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PROPOSALS FOR REFORM OF ACTUARIAL NOTATION

by Frank C. Reynolds, Chairman, Committee on Standard Notation & Nomenclature

Ed. Note: This is the first article in a series.

Little noticed by most North American actuaries, our colleagues elsewhere have worked hard in the last 15 years trying to revise our traditional system of notation. While the initial efforts came from a group of German-speaking actuaries, notable work has been done by the British, Australians, and New Zealanders.

Why Change?

Present notation poses three basic problems, two of which are:

(a) It doesn't serve the needs of pensions and health insurance.

(b) Minor inconsistencies and difficulties have arisen in practical use, e.g., the Mereu Ambiguity (*The Actuary*, April 1973).

Although there is widespread agreement on the need to replace our notation, and even some consensus on how to do it, the obstacle to progress has been in the third basic problem now to be discussed.

Strengths and Weaknesses Of Our Present System

Reluctance to abandon present notation, a central symbol surrounded by a "halo" of parameters that define it further, comes from its major strengths, which are these:

(1) A symbol is quickly comprehensible to those familiar with the principles.

(2) The notation is precise, and forces its users to be specific.

(3) The system's clarity has led to helpful developments by people pondering the true meaning of certain combinations.

(4) The system is used worldwide, and has been carried over into related fields.

Yet, proponents of change have two basic arguments and several subsidiary ones. Academics trained in other fields find our notation difficult to accept; first, it's not in the functional form $f(x,y,z,u,v,w)$ to which they are used, and seemingly small changes may result in vastly different meanings; second, the

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Deaths

Allan F. Lebourveau, F.S.A. 1937

Sir George Henry Maddex, F.S.A. 1950*

*Sir George Maddex, K.B.E. was President of the Institute of Actuaries in 1948-50, a period that included the 100th anniversary of the Institute. At our March 1950 meeting the Society unanimously voted to enroll him as a Fellow without examination (*TSA II*, 166). In recent years Sir George has been our only member holding that distinction.

MARCUS GUNN, 1892-1982

Ed. Note: This appreciation has been compiled from recollections by several who knew Mr. Gunn well.

As a very young boy in Oregon, Marcus Gunn was orphaned by the deaths of his parents in a flash flood from which the Gunn children barely escaped. Brought up by an aunt in Detroit, Marcus became a 1914 graduate of the University of Michigan Actuarial Program; in 1920, after his studies had been interrupted by service in World War I, he earned his Fellowship in the American Institute of Actuaries.

Until 1962 when he retired as Vice President and Chief Actuary of California—Western States Life Insurance Company, he established and held his reputation as an actuary who was courageous, innovative and flexible. With other actuaries he pioneered in mass selling, first of life insurance in the 1930's, then of hospital and medical coverage after World War II. Two large life insurance plans, still in existence nearly half-a century later, stand as evidence of his imaginative combining of group and individual policy concepts in a way not previously undertaken. The health insurance coverage for the California Farm Bureau, in days when such coverage was new to most rural people, was a case of joint underwriting by three companies of a plan that no single company was prepared to undertake.

"Mark," said an eminent actuary 30 years ago, "was the moving spirit in getting the (Pacific States Actuarial Club) started." His friends remember the twinkle in his eye, his enjoyment of physical vigor which prompted him to challenge younger associates to foot or bicycle races, but mostly the aid and encouragement he gave so freely. He generously shared his store of knowledge and experience with those whom it would help. □

HESTER PLAN FOR INVESTING DURING INFLATION

by Robert J. Johansen

At our Houston meeting (PD 1), Donald D. Hester, Professor of Economics at University of Wisconsin, outlined a novel investment system aimed at protecting purchasing power of the lender's funds from inflation's ravages.

Noting that over the next few years corporations will need to borrow large amounts, Prof. Hester suggested that to fill their long-term needs two varieties of paper be created: (1) a series of futures contracts on the Consumer Price Index in the same amount as the repayment due in a year, and (2) a series of conventional coupon bonds which pay, say, 2% per annum. The former would require the borrower to pay at maturity the product of the contract's face value and the percentage change in the CPI since the security was issued. The lender would receive both the conventional bond and the long side of the series of futures contracts. Either party could trade these futures contracts in the usual way in a secondary market such as the Chicago Board of Trade.

This device seems preferable to constant purchasing power bonds because of the secondary market feature, and yet seems capable of fully protecting the interests of beneficiaries. No reinvestment to preserve the inflation premium is involved. With an assured volume of contracts and with settlement allowed in current dollars, this market might well become the dominant futures market in the U.S.A.

The presentations by Prof. Hester and his panel colleague Prof. Victor Zarnowitz, and the ensuing discussion, will appear in the *Record*, Vol. 8, No. 1. □

Message To Part 7 Students

For the 1982 exam, the following have been removed from Required Reading: *From Part 7E*, the Winklevoss text and the Street paper; *From Part 7I (Can.)*, study notes 705, 706 and 711. Other minor changes are being made, and a modest amount of material added. Be sure to read the Introductory Study Note carefully for particulars.

L.N.C.