



SOCIETY OF ACTUARIES

Article from:

The Actuary

October 1981 – Volume 15, No. 8

SIGHTINGS

Actuaries are being cited in sports articles these days—sometimes as authorities. Gerald A. Fryer found in the *Toronto Star* last February 14th, this remark by Peter Bavasi, President of the Blue Jays, about their efforts to sign Carlton Fisk:

"He (Fisk) is the kind of player who can stabilize our kids. But we did an actuarial study of catchers and found that at his age, the 120-130-games-a-season catchers start to taper off, to 80, to 60."

Mr. Bavasi explained to Mr. Fryer that they hadn't hired a consulting actuary but had made their own attained age analysis of catcher's durability, and he was relieved to have an actuary's assurance that in using the adjective he was in the right ballpark—though possibly in left field.

Wayne E. Stuenkel noted, from the *Birmingham Post-Herald* of July 9th, that the Atlanta Falcons consider actuaries bad luck. Tom Braatz, Falcon's official, said when emphasizing his problems now that players he wants have more than just the traditional agents negotiating terms for them:

"These guys all got lawyers . . . They've got actuaries, everything. You never talk to one guy. That's why it's taking so long. All the time you're running out for more proof or something."

There is notable overlap between readership of this newsletter and of *Sports Illustrated*. Gary J. Bacchiocchi, Peter Hepokoski, Walter J. McLaughlin and Stephen L. White all told us of the remark in its issue of May 25th:

"Musing on the appeal that statistics have for the baseball fan, he ('deep-thinking baseball statistician Bill James') asks, 'How is it that a chart of numbers that would put an actuary to sleep can be made to dance if you put it on one side of a card, and Bombo Rivera's picture on the other?'"

Mr. Bacchiocchi went beyond just telling us about this; he sent us bulletins about the prowess and whereabouts of Mr. Rivera (hitting .295 for Omaha).

Frederic Seltzer contributed word from the *New York Times* of February 13th that the French painter Maurice Utrillo (1883-1955) "took his first name

from his sire, an insurance actuary called Maurice Boissy."

Thomas K. Custis considers Paul A. Samuelson's "Economics of Old Age," in *Newsweek* of March 30th, notable because the reference deals with an important concept:

"I have been pondering (an) article by Dr. James F. Fries of the Stanford Medical Center . . . His thesis is dramatic . . . Life, Fries argues, is in no danger of becoming inhumanely long. Science can't keep us going long after 85: our cells are programmed to self-destruct at the same maximal ages as in times past . . . From the standpoint of an actuary concerned about social-security burdens, that's the good news. Also good news is Fries's second finding. Even if 85 represents the cutoff point to the normal human life span, more and more people are reaching it. And they do so in increasingly good health."

Which brings Prof. Samuelson to discussing "the 'rectangular actuarial life tables' that Fries foresees":

"What does a rectangular life table mean? Suppose all the millions born in 1981 lived to the year 2066, and all then died on their 85th birthdays. The curve showing how many out of 100 survived to each age would be a horizontal line up to age 85; then it would drop down to zero, like the side of a box or rectangle. This, of course, is the extreme case, one we're moving toward. . . . But M.D.'s can whistle in the dark reaching for an optimistic diagnosis that the cold facts may not sustain. Even as the actuarial life table . . . is becoming more nearly rectangular, the penultimate years of expensive and gloomy life are increasing, not decreasing. . . . When the actuaries put a microscope on the way that the force of mortality—the risk of dying each day—changes at 85 and after, they find no magic point of discontinuous acceleration. . . . Fries has taught us a moral: it makes no sense to encourage or force people to retire at 65 or earlier."

Thomas L. Bakos has passed along from his daughter a few words in Robert A.

ACTUARIAL NOTATION—GOING LINEAR WITH L.A.N.

by Gary Chamberlin,
London Correspondent

As a member of the Institute's working group that devised LAN, the Linear Actuarial Notation that made its appearance last autumn, I am happy to supplement your "IAN, LAN & CAN" article (Nov. 1980 issue). Actuarial notation has been a lasting interest of mine, almost from when I joined the Institute in the mid-seventies.

The Halo Effect

The subject begins with the long espoused International Notation (IAN), which has a slightly eccentric quality about it, even to those well versed in mathematics. That quality is in keeping with its nineteenth century origins; although despite its wearing a halo, it would be going too far to describe it as "saintly".

Saintly or not, this corona of suffixes and superfixes is the stumbling block today. A computer that operates undeviatingly on a single track cannot accept them; so the cry goes out for a notation that is linear, mainly or entirely composed of alphanumeric characters, and with parameters in brackets following the main function on the same line. There have been many attempts to produce this, but the trouble is that the result never looks actuarial, and somehow lacks the character of the existing notation.

Rubber Sheet Geometry

Faced with this dilemma, our working group proceeded to carry out its task in two distinct stages—first, linearising the notation but leaving it still with its actuarial facing, then by means of a coding chart going the rest of the way to the fully computable alphanumeric symbols. The final version, called CAN (Computable Notation) is by general agreement thoroughly unreadable: good food for automatons, but unfit for human beings.

The first step though, linearisation, is certainly worth our attention. Conversion to LAN is effected by "rubber sheet geometry," pushing the symbols about on the paper to achieve the desired result. A few examples show how this works:

(Continued on page 7)

(Continued on page 5)

Actuarial Notation

(Continued from page 4)

For

 $n P_x$ write npx $A_x:\overline{n}$ " $A_x:n\overline{}$ $t|\overline{a}_x|y$ " $t|a-x|y$

When numeric values occur, these are substituted out by appropriate letters (x , y , n , etc.), and then reappear in brackets at the end:

 $A_{10:\overline{20}}$ becomes $A_x:n\overline{}$ (10,20) ${}_5P_{25}$ " npx (5,25) $\overline{a}_{65|60}$ " $a-x|y$ (65,60)
and so on.

The rules are simple: as far as possible, follow the left-to-right ordering of the IAN symbols; and without discarding any, bring them into line. Because the familiar A's, a's, p's and q's, etc. remain, together with the usual punctuation strokes such as : - and $\overline{}$, the resulting formula is still quite readable, though it has well and truly lost its halo.

Falling From Grace

This apostasy won't please the holy men; it is a good question whether it will even please the actuaries, a conservative breed at heart. Our group has put the work forward in a spirit of experimentation—If we want to linearise, what can we do? And having seen what is possible, is it then desirable? These are questions which the profession must answer as we progress into the age of the all-accomplishing but all-demanding computer.

Interesting and germane comments from actuaries in England tend to suggest that we are not yet ready to abandon our traditional notation; indeed, intelligent adaptation of IAN to modern needs may be the best approach. The question remains open: Should actuaries keep our haloes, or find some other sign of our devotion to the chosen path?

Welcome

... to more than 100 students who have recently decided to become readers by the subscription route. We hope all of them will quickly become Associates and begin to get their copies gratis.

PUBLICATION NOTE

by Charles A. Siegfried

A. Haeworth Robertson, *The Coming Revolution in Social Security*, 1981, pp. 376, Security Press, McLean VA 22101, \$19.75.

Several years ago, our profession's Social Insurance Committees concluded that actuaries could perform a useful public service by spreading information about Social Security through programs sponsored by local actuarial clubs. Experience since then indicates, however, that there is no widespread burning desire for such information, and that providing it in an exciting way is no easy matter. Nevertheless, it is somewhat startling, at a time when national policy is so much affected by the "red menace" of the U.S.S.R., to see our distinguished colleague, A. Haeworth Robertson, use "Revolution" in his book's title and use bright red for its cover and dust jacket. And he uses the label "Freedom Plan" for the proposals he favors as improvements on the current program. Whether such devices will attract the attention the subject deserves remains to be seen.

One of the author's major themes is that there is dangerous lack of information about the current program. He demonstrates much skill in providing enlightenment but he seems convinced that with enlightenment will come demand for basic changes — "revolutionary" changes, it would seem.

Another major theme is that there have been many significant changes in the U.S. economy and society since the present system was adopted, that a new situation exists today, and that likelihood of further important changes calls for something fundamentally different from, and more flexible than, the system we now have.

Perhaps the most fundamental question the author raises is whether the current program is so deficient and incapable of acceptable correction that a revolutionary new approach is either necessary or desirable. His "Freedom Plan" is certainly revolutionary; whether it is an improvement is far from clear.

The Social Security program must of course be responsive to changes in our social and economic life, and must be capable of being adjusted in acceptable ways. But it is likely that the nature of the adjustments that will be most appro-

(Continued on page 7)

NON-ROUTINE BUSINESS OF BOARD OF GOVERNORS AND EXECUTIVE COMMITTEE, December 1980 to May 1981

Ed. Note: We hope readers will find this account (composed from the Minutes by one who wasn't there) so inadequate that they will complain to the Secretary at his Ontario address.

1. A Year Book Editor was appointed. (See his message elsewhere in this issue).

2. Rules for expressions of opinion by Society committees were drafted.

3. A task force was appointed to explore new guidelines for professional conduct. (See its message in our March issue).

4. The year 1981 is reportedly viewed by the Education & Examination Committee as one of consolidating what has been accomplished.

5. The Canadian Institute's special examination may henceforth be used as an alternative to one of the Society Fellowship parts as one of the Society Association requirements for students of the Institute or Faculty.

6. The Executive Committee devoted a study session to the following broad topics: Supply of and Demand for Actuaries; Inflation and our Profession; Our Election Process; What Is the Society of Actuaries?; Society Meetings; Administrative Services.

7. The Board endorsed, by majority vote, the terminology recommended by the Joint Committee on Pension Terminology.

8. The Board expressed general agreement with our profession's broad requirements set forth in the Academy Committee's Report on Long Range Planning.

9. A Health Insurance Section was authorized.

10. Increases in examination fees for 1982 and annual meeting registration fee for 1981 were adopted.

E.J.M.