



The Actuary

The Newsletter of the Society of Actuaries

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EDP

Charles H. Cissley and Jean Barnes, *EDP Systems and Applications in Life Insurance*, Life Office Management Association, New York, New York, 1972, pp. 143. Price \$8.00.

by James J. Connors

This little paper back text fills a long standing need in the life insurance industry. Its primary objective is to outline a course of study for persons taking the EDP Specialty Examination of the LOMA Insurance Education Program. However, it will be of value to any life insurance workers, including actuaries, who want a brief, simple, up-to-date, and fairly complete survey (not in depth) of what's going on in the EDP Departments of life insurance companies. This reviewer's overall reaction is that the book is excellent for its purpose.

The primary audience, persons preparing for the EDP Specialty Examination, are typically persons already working in the systems analysis and programming areas of their company, and probably fairly new employees. They will have some knowledge of hardware and software (programming) but only limited knowledge of life insurance. With actuaries the situation may be reversed. And yet the book can satisfy both audiences. It contains only a few EDP "buzz words" that will irritate non-EDP-oriented personnel. Most actuaries have enough general knowledge of EDP concepts to avoid having any problems with the few technical portions of the text.

The book is only 143 pages long and the style is simple, so a cover-to-cover reading can be done in an evening or two. However, it will be of value even to the browser who does not want to read the entire text. Although the lack of an index is a bit of an annoyance, the Table of Contents shows the major sub-headings in each chapter. Also, there is an Appendix designed for the LOMA stu-

(Continued on page 6)

"BEHOLD, I SHOW YOU A MYSTERY"

Tanur, Judith M., et al. (Eds.), *Statistics: A Guide to the Unknown*, pp. xxiii, 430, Holdenday, Inc., San Francisco, 1972, \$9.95 cloth, \$4.95 paperback.

by Donald A. Jones

Part II of the Society examinations is an intensive test on the fundamentals of probability and statistics with little coverage given to statistical methodology and none to applications. Moreover, the only applications of the Part II materials to be found in the Examinations' Syllabus are the probability models in life contingencies and risk theory. The Recommended Course of Reading for the 1973 examinations has "an additional reference, for students who may wish to acquire further insight into the underlying nature of statistics and exposure to statistical applications, . . . *Statistics: A Guide to the Unknown* . . ." Your reviewer heartily recommends it for us all.

In 1969, the Joint Committee of the American Statistical Association and the National Council of Teachers of Mathematics on the Curriculum in Statistics and Probability set out "to prepare a volume describing important applications of statistics and probability in many fields of endeavor — . . . this book (was planned) primarily for readers without special knowledge of statistics, probability, or mathematics. This audience included especially parents of school children, school superintendents, principals, and board members, but also teachers of mathematics and their supervisors, and finally, young people themselves. . . . several of us . . . found much of the material very useful—even inspirational—to undergraduate and graduate students." So testifies editor Tanur in her preface to the collection of forty-four essays which range in length from five to fourteen (and average 9.34) pages.

(Continued on page 8)

I.P.P.T. AND THE ACTUARY

by Conrad M. Siegel

Workshop 13A at the St. Paul regional meeting of the Society enjoyed a spirited discussion of the need for and desirability of home office actuarial department participation in the administration of Individual Policy Pension Trust Plans, principally of the combination plan type (ordinary life plus conversion fund). Some participants indicated their companies had elected to adopt a "low profile," suggesting that the new 1972 tax forms (4848, 4848A, 4849, 990-P, etc.) be sent to the employer's accountant for completion.

1973's new forms include Disclosure Form D1-S and the low profiler's are sinking even lower. "Yes, Virginia, some I.P.P.T.'s cover more than 25 employees".

The 1969 Tax Reform Act created a messy tax-split for lump sum distributions and it looks as if the employer will be responsible for the determination. This will require maintaining records over long periods of time to do the job properly.

The smaller employer's accountant is usually less experienced in pension matters and has considerable difficulty in accomplishing these tasks.

Once the I.P.P.T. took its first steps away from fully allocated funding (Income Endowment and Retirement Annuity) to combination funding, the need for actuarial work arose. How has this need been met? Often poorly and frequently not at all! When did you last see a proposal or in-force valuation signed by a Society or Academy Member? [Guides to Professional Conduct 2 (c)]. One workshop participant suggested that proposals be prominently labelled with the statement . . . "This actuarial report was not prepared by an actuary" if that were in fact the case.

(Continued on page 6)

The Actuary

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 articles, criticisms, and discussions in this publication.

EDITORIAL

SOME anniversaries are to be ignored or forgotten, particularly when these are birthdays in high numbers. Some anniversaries, however, should be suitably celebrated and the Institute of Actuaries did so on the occasion of its 125th Anniversary on July 2nd and 3rd, 1973.

The Institute is the mother of actuarial bodies and on this occasion quite properly gathered her children around her. From near and far they came bearing gifts to honor the Old Lady of Staple Inn. There was little sign of age in her behavior for she asked the assembly to consider the future work of the actuary, be he a life office actuary or a consulting actuary. To supplement this inside look at the future, a distinguished guest, Lord Boyd-Carpenter, gave a stimulating address on *The Professional Man: Will He Survive?* This address, the papers by R. S. Skerman and D. F. Gilley on the future work of the actuary, and the discussions, will appear in No. 100 of the Journal of the Institute. This should be recommended reading because the problems of the future of the profession are not so different in the United Kingdom from what they are in North America.

The forward-looking Institute did not forget the past for the Library housed an exhibition illustrating the history of Actuarial Science in the United Kingdom with special reference to the Institute of Actuaries. This is a modest description for the history of Actuarial Science in the United Kingdom is practically the history of Actuarial Science throughout the world. Here could be seen the works of the pioneers of actuarial science, of such individuals as John Graunt, Edmond Halley, Benjamin Gompertz, and a score of others as well as early records of the Institute. Actuaries tend to ignore the history of their profession and this excellent exhibition was a worthwhile reminder of our professional past.

It is hardly necessary to report that the celebrations were not entirely cerebral. Space does not permit a review of the social events except to mention the Banquet at the Guildhall which commenced in the light of flickering candles. The presumption that the presence of so many actuarial luminaries was a more than adequate substitute for electric light was dispelled when the lights were turned on.

Canada and the United States were well represented in the gathering and several actuaries from North America took an active part in the proceedings. The Society was honored in having President Bowles as one of the responders to the Address of Welcome given by the President of the Institute, Geoffrey Heywood, at the opening meeting in Staple Inn Hall and in having Past President Moorhead as one of the responders to the toast of "The Guests" at the Guildhall Banquet.

The actuarial profession is indebted to the Institute of Actuaries for participation in a historic and memorable occasion and after 125 years it still can be said of the Institute:

"Age cannot wither her, nor custom stale
 Her infinite variety:"

A.C.W.

LETTERS

Older People

Sir:

Like Ed Bartleson and Bob Myers (*The Actuary*, May 1973) I read the *National Geographic* and *Readers Digest* articles about centenarians in remote parts of Russian Georgia, Ecuador, and Kashmir with considerable skepticism as to the reported ages of these persons. I harked back to Bowerman's paper on centenarians (*T.A.S.A.* XL, 360).

I wondered (1) why such an able physician and such estimable magazines had both erred in not checking their age data with a specialist in this area—an actuary, and (2) what response the actuarial profession could and should now register with the doctor and/or the magazines, the circulations of which are huge. Bob Myers calls their age data "patently untrue."

There is little that can now be done in respect of (1) above, but as to (2) shouldn't an officer of the Society, such as the President or Bob Myers, past President, long-time actuary of the Social Security Administration and a recognized authority on national statistics of this kind, point out to Dr. Leaf and the two magazines the "facts of life" well known to actuaries: that over-statements of age are very common among old people, especially the very old, among the illiterate, and in areas where records are unsatisfactory or non-existent, and that the author and the magazines would have been well-advised to consult an actuary before bursting into print in such startling fashion. Their conclusions would doubtless have been changed quantitatively but perhaps not qualitatively.

These magazines don't publish corrections or retractions or letters to the editor, so they wouldn't do anything immediately, but a communication of the kind I suggest might register with the editorial staff for future reference. The doctor, on the other hand, might take heed, re-examine his data, and even if he did not do so he probably would bear our protest in mind in reference to future studies. In any event, the profession would promote its status.

Wilmer A. Jenkins

* * * *

(Continued on page 3)

Letters*(Continued from page 2)***Actuarial Techniques**

Sir:

Mr. Crossley's article in the May issue of *The Actuary* was not only useful in describing APL, but also in showing the usefulness of "first principles." The use of the basic definitions of annuities and insurance functions allows for complete and flexible actuarial programs.

For example, one first defines a flexible annuity function as described by Mr. Crossley. Next a similarly flexible insurance function is defined. If one other basic subroutine is defined, either a prospective or a retrospective reserve accumulation function, one then has the beginnings of a fantastically flexible cash value and reserve program. All that needs to be added are modules defining the various preliminary term methods of reserving, a module defining the Standard Non-Forfeiture method for cash values and a grading module (to allow grading from one method to another) and the skeleton of the program is complete. Each of these modules can be defined in a flexible all encompassing way such that virtually any life insurance plan anyone wants to dream up can be handled quite easily. In fact, the program can be flexible enough to handle benefits other than pure life insurance (such as accidental death).

This program need not be programmed in APL. Such a program has been written in PL/I, and others, not quite as sophisticated, have been written in Fortran and CAL.

One very interesting by-product of this program has been the development of a new approach to retirement income plans. A very easy trial and error method using "first principles" works like this. A premium for a plan of insurance whose death benefit in all years is \$1,000 but which has a pure endowment equal to the maturity value of a given retirement income plan is calculated. Using this premium a retrospective reserve calculation is made. However, the death benefit used in this retrospective calculation is the greater of \$1,000 or an approximation to the terminal reserve for that year. This will result in a final reserve less than the pure endowment. A new premium is then calculated using as a death benefit in each year, the greater of \$1,000 or the reserve that was just calculated. As before a pure endow-

ment equal to the retirement income maturity value is used. Once again this premium is run through a retrospective calculation. This process is repeated until two premiums are calculated that are equal to a given number of places.

Usually no more than 6 iterations are needed, even if full double precision equality is required. This process works as equally well for various modifications of the Standard Non-Forfeiture method for cash values and modified preliminary term reserve methods as it does for straight net level reserves. Although a large number of calculations are performed using this approach, the high speed of large computers makes the time insignificant.

James L. Bergin

* * * *

An Industry Suggestion

Sir:

The juxtaposition of a thoughtful editorial and the review of the New York Insurance Department Report on Regulation in the May issue, led me to a suggestion related to both, and perhaps to the survival of an industry.

Would not an educational campaign, directed toward both consumers and consumerists, as to the true nature of the insurance be of value to all? By this I would propose to divorce the industry from the position it is currently tending toward in becoming a part of a "health delivery system." We do not, nor does government, do any consumer a favor by "insuring his stubbed toe or common cold, since we are simply charging him a fee, generally a substantial one, for paying a bill he could have paid cheaper without our aid."

Unfortunately, many regulators at all levels have become so enamoured with the idea of the big insurance company "sitting back there" with lots of money to pay these small charges that there is real danger of pricing not only health insurance, but other general insurance lines out of existence. Auto liability coverage conceived as a means of protection of the insured against the financial disaster produced by his own mistakes, has become a means of compensating the third party (and his attorney) for injury, and is presently metamorphosing into the relatively unrelated "no-fault" coverage—a variant of health insurance

that may be cited as evidence of the existence and effect of such limited thinking.

W. Keith Sloan

* * * *

Professional Conduct

Sir:

That J. Bruce MacDonald, finds it most disturbing (in the April issue of *The Actuary*) that many Canadian and American actuaries have not read the "Guides to Professional Conduct," and would have us write a periodical examination on the Guides, is most disturbing to me. At first I thought he must be spoofing; but then I became concerned that perhaps he was not.

The "Guides to Professional Conduct" are, at best, a floor—a mechanistic floor, the major content of which appears to deal with the mechanics of the actuary's relationship to his clients and employers, and to the clients and potential clients of other actuaries. While the Guides do mention the actuary's "... responsibility to the public . . .," no distinction is made—or is even hinted at—between the insuring public, the investing public, and the employing public. And therein lies the Achilles heel of the Guides and the reason why they are not worthy of the study that Mr. MacDonald would have us accord them, because there are significant differences in the priorities which the actuary must attach to each of those publics if he is to fulfill his essential obligations and be anything more than a highly paid technician. In short, the actuary must tailor his conduct to a far more exacting standard than is set by the Guides.

That standard requires the actuary to meet primarily only one criterion of responsibility (apart from technical competence): if he works for an insurance company, the long-range security and protection of the policyowner and the beneficiary is the actuary's paramount concern and responsibility; if he is in pension or insurance consulting work, the long-range security and well-being of the individual pensioner or client com-

(Continued on page 7)

To Actuarial Clubs and Others

PLEASE

Get our new editorial season off to a great start by remembering just a few special items . . .

- *Changes of Address* take two months to process. So if you don't want members to miss issues of *The Actuary*—be sure we have them in plenty of time.
- *Meeting dates* should be published two months prior to the actual date. That gives all members plenty of time to plan on attending. In fact, if you have a schedule of your meetings for the next few months . . . send those right now.
- *Changes of Officers* in individual Clubs are not published here—they should go directly to The Society.
- This is *your* monthly publication—and items of interest gleaned from your monthly meetings makes interesting reading, not just for you, but for members of other clubs, too. So let us know about any exciting papers or subjects which have come out of your Club.

The Actuary

ARCH

The list of contents for the latest issue is given below.

Issue 1973.4

Local and Global Kernels of a Certain Family of Interpolation Formulas Hans Gerber and Cecil Nesbitt

Don't be Afraid of Fourier Inversion Harald Bohman

A Multivariate Prior Distribution Arising in Risk Theory Robert B. Miller and James C. Hickman

Multi-Dimensional Credibility William S. Jewell

The Probability of Realization of An Interest Rate Assumption Richard Zioc

Claims' Frequency and Risk Premium Rate as a Function of the Size of the Risk Gunnar Benktander

Subscriptions can still be sent to David C. Halmstad, West Lane (P.O. Box 124) Ridgefield, Conn. 06877.

Some back numbers are available.

SOME THOUGHTS ON

by Charles M.

It is my contention, aggressively opposed by some actuaries, that there are many situations in which a final average benefit pension plan should be funded by unit credit methods using neither salary projections nor termination discounts. As an illustration, consider two very different employers A and B.

Employer A: This employer wants to put as much money into his pension trust as possible. He feels that the trust provides an excellent tax-deferred investment. His customers are in a position where they will readily absorb the higher costs as price increases.

Solution for Employer A: Select a level (high) cost method. Use the highest salary projections and the lowest interest, mortality, and turnover discounts that your conscience and the IRS will permit.

Employer B: This employer has two requirements:

1. His experience indicates that his pension trust is a poor investment vehicle. His customers will not readily accept price increases. He wants to put the very minimum amount into his pension trust. Any excess funds will be invested in his business.
2. He does not want his employees to take any risks with their pension rights because of the funding methods he wants adopted.

Solution for Employer B: The danger to employee pension rights can be eliminated if the funding always maintain assets equal to or greater than the value of all accrued benefits. In order to meet the employer's requirements, the actuary should set up the valuation as follows:

1. A unit credit method should be used so comparison can be made between the assets and the value of accrued benefits.
2. No turnover discount should be used because the maximum protection for the employees will be required if the plan is discontinued because of business failure or merger. At that point, vesting is 100%.
3. No salary projection should be used because after the point of plan discontinuance being protected against, there will be no further salary changes.
4. Interest and mortality discounts should be comparable to those currently in use by insurance companies. In that way, if plan discontinuance were to occur in a situation in which it was not convenient to continue the trust, there would be sufficient assets to purchase the fully vested benefits from an insurance company.
5. The annual deposit should equal the normal cost plus the net losses from actuarial assumptions so that assets would continue to equal the value of accrued benefits. The undiscounted terminations would result in substantial termination gains each year and other gains might occur. However, the updating of accrued liabilities because of salary changes during the year would normally create more actuarial losses than the offsetting gains from other sources.

Level Costs

Actuaries invented the level cost method so it is not surprising that they sometimes have an almost missionary zeal in arguing that pension plan costs should be level as a percent of salaries. The following three items are answers to expected arguments in this area. In general, I feel that the average employer who wishes to make minimum but adequate plan deposits will feel that the trend of such costs will be unimportant as compared to keeping those costs at a minimum.

1. Most costs of a company must be charged against the profits as they accrue. There is no great penalty if they accrue at an increasing pace. Research and Development costs, for example, frequently start near zero and increase rapidly

PENSION FUNDING

arson

over the years. As a matter of fact, an accountant might shudder slightly if he understood that the actuarial level pension cost he had just approved included a current year expense created by a salary change that the actuary had assumed would occur 30 years in the future.

2. The growth in costs for the funding plan outlined for Employer B would not be as great as it might seem. While money must be added each year for updating liabilities for salary increases during that year, the same thing would have occurred during the prior year so the difference in costs between the two years would be nominal. In fact, a more technical approach can show that there would be no increase in costs as a percent of salaries from year to year if:
 - (a) The final average benefit remains unchanged as a percent of final average salary per year of service.
 - (b) The participant group is a stationary population.
 - (c) Salary increases are at a uniform unchanging percentage (such as 5%) each year for all participants.
3. Even if the method were to result in sharp annual increases in costs as a percent of salaries and it were considered vital that pension costs remain level, it must be remembered that the contributions saved by Employer B are invested in the business. The gains from that investment could be considered to offset any increases in pension costs and keep costs of the package relatively level.

Unfunded Liability

Assume that level cost funding with salary projections is being used to establish deposit limits. Also assume that unit credit funding with no salary projections and no turnover discount is being used to establish the amount of the deposits. If there are unfunded benefits, the unfunded liability for them can be added to both valuations in any of the usual ways consistent with the funding methods being used. If Employer B is very anxious about the protection of his employees, he can make maximum (level cost) deposits and probably fund the unfunded liability in the unit credit valuation in four or five years or even less. Actuarially conservative level costs will run substantially higher than the unit credit costs for a number of years especially if different and less conservative actuarial assumptions are used for the unit credit calculation.

More realistically, the Employer B's, who are most numerous and whom I worry about because actuaries frequently have not explained low cost funding options to them, are generally more concerned with cash flow. Employee protection is only important to them as one factor in a somewhat nebulous future. Cash flow is now. They are likely to prefer keeping the funding of unfunded liabilities below the maximum level and aim for a goal (say 10 to 20 years) after which the employee will be fully protected against plan discontinuance for business failure or merger.

IRS Requirements

It must be admitted that the valuation method recommended for Employer B is not specifically included as an approved method in the IRS literature. There are two answers to this problem:

1. This is a low cost method. If you work with knowledgeable IRS agents you should get approval without difficulty.
2. If the preceding approach is not practical, then set up the valuation using a level cost basis with conservatively realistic salary projections and other actuarial assumptions. The unit credit calculations will determine actual deposits which will then be deductible as under-deposits of the level cost valuation.

There are many situations such as that for Employer A in which salary projections and level cost funding should be used for a final average benefit plan. I hope that I have shown that it is wrong to require that they be used for all employers.

Deaths

Victor B. Glunts
Paul W. Moore
Gordon D. Shellard

CONFERENCE ON DEMOGRAPHIC PROJECTIONS AND RELATED ACTUARIAL TOPICS

A Conference on Demographic Projections and Related Actuarial Topics, sponsored jointly by the Harvard University Center for Population Studies and the Committee on Research of the Society of Actuaries, will be held in the Harvard Faculty Club building, November 29 - December 1, 1973. The Conference is open to all members of the Society of Actuaries and the Casualty Actuarial Society and other interested individuals. Attendance will be limited to approximately 90 persons.

The main objective of the Conference is to exchange ideas between demographers and actuaries on the making of projections of population groups and of benefit systems for those groups. To this end there will be discussion of current demographic and Social Security projections, together with review and exploration of the mathematical and demographic tools for projections including that basic tool, the life table.

Individuals interested in taking part in the Conference should get in touch with Cecil J. Nesbitt, Professor of Mathematics, University of Michigan, Ann Arbor, Mich. 48104.

Social Security Note

Robert J. Myers *Summary of the provisions of the Old-Age Survivors and Disability Insurance System, the Hospital Insurance System and the Supplementary Medical Insurance System.* Mimeograph 23 pages, July 1973.

Mr. Myers has updated the Social Security Summary which was reviewed in *The Actuary* in February 1973. The new note includes a summary of the changes made in the amendments of July 1 and October 30, 1972 and July 9, 1973, and also more complete descriptions of several of the provisions.

Free copies of the booklet may be obtained by writing to Mr. Myers at 9610 Wire Avenue, Silver Spring, Maryland 20901.

EDP*(Continued from page 1)*

dent that repeats the objectives of each chapter and lists the main topics covered. It also poses various review questions that the student can ask himself in preparing for the exam. By reference to the Table of Contents and the Appendix, the browser can pick and choose the topics of most interest to himself.

The first chapter provides a very general discussion of information needs in an insurance company. It is probably too general and vague to be of much value to the actuary.

The second chapter, however, is quite interesting. It gives a brief history of data processing in life insurance. The authors illustrate the rapid changes by citing the themes of the LOMA Systems Forums conducted triennially since 1959.

Chapter 3 discusses the systems development process, probably a very important topic for the LOMA student but of limited value for actuaries. One interesting point was the authors' analogy that the development of a system is similar to the construction of an office building. It's easy to make changes when you are in the blueprint stage, but very expensive after the construction is completed. How true! This reviewer also felt that too much emphasis (9 pages) was placed on the earlier steps of defining the system and conducting feasibility studies, and too little (2 pages) to the steps of programming, testing and maintaining the system.

The next chapter (4) is on organization and is one of the best chapters in the book. It covers the place of the EDP Department in the structure of the Company and describes the trend toward the profit center system of charging for EDP services. It then describes the types of internal organization within the EDP Department and stresses the need for liaison with the User Department. Finally, it gives the pros and cons for centralized or decentralized EDP organizations.

Chapters 5 and 6 describe current hardware and software in a very capable manner. Although it would have helped if a couple of buzz words such as "multi-programming" and "virtual memory" had been defined, the actuary will de-

Society Examinations Seminars**NORTHEASTERN UNIVERSITY**

A four-week seminar for Part 7 begins October 22 and ends November 15.

Five-week seminars for Parts 9E and 9 begin October 8 and end November 9.

Complete information can be obtained from

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finitely benefit from this surface review of what equipment is now being used. Also, the discussion of how some programs can be purchased from outside vendors should be of interest. Some of the vendors are listed, probably to the distress of other vendors who were skipped. Reference should probably have been made to the recent LOMA publications (Systems Review and Procedures Reports #14 and 15) that list the various program packages available and those in use by major insurance companies.

One minor comment on the authors' discussion of optical character recognition devices seems in order. They state that a device costing \$100,000 can be justified if it replaces 25-30 keypunchers. Actually, if you consider that the amortization write-off of such a device is probably less than \$25,000 per year (about the salary of 4 keypunch operators) it seems that the break even point has got to be less than the 25-30 that they quote.

The next chapter, on data communications gives a simple review of a fairly new but important field in EDP.

Chapters 8 and 9 describe quite well the different types of EDP applications being done in life insurance companies. These 35 pages are perhaps the most important for the actuary who has not remained fully abreast of what's going on in EDP.

The next chapter (10) covers management science applications. Although this is "old hat" to most actuaries, it is an important topic for the LOMA student.

The final chapter gives a brief and restrained projection of what lies ahead in the use of EDP in life insurance work. It is a suitable conclusion for this remarkably well done book. □

I.P.P.T.*(Continued from page 1)*

In this age of consumerism, we find the small employer, while paying perhaps more than enough sales compensation with his pension dollar, getting very little actuarial advice as contrasted with the larger employer.

I would present the following thesis. The I.P.P.T. purchaser is entitled to look to the insurer for qualified actuarial assistance. The insurer, in turn, if it issues policies under an I.P.P.T., has an obligation to determine that actuarial work is being done by some qualified actuary. The insurer who ignores this obligation is, in my judgment, acting irresponsibly.

A proposal—define the primary insurer under each I.P.P.T. as (1) the insurer who has issued all contracts under the plan; or (2) the insurer who most recently issued new contracts; or (3) the insurer who is receiving more premium if more than one insurer is issuing new policies. The chief actuary of the primary insurer is responsible for performing the actuarial valuation for any proposed or existing pension plan. He is also responsible for communicating the results of such valuation to the plan sponsor. He may delegate his duties to either (a) a Member of the American Academy of Actuaries employed by the primary insurer; (b) a M.A.A.A. designated by the plan sponsor.

Enforcement can be handled at the federal level or at the state level. Perhaps existing state statutes concerning misrepresentation in the sale of life insurance are sufficiently broad to cover this approach by regulation.

The chief actuary will be required to maintain a register of all I.P.P.T.'s under which his company's policies were issued. The register would indicate if the particular company was primary insurer and if so, to whom the actuarial function had been delegated. □

Actuarial Meetings

- Sept. 19, Seattle Actuarial Club
- Sept. 25, Actuaries' Club of Hartford
- Oct. 11, Actuaries' Club of Boston
- Oct. 17, Seattle Actuarial Club

Letters*(Continued from page 3)*

pany policyholder is his basic responsibility. The insuring public must come well ahead of the others; anything short of that is not acceptable. If he plays games with those considerations—or if he stands by while others play games with them, even though he personally remains within the technical and mechanical bounds of the Guides—the actuary does not meet that standard for acceptable professional performance, and a grade of 100% on any test on the Guides will not ease that shortcoming on his personal and professional integrity, or on his own knowledge and sense of what is right and what is not.

That may sound quite stuffy and rather Don Quixotic, and perhaps the Guides are necessary to help define the absolute minimum starting place for acceptable conduct for those to whom the traditions of trust—and what used to be called the fiduciary responsibility—of the insurance business are not known or, if once known, are forgotten or brushed aside in pursuit of what the investment analyst and the stock market call “performance.”

For if the actuary does not continue to perform that essential service for the insured and his beneficiary, who will? Certainly the capital-gains-conscious stockowner and stock trader cannot and will not do it; nor will company operating management always be able to do it, prompted as they may be by such stockowners and by the “demands” of investment analysts to produce “GAAP-adjusted” quarterly earnings reports best suited to current strategy, as if the insurance company were merely some sort of fish-canning production line. The accountants and investment analysts—well versed though they may be in their own disciplines—seem simply to lack the essential basic insight and understanding of the oneness and indivisibility of the insured and the insurer; they seem able to regard the insurance company only as a short-term money-making machine, operating solely for the benefit of their clients and employers. Hence, they cannot do it. Even the insurance salesman, the one individual closest to the insured and the one who is perhaps most sensitive to the tremendous impact which insurance can have on the life of a family or a corporation, is usually without the power—and without the actuarial and financial knowledge or training—to do

much to protect the policyowner and the beneficiary against the avarice of those who would regard the insurance company and the pension fund solely as a pool of money to be manipulated for exclusive and untimely personal profit. That leaves it to the actuary—and if he is sensitive to his role and does his best to fulfill that role in an honest, decent, and conscientious way, he needs no test on the “Guides to Professional Conduct” to tell him or his colleagues that he is on the right track.

It was instructive—and perhaps indicative of the tenor of the times—that, during the “Long Term Implications of the AICPA Audit Guide for Life Insurance Companies” Concurrent Session at the Society Meeting in San Francisco, no one among the discussants I heard came even close to mentioning the long-term responsibility which the actuary, the accountant, or the investment analyst has to the policyholder and the beneficiary; the entire discussion seemed to me to center on the prerogatives and responsibilities of the respective professionals toward each other and among themselves and to the investment community—and whether assumptions should be conservative or less conservative—as if the investment community were the major source of funds used by and flowing through the insurance company and hence the major community for which it is necessary that the actuary demonstrate solicitous concern.

Perhaps those people feel quite sincerely that an overly optimistic investment community attitude toward the insurance industry somehow automatically assures a healthy climate for policyholders, but we know that is not necessarily so. When disregard for the safety and confidence of the policyholder occurs, it reaches far beyond the investment community, and touches the insuring community quite sharply. This last is the one community for whom the actuary must have a unique and continuing concern, and will have to have a unique and continuing concern because no one else in position to do so, will do so.

We need nothing as extreme as the bankruptcy of an insurance company to shake total public confidence in our industry; an eventual realization that profits, even on “conservative” actuarial assumptions, (and the suggested stock values associated with such paper profits) do not emerge in accordance

with “GAAP-adjusted” statements, will do it very nicely—first in the investment community and then, because of the way things go, next in perhaps lesser degree in the insuring and general public communities. In order to protect the insuring community against that unfortunate day to the best of his ability, the actuary must look to a personal and professional standard well beyond that demanded by the “Guides to Professional Conduct.” We delude ourselves if we think that any examination on the Guides would be effective in raising the actuary’s level of understanding of and sensitivity to his personal and professional responsibilities.

Alexander Marshall

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Notation

Sir:

In their comments in the May issue of *The Actuary* regarding Howard Kayton’s letter in the March issue on how females might be addressed, do you think Mr. Moyse and Mr. Boormeester missed Mr. Kayton’s delightful point?

Tut tut, gentlemen! Mr. Bowles has said that the actuary could no longer lead a cloistered existence. Some actuaries appear to be even more cloistered than I thought.

Matthew Rodermund

* * * *

Senate and Competition in Life Insurance

Sir:

Occasionally one hears the plaintive cry that our profession is not as influential as we are equipped to be. But unless we bestir ourselves when important questions are on the docket, our views and potential contributions are likely to be ignored.

I recommend that actuaries resolve to keep informed about the current Senate Subcommittee study of competition in life insurance, and to be heard when we have something to say.

To this end I invite each actuary wishing a copy of the official text of the February hearings to send me his name. Those who do so will receive that and future relevant material.

Unless objection is raised, I will notify each Actuarial Club of the actuaries in its area who have requested this material. This is to encourage them to hear reports from members who have taken the trouble to find out what is going on.

E. J. Moorhead

* * * *

"BEHOLD!"*(Continued from page 1)*

There are three tables of contents in the book, each representing a criterion for grouping and ordering the essays. The first, which reflects the actual order, gives the articles by subject matter of application. A census of the essays by this criterion is:

	<i>Number of Articles</i>
Part One—Man in his Biological World	10
Part Two—Man in his Political World	7
Part Three—Man in his Social World	20
Part Four—Man in his Physical World	7

The second table of contents classifies the essays by data sources as follows:

	<i>Number of Articles</i>
Samples	14
Available Data	16
Surveys and Questionnaires	7
Experiments	9
Quasi-Experiments	4

Four essays are not included in this table and ten are double listed.

The third table of contents, which classifies the essays by statistical tools used, will be the most useful to many readers. The census by this classification is:

	<i>Number of Articles</i>
Estimation	10
Hypothesis Testing	10
Bayesian Analysis	1
Data Analysis	11
Tables	6
Graphs and Maps	9
Percents and Rates	15
Standardization and Adjustment	7
Time Series and Index	
Construction	8
Probability	13
Modeling	13
Sampling	13
Randomization	3
Correlation and Regression	11
Factor Analysis	1
Multidimensional Scaling	1
Transformations	1
Discriminant Analysis	2
Tests and Measurements	1
Forecasting and Prediction	8
Decision Making	7

In this table of 151 entries, each essay is listed at least once and one is listed seven times.

In addition to the tables of contents there is an index, which, among other people and things, lists "Accountancy, Baseball, Demography, Economics, Insurance Compensation, Life Tables, Linguistics, Petrography, Stationary Population," but not Actuaries or Actuarial Science! For a book to be read by actuaries, this omission is not harmful. But, as a book to be read by students and adults involved in secondary education, this actuarial reviewer regrets that actuaries were not ". . . asked . . . to stress one or a very few important problems within their field of application and to explain how statistics and probability help to solve them and why the solutions are useful to the nation, to science or to the people who originally posed the problem." [*Editor's Preface.*]

Two of the forty-eight authors will be speakers at the 1973 Harvard Actuarial Conference on Demographic Projections and Related Actuarial Topics. Conrad Taeuber, a retired associate director of the Bureau of the Census, contributes an essay describing the Current Population Survey, which is the basic source of data for monthly federal statistics such as the "jobless rate." Nathan Keyfitz, Andelot Professor of Demography and Sociology at Harvard University and a joint contributor of a paper at a recent Society meeting, has written on, *How Crowded Will We Become?*, illustrating the use of "eigenvalues in population projections"—but, in terms understandable to the secondary school reader.

An author's name will attract the reader to other essays. For example, George Gallup explains the failure of the 1936 Literary Guild Presidential Poll (but he is silent on 1948!). Egon Pearson (remember Neyman-Pearson?) writes about a multivariate normal distribution used to model anti-aircraft fire in World War II. And Frederick Mosteller, chairman of the ASA-NCTM Joint Committee, is co-author of two essays. The first, with Lincoln Moses, is an interesting analysis of death rates to determine the safety of an anesthetic. The second, with David Wallace, is a glimpse of their book, *Inference and Disputed Authorship: The Federalist*, 1964, Addison-Wesley, which is now a classic in Bayesian analysis.

The title of some essays will catch the professional interest of an actuarial

reader. For example, Reid's *Does Inheritance Matter in Disease?* will do so. However, he is really concerned more with the design of experiments using twins than with results. McCarthy's *The Consumer Price Index* is a good definition of the CPI.

But titles won't tell the whole story because this is a collection of problem oriented applications of statistics. The one unifying theme is the presentation of a problem followed by a scientific (and usually statistical) analysis. The reader will be rewarded when he can see similarities between the described problem and one of his own. For example, Howell's *The Importance of Being Human*, which describes how bone fossil is classified as man or ape by discriminant analysis, could have been titled *The Importance of Being Insurable*, and described the classification of insurance applicants by discriminant analysis.

There are some recreational readings among the essays. R. G. Miller contributed *The Probability of Rain*, which gives the weatherman's secret of divining "10% chance of rain." Incidentally, the methodology uses seven different statistical tools according to the third table of contents. Hooke's *Statistics, Sports and Some Other Things* studies the odds for the sacrifice bunt, intentional walk, and other baseball tactics. An actuarial reader may find that it's as much fun to be an "armchair statistician" while reading Hooke as it is to be an "armchair field manager" while watching Yogi Berra.

Before summarizing, a reviewer must document his reading by a parade of errors. The reference on page 219, which is incomplete, appeared in the *Journal of American Statistical Association*, Vol. 61, 1966, pages 658-696. Done!

In summary, this reviewer strongly recommends the book for actuaries as well as students. In the Foreword, Mosteller reports one author's "secretary told him, after finishing the typing of a revision, that she enjoyed it enormously. When asked what she especially liked, she said that she had finally found out what the work of the office was all about." With the addition of this book to the Part II Course of Reading, perhaps actuarial students will find out what that exam is all about. □