



SOCIETY OF ACTUARIES

Article From:

The Actuary

September 1985 – Volume No. 19, Issue No. 7



The Actuary

RECEIVED
OCT 3 1985

The Newsletter of the Society of Actuaries

VOL. 19, No. 7

September, 1985

THE SOCIETY'S TREASURER

By Michael B. McGuinness,
Treasurer

To most members of the Society of Actuaries, the Treasurer is the individual who stands up each year at the annual meeting and announces that the dues for next year have to be increased. He, or she, is usually able to wear a black tie while doing so, to signify that income exceeded expenses during the previous 12 months; but then may add that fees for meetings and examinations will have to rise.

The financial statement presented by the Treasurer at the annual meeting reports on the operations for the fiscal year ending on the previous July 31, a date chosen to allow sufficient time to complete the necessary work and for the external auditors to complete their review. The statement shows highlights of the balance sheet and income and expenses by major category, with the current year compared both to the budget and the previous year's results. It is a summary of the detailed 16-page statement presented to the Board of Governors at its meeting the previous day. The Board is justified in expecting few surprises during its examination, because either it or the Executive Committee has had a chance to comment on interim statements on five different occasions earlier in the year.

Closely linked with the measurement of the financial results for the current year is the preparation of the budget for the following year. The budget presented to the members (about \$4.6 million for the current fiscal year) has been refined twice by the Board and once by the Executive Committee and, like the financial statement, shows each item of income and expense by major

(Continued on page 3)

PHILADELPHIA: CRADLE OF OUR PROFESSION IN NORTH AMERICA

By E.J. Moorhead

Ed. Note: This is extracted from the author's address to the Actuaries Club of Philadelphia in April 1985.

In 1913, Emory McClintock, who at age 73 was certainly one of the three most eminent actuaries on this continent, contributed a paper in several installments to the *Transactions* of the Actuarial Society of America with the uncompromising title, "Charles Gill: The First Actuary in America". McClintock was the recently retired actuary of the Mutual Life of New York; Gill had had a brilliant six-year career as actuary of that same company, cut short by his death in 1855.

Perhaps it was in deference to Mr. McClintock's seniority that no Philadelphia actuary contributed a discussion contesting that author's assertion that Gill was chronologically first on this continent. It's at least equally peculiar that a leading Fellow of that day, Miles Menander Dawson, said nothing on the subject; 13 years earlier Dawson had published an article, first refuting a claim to that designation made for himself by Nicholas De Groot and then conferring it, at least implicitly, upon Elizur Wright.

It seems clear to me that the person who deserves the title that McClintock conferred upon Charles Gill is one of two Philadelphians — either Robert Patterson or Jacob Shoemaker. Here are thumbnail biographies of these two, from which claims on behalf of each of them may be judged.

ROBERT PATTERSON (1743-1824) was born in Ireland, crossed to America in 1768, and immediately began

(Continued on page 3)

A STATIONARY POPULATION PROBLEM IN THE BIBLE

By Solomon Goldfinger

In light of your recent editorial on Moslem insurance, the following "Stationary Population Problem" in the Bible may be of interest.

The problem involves two censuses of male Israelites between the ages of 20 and 59, taken over a period of six months. One is described in Exodus 30:12 and 38:26, and the other in Numbers 1:2. The first census occurred eight months after the Exodus and the second 14 months after the Exodus. Since the two censuses occurred six months apart, one would expect the ages of the population to be different, so that there would be new entrants and "retirees," not to mention deaths, in the period. Nevertheless, the total count (reported in Exodus 38:26 and Numbers 1:46, respectively) for each census was exactly 603,550. What accounted for this Stationary Population?

Several approaches to this problem are offered in the Commentaries. One offered by the mathematician and philosopher Rabbi Levi ben Gershon (Ralbag - 1288-1344) is that the male Israelites between the ages of 20 and 59 did in truth happen to form a stationary population over this period. If so, the famous stationary population exercises in Chapter 8 of Jordan could be applied to the Israelites of this period.

However, the great commentator Rabbi Shlomo Yarchi (Rashi - 1040-1105) offers a different approach. According to Rashi, the solution lies in the method of determining age for the purpose of these censuses. In general, dates of events in the Bible are based on time elapsed since the Exodus. Thus, the first census occurred in the "eighth month of

(Continued on page 4)

The Society's Treasurer

(Continued from page 1)

category. These are divided into dues-supported activities (such as membership services, public information and the research department), fee-supported activities (examinations, spring meetings, seminars and the annual meeting), and indirect program activities (such as publications and subscriptions). Certain broad guidelines are followed in the budget — meetings should be self-supporting in total, examinations should be self-supporting (except for a subsidy of 10% of the cost of Parts 1 to 4 to encourage students to write them) and dues and examination fees should be increased in small increments. Recently, Section budgets have been added.

Clearly the work involved in accounting for and reporting on the Society's finances for the year and preparing its budgets requires far more than the efforts of one Officer. In fact, this year's preliminary budget described this work as "the result of the combined deliberations, to date, of all staff and appropriate committees having specific program responsibility". The Education and Examination Committee, for example, will spend over \$1.5 million. Four members of the Society's staff, led by Chuck Stanley, our patient but very thorough Director of Finance, work full time on our finances. Carol Perry, Director of Information Services Center, manages the computerization of the Society's financial systems.

The Treasurer serves also on the Administration and Finance Committee which is chaired by a Vice-President and is generally responsible for administering the Society office and for broad management of its financial affairs. In this capacity, the Committee examines the annual budget in detail before it is first presented to the Board. Subject to Board approval, the Committee also establishes a policy to be followed by the Treasurer in managing the Society's investments.

These investments include some \$600,000 held in U.S. Treasury Bonds with maturities spread evenly over the next six years and a fluctuating amount, which sometimes reaches \$2 million, held currently in short-term U.S. Treasury Notes. The Board has decided that this short-term amount is to be in-

EDITORS PRO-TEM

The Editor was on-duty during the late summer even though *The Actuary* takes a breather in July and August. His efforts were directed toward this September issue, and toward the October issue yet to come.

Associate Editor Deborah Poppel will be the Acting Editor for the November issue. Stuart Robertson will take on a similar role for December. These arrangements come about because CLT is taking on an actuarial assignment in Morocco, beginning shortly before this September issue reaches the membership. Astute readers may have realized that Associate Editor Julius Vogel took over the March 1985 issue under somewhat similar circumstances.

The address of the Editor is, and remains, P.O. Box 19253, Seattle, WA 98109. The contents of the P.O. box will be forwarded to Debbie during September, and to Stuart during October; but contributors who wish to reach these editors pro-tem can short-cut the P.O. box and use the appropriate addresses and telephone numbers shown in the Yearbook. Inquiries regarding subscriptions are not editorial matters, and should be made to the Society office. □

vested with the Harris Bank. Because money is received at irregular intervals during the year (as, for example, with examination fees) and paid out equally irregularly (as with paying for printing the examinations), an interesting balancing act has to be followed. We must have funds available as required, but at the same time maximize the return on members' assets. The Society staff manages this most successfully.

One other function assigned to the Treasurer is to chair the Committee on Admissions, whose other members, at present, are the four Vice-Presidents. This Committee, ably supported by the work of staff members Kathleen Lanigan and Carol Perry, reviews all applications to the Society for admission, waiver of dues, resignation and reinstatement, and recommends to the Board what action should be taken. Among the most difficult problems to be dealt with are those arising from requests for waiver of dues. □

Philadelphia: Cradle of

Our Profession in North America

(Continued from page 1)

teaching school in Pennsylvania. In 1779 he joined the faculty of the University of Pennsylvania, where he was Professor of Mathematics 1782-1813, serving also as Vice-Provost 1810-13. He was admitted to the American Philosophical Society in 1783, and was its president 1819-24.

His actuarial qualifications stem from (1) his responsibility for the 1792 annuity premium scale of the Presbyterian Ministers Fund (which scale was given at least a nod of approval by that great Mutual Life actuary, Joseph B. Maclean, in early editions of his textbook studied by many of us in former days, *Life Insurance*), and (2) Patterson's 1818 textbook, *A Treatise of Practical Arithmetic*, which contained a basic discussion of the mathematical principles underlying annuities.

JACOB SHOEMAKER (1758-1822) had been a successful merchant and insurance agent (for British companies) when in 1809 he called together a group of prominent Philadelphia businessmen to form The Pennsylvania Company for Insurance on Lives and Granting Annuities. When, in 1812, the time came to elect an actuary for that company, he was chosen, becoming the first person in America to hold that title, until his death 10 years later. His was a full-time position which he held with distinction.

Shoemaker's *Actuary's Report* of 25 March 1813 to his Company's Board of Directors has survived and has been given me by Charles E. Rickards FSA. It shows that he had studied the writings of leading English actuaries, that he thoroughly understood the need for making mortality studies rather than blindly using British tables, and knew that annuity premiums must not be calculated from insurance mortality tables. A later *Report* (1819) proves also that he was alive to the need to meet price competition.

The Pennsylvania Company's official specifications of the actuary's duties clearly show that Shoemaker was expected to discharge responsibilities that apply to our profession today:

(Continued on page 5)

Next Issue:
Some Magic Numbers

Waterloo Actuarial Seminars

Seminars covering all aspects of Parts 4, 5, 7, and 9 except EA2 will be held in Waterloo during the period October 20 to November 2. For details contact: F. G. Reynolds, University of Waterloo, Waterloo, Ontario N2L 3G1, (519) 888-4495.

Philadelphia

(Continued from page 3)

"The Actuary shall receive all applications for insurance and annuities, and make all necessary inquiries respecting the same, under the instruction of the Board of Directors; calculate the respective premiums and prices of annuities, and report the same to the Board; and, if approved, prepare the policies and bonds which shall be signed by the President and at least one Director, and countersigned by the said Actuary ..."

My own conclusion from all this is that actuaries of today and tomorrow ought to esteem Robert Patterson for his work and his teaching in our field, and should recognize Jacob Shoemaker as the first to cope with the full range of an actuary's responsibilities for maintaining the stability of a life insurance company. But upon whichever of these two gentlemen you bestow the laurels, it remains true that Philadelphia is, as far as I've managed to ascertain, ahead of any rival claims by, say, Boston, New York or Hartford as the veritable cradle of our profession in North America.

There's a deplorable tendency for modern writers to suppose that being an actuary in those times was quite easy. Even the generally excellent *From Actuarial to Actuary*, upon which newcomers to our profession rely for the essence of our history, says on page 17, "... the actuarial problems were fairly simple until after about 1860". They weren't at all simple in the absence of underwriting standards, of mortality studies, of established nonforfeiture values, and particularly of clear guidelines to assess solvency. We must not judge our pioneers as if today's facts and tested procedures were in place in their times. □

ACTUARIAL RESEARCH CLEARING HOUSE

The Committee on Research has recently distributed the 1984.2 issue of ARCH. This issue adds eight papers to the 13 presented in the 1984.1 issue (see the May issue of *The Actuary*). The eight newer papers are:

Title	Author
Motor Premium Rating	Stewart Coutts
On King's Pivotal-Point Formulas	Hung-ping Tsao
Projection Valuation vs Aggregate Funding — A Simulation	Thomas O'Brien
A Risk Premium Calculation Principle Based on The Aggregate Deviations Of The Risk Reserve Process	Colin M. Ramsay
More On A Classic Inequality	Barnet N. Berin and James C. Hickman
Piecewise Regression As A Measure of Smoothness In Whittaker Graduations	Lee Giesecke
Computing The Present Value of Lifetime Income	Joe Lavelly
The \bar{M} -Linear Hypothesis and Varying Insurance	John A. Mereu

The 1984.2 issue also announces the 20th (1985) Actuarial Research Conference, to be held November 21 and 22 on the University of Texas campus. The subject will be: *Financial Operations of Insurance Companies and Employee Benefit Plans*.

Anyone interested in presenting a paper, or in finding out about the conference, should contact Samuel H. Cox, Jr. at his *Yearbook* address. □

LETTERS

Exam Issues

Sir:

I strongly object to any attempt to waive SOA examinations with college credit. Before I began an actuarial career, I taught math courses at three different universities; now I do the same on a part-time basis while working full-time as an actuary.

There is such a disparity among students with passing grades from different universities that equity will surely become a serious problem if we institute examination waiver for college courses.

Chiu C. Chang

Sir:

I note with concern the decision to examine Part 9 and 10 candidates on recent developments. Consider the candidate's position.

The defined syllabus runs to approximately 1,500 pages, and requires intense concentration. Most candidates hold full-time jobs in the actuarial field.

These impose their own requirements, while the candidate is breaking his head over the known syllabus.

Now the candidate is expected to be well versed in current developments. In which? you ask. In those which occur, of course. Where is the candidate to turn for information? To the trade publications. How is he to get exposure to the wide variety of these publications? No answer is possible, for we know not which publications will be needed. How is the student to find the time? Ah, well. Perhaps that's the student's problem.

It is a lousy decision that could have been reached only by someone with no conception of the candidate's work load. Does anybody agree?

Don Blue

Sir:

As someone who studied for the actuarial exams month in and month out, year in and year out, evenings and

(Continued on page 6)