gill

Providing United States Social Security

Coverage on a Privately Funded Basis  
by Rudolph M. Lohse and  
Alexander Sussman

Impact of Inflation on Pension Benefits  
by William C. Hsiao

Comparing The Accuracy of Some Liability and Property Insurance Forecasts

by John S. McGuinness

Measuring Solvency and The Adequacy of Casualty Loss and Expense Reserves from the Point of View of Insurance Regulation

by Richard J. Roth, Jr.

## World Financial System

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Prof. McCallum's closing comment: "Talks like this probably shouldn't be given as they get people depressed about something they really can do nothing about." In reply to a question about imminence of collapse, he said that he personally rates it in the neighborhood of 25%; another observer has placed it at between 25% and 40%.

## Federal Statistics

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Suggestions for improving communication are also welcome. You can begin by subscribing to "NEWS FROM COPAFS"—just send \$30. to COPAFS, 806 15th Street N.W., Ste. 440, Washington DC 20005. You will find it interesting as well as enlightening.

## Non-Routine Business

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proves them, which it may have done before these words appear in print, the transition will start next year.

10. At its customary planning meeting, the Executive Committee this year studied the following questions:

- Whether the Society is adequately equipping its members to do their jobs (a topic scheduled for debate at the Chicago and Vancouver Spring Meetings).
- Whether the Society is meeting the needs of pension actuaries.
- Whether FSAs should be accredited to sign life company statements.

## Life Contingency Theory

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Gerber, James C. Hickman, Donald A. Jones and Cecil J. Nesbitt to write the successor to Jordan's text; their task was to introduce the subject "from a generalized viewpoint using a variety of insurance examples to illustrate applications of principles . . . The central thrust of (the) preliminary chapters will be the random or probabilistic nature of the insurance business. Application sections should discuss the deterministic or expected value approach to net premium calculations." Risk theory was to be taught also.

My present aim, is to assure all concerned that the mathematics in the new text is easily accessible to those familiar with the basic concepts in Parts 1 and 2 of the Society's syllabus. Once the nomenclature is grasped, a striking parallelism between the old and new approaches can be recognized and the advantages of the modern approach appreciated.

## An Offer To Interested Actuarial Clubs

I have developed a 3-page comparative summary of the deterministic and probabilistic approaches which I believe captures the essence of the theory. It has been tried out at one actuarial club meeting. The reaction of the students and the actuaries there struck me as favorable; they found the probabilistic notions understandable, the use of statistical variance acceptable, and the mathematics readily within their grasp.

In order that others may decide about this for themselves, I am sending copies of this material to all the actuarial clubs listed in our 1983 Yearbook, with a suggestion that they devote a few minutes at a forthcoming meeting to distributing copies and discussing the subject under the leadership of any club member who feels comfortable about serving as discussion leader.

## BANNER BOOK BOUNTY

Up to the eve of its move to new quarters, the Society office had received 700 orders in its Two Dollar Book Sale. Net receipts were well above \$20,000. This was after refunding more than \$5,000 tendered for requests that outran the available copies.