SOCIETY OF ACTUARIES

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Book Review

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and mortality data. Judgment plays a large role—and good teamwork among the actuary, the underwriter, and the doctor—in choosing ratings for many, indeed most, impairment classes which lack valid statistics of sufficient volume and reliability. Nevertheless, some reference to actuarial studies including some of the papers that have covered the translation of mortality experience ratios into underwriting ratings would have rounded out these sections.

The rather lengthy discussion of high age underwriting problems in this reviewer's judgment is not justified by the amount of business that is generally obtained at these upper ages. However, carefully controlled mass marketing experimentation with strictly limited amounts of issue is said to be financially successful. A high age applicant, no longer gainfully employed, is, theoretically anyway, highly likely to be a speculative risk—a venture for profit by the person who directly or indirectly pays the premiums.

Plan of insurance credits discussed on page 16 does not seem quite convincing. Such credits assume that a group of people with a given impairment will die at only the normal rate of mortality for a few years and then at a higher than normal rate thereafter (presumably after the risk has ended by maturity of the policy). Does this describe any area of reality? Certainly that theory was at one time tested and failed with the underwriting of selected overweights at standard rates. The class as a whole showed extra mortality from the outset.

Levels of underwriting authority are discussed at some length. In the practical world of underwriting, limits are most often determined by the number of skilled underwriters available, by their degree of training and length of experience, etc. It need only be added that factors such as age, amount of insurance, the presence of multiple impairments, will determine the degree of skill needed and that different practical decisions will be required with each individual company.

"Underwriting Special Benefits" as covered in Chapter V is an important area and important to the practical intelligent underwriter. It may seem unnecessarily long, yet this reviewer notes a lack of discussion of the basic principles of underwriting Guaranteed Insurability options such as are found in Term and in many other plans today.

In Part II, discussing "Other Life Coverages," the chapter on "Underwriting Group Life Benefits" is very good. The next chapter discusses the underwriting of Group Excess and other special areas and by quoting from actual company literature illustrates current prevailing practice in Guaranteed Issue, Pension Trust and Mass Marketing. Should not some statement be made as to the underwriting standards for determining the approvability of group excess amounts? Should they be the same as Ordinary, or more or less liberal? Also when doing these other forms of simplified underwriting, what approval standards will tread the narrow line of producing an acceptable mortality level and yet not discourage the marketing effort by too many rejections? The reader looking for some comments or guidance will find none.

A discussion of "Foreign Travel and Residence Underwriting" might have proceeded more usefully by exploring the underwriting of executives of American multi-national companies as a first step. In underwriting abroad the usual tools may be less than ideal—medical examinations by doctors of known qualifications and reliability, attending physician information or the usual inspection reports may be harder to obtain. After this the underwriting of foreign nationals associated with the same American controlled corporations could be explored. The natural final step would have to be an evaluation of the underwriting and other problems of a full-blown foreign branch or agency operation.

A description of the underwriting department and its management and a discussion of inter-departmental relationships is covered in the four chapters of the final section, Part IV. The section on field relationships might benefit by some editing but the message is clear: the underwriter must do his job without needlessly alienating any agent by any apparent lack of sympathy or interest in his problems; and he must avoid selling out his company by improper pricing of the company's products. These are fundamental responsibilities.

The chapter on inter-departmental relationships would be improved by an expanded treatment of the special complementary roles of the underwriter, the actuary, and the medical director. Their working together effectively will result in good underwriting rules and rating practices.

Life Company Underwriting is worth any underwriter's time to read even though the reader might merely have his own ideas confirmed. For one reason or another the editing seems to have been done rather casually. This we trust will be remedied in subsequent editions.

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these plans, that they should be treated in their entirety for reserving purposes just as any other plan in a method consistent with the provisions of the standard valuation law, i.e. the net premiums being a fixed percentage of gross premiums with modified reserve methods being allowed. As medical selection wears off, the mortality rates experienced may increase faster than the premiums increase. This reasoning evidently was the basis for California's recent interpretation of the valuation law.

I shall be interested to see how other actuaries feel about this topic.

Sam Gutterman

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Railroad Retirement Legislation

Sir:

Francisco Bayo has presented an interesting article on the recent Railroad Retirement legislation in the November issue. Of particular importance is the unique way in which the serious financial problems of this program were solved—namely, by a large government subsidy payable during the next 25 years. Mr. Bayo of course did not take a position on the desirability of such a government subsidy either for Railroad Retirement or for OASDI. My own view is that the subsidy to RR was not the proper solution. The employer tax rates should have been increased.

It does not necessarily follow that a government subsidy to a social insurance system with limited coverage is a precedent for similar action for OASDI. In the latter case, it would not seem to make good sense for a subsidy to be

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paid by all taxpayers for the benefit of substantially the entire work force of the country, since the two groups are practically identical. Such action would merely obfuscate where the money to pay the benefits is really coming from.

Mr. Bayo could not give all details of this very complex legislation, which was necessarily so in order not to destroy vested rights or expectations. In one place there is a factual error. This is in connection with the rights with regard to windfall dual benefits of persons who were former railroad workers as of January 1, 1975 (i.e. did not work in 1974) and who had less than 25 years of service and had no "current connection" with the railroad industry on Dec. 31, 1974 or on the date of retirement. They are protected *only* if they were insured for RR benefits and also for OASDI benefits as of the close of the year in which they left railroad service—not, as Mr. Bayo states, on the basis of their insured status as of Jan. 1, 1975. Mr. Bayo's text would have been substantially accurate if, in the second sentence of the first full paragraph on page 3, the words "who did not meet the above requirements but" were omitted.

Further information might have been given about the transfer of investment responsibilities from the Secretary of the Treasury to the Railroad Retirement Board. What this means is that the currently-held special issues that bear relatively low interest rates because they were purchased in the past, could now be redeemed at par—unlike what other holders of government securities can do —and then be reinvested at today's higher interest rates.

Besides this one-time possibility, there is a significant long-term possibility available to benefit the RR system under the new investment procedure. When special issues are to be redeemed (at par) to meet disbursement needs — as frequently occurs, because of the financial interchange payment from OASDI being payable in a single sum annually —those with the lowest coupon rates can be sold. The previous practice (and that still applicable for the Social Security trust funds) was to redeem the securities most recently purchased. Thus, whenever the trend of interest rates has, over a period of time, been upward, the new procedure will be beneficial to RR (but, conversely, not to the general taxpayer).

This preferential investment procedure, however, is merely taking money out of one pocket and putting it into another one for the next 25 years. Any investment gains so achieved are required by the new law to reduce the government subsidy for windfall dual benefits. Thus, on the surface, the government subsidy will appear smaller, but the interest costs of the Government will be correspondingly higher.

Robert J. Myers

BLOOD-STIRRING

by C. David Williams IV and Charles D. Williams III

The August 1974 edition of *Medifacts* reported on findings by a University of Goettingen scientist that persons with type-O blood "are 60% more likely to live to age 75" than are those with type-A. This statistic was so startling and potentially significant from an underwriting standpoint that we decided to look further, to analyze what published data was available locally. (The "we" includes a father and son team, the son being the principal analyst and the father more a concerned type-A).

As a first step we decided to choose a randomly selected area distribution of nativeborn over the age of forty-five from the ABO Comprehensive World Distribution Tables[1] and to test at the 95% confidence level the hypothesis that mortality of type-A elements differed significantly from mortality of non-A elements. As a second step we examined a crude morbidity frequency distribution of blood type in a non-select population, over the age of twenty.

Following are the results of our cursory investigation.

(a) At the 95% probability level with a small sample size, the Wilcoxin test using minimum contrasts in a two by two frequency table (Chi-square corrected for continuity) failed. This was to be expected due to the relative magnitude of reported deaths.

(b) Extending the sample size to 2,000 (through use of data from other countries) and using unadorned Chi-square, the following was obtained:

*Northwestern Europe**

One year's data-no distinction between A_1 & A_2

	Type-A	*Type Non-A*	*Total*
Recorded Deaths	419	581	1000
Expected Survivors	(393.5)	(606.5)	
Recorded Survivors	368	632	1000
Expected Deaths	(393.5)	(606.5)	
Totals	787	1213	2000

Observed value of $\chi^2 = 5.449$; $\chi^2_{105} = 3.84$ * $x > 45$

[1] ABO Blood Groups : Comprehensive Tables & Maps of World Distribution : Royal Anthropological Institute of Great Britain & Ireland 1958.

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Underwriting Up-to-Date

Sir:

The study reported under this heading in the December issue is entertaining but begs the question of further study. Thus it was not established, but may have been determined, that the length of the life line before death correlated with the length after death. Some palmists appear to base their forecasts on significant intersections of the life li rather than length.

It should be a simple matter to arrange for a group of life insurance prospects to be examined by palmists of reasonable repute. After some inter-

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Blood-Stirring

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Since the observed value of $\chi^2 = > \chi^2_{105}$ we concluded that at the 5% level of significance type-A blood did promote higher mortality for ages over 45.

(c) Using a considerably larger sample we were not able to make the equivalent morbidity statement with the same level of confidence for ages over twenty and therefore assumed independence.

*Northwestern Europe**
One year's data-no distinction between A_1 & A_2

	Type-A	*Type Non-A*	*Total*
In-hospital Patients	2803	4476	7279
(Expected Value)	(2800)	(4479)	
Military Personnel in Training	251	409	660
(Expected Value)	(254)	(406)	
Totals	3054	4885	7939

Observed value $\chi^2 = .067$; $\chi^2_{105} = 3.84$ * x>20

Realizing that published data is indeed sparse, and that if differences in morbidity exist then they must exist at the older ages, we respectfully suggest that such inherent blood characteristic be considered as a possible topic for further investigation. □

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val the correlation or lack of it between actual and forecast longevity can be directy inferred. The present evidence is a flimsy basis on which to abandon the search for new underwriting procedures. While we are about it, possibly the prospects might agree to a tea leaf reading and an examination of the entrails of a sacrificial sheep as additions to the usual underwriting rituals.

I wonder if any correlation test has been run of doctors' estimates of longevity, traditionally preferred by English Courts over actuarial averages.

Brian Newton

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Pension Index

Sir:

I support the suggestion put forth by Alexander Grieve in the December issue that the appropriate committee of the Society or Academy study the problem of measuring the relative conservativeness of different packages of actuarial assumptions used to value pension plan liabilities.

Perhaps the greatest aid I can be in pushing forward his idea is to point out two very powerful cost determining assumptions not referred to in either his admittedly simplified index or in his discussion. These are the assumptions made with respect to future Social Security Wage Base and benefit increases in "integrated" plans and the retirement age assumptions made where greater than actuarially equivalent benefits are paid upon retirement prior to normal retirement age.

In addition, since contributions are more relevant than stated liabilities, the amortization period(s) selected for funding unfunded liabilities should also be reflected in any index developed.

Stanley R. Freilich

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Anniversaries

Sir:

I recently had the pleasure of attending the 25th Anniversary meeting of the Society of Actuaries in New Orleans. I was struck by the juxtaposition of this meeting and the 125th Anniversary meeting of the Institute of Actuaries one year earlier in London. I will grant that the actuarial profession in Great Britain is older than the actuarial profession in North America— but not 101 years older!

In my opinion the Society is short-changing itself and the profession by measuring its age from the formation of the present Society in 1949. After all the Society in 1949 was not truly a new creation, but was rather a merger of the two existing actuarial bodies, the Actuarial Society of America and the American Institute of Actuaries. Thus the Society is the extension of those two organizations, as its emblem clearly indicates, and therefore its age should be measured from the earlier of the foundings of those two bodies, specifically, from 1889.

By measuring our Society's beginning from 1889, we would not only be enhancing its stature relative to actuarial organizations in Great Britain and other countries, but, more importantly, we would be enhancing its stature vis-ā-vis other professional organizations in the United States and Canada. I dare say our profession could do with such enhancement right now.

I would have no objection to the continued celebration of the anniversaries of the 1949 merger of the two predecessor bodies, if these celebrations were labelled as such. However I, for one, will be disappointed if in 1989 we fail to celebrate the 100th anniversary of the founding of our organization.

Franklin E. Peters

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On Being an Actuarial Function

Sir:

Milt Goldberg recognizes that I have finally "come alive (*The Actuary*, December, 1974.)

All actuaries, however, (or at least all *insurance actuaries*) should now recognize that their being alive is all an illusion. This is testified to by a reliable (?) historical scholar, one William Manchester. In his latest opus *The Glory and the Dream* he observes on page 118 that:

"It (the photoelectric ray) was . . . the crude beginning of *the electronics industry which would eventually eliminate* not only doormen but elevator operators, bowling alley pinboys, letter sorters, billing clerks, matchers of textile hues, counters of passing objects, guards at prison gates, *insurance actu-*

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