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**BOOK REVIEWS AND NOTICES\***

Pearl Orlando (ed.), *Guide to Modern Profit Sharing*, pp. 230, Profit Sharing Council of America, Chicago, Illinois 60606, 1973, \$10.00.

The Profit Sharing Council represents over 1,400 employers with profit-sharing plans. Seven hundred and two of them submitted information for this book. This is the most comprehensive investigation of profit-sharing plans ever made in the fifty years that such plans have been officially recognized.

In addition to a wealth of data, the book contains articles by eighteen knowledgeable practitioners. We find chapters by attorneys, corporate heads, accountants, management consultants, and actuaries. Where appropriate, after each chapter, there is a companion survey chapter indicating plan practices and trends.

The book is divided into three major sections. The first introduces the subject matter, describing the different types of profit-sharing plans: cash only, combination cash and deferred, deferred only, and savings and thrift plans. There is a review of the nature of profit-sharing plans, how they relate to pension plans, and the objectives they serve.

The second section covers in great detail the provisions of profit-sharing plans qualified under IRS regulations. Twenty-four chapters are devoted to plan provisions. Also, detailed statistical information is given on the frequency of use of different provisions by age and size of plan. We are able to observe the latest trends from a comparison of plans most recently adopted with their counterparts of five, ten, and twenty-five years ago. Data are also presented to indicate any significant differences of plan provisions by size of employer and whether there is a companion pension plan in existence.

The last major segment of the book deals with the operations of profit-sharing plans. This includes communications to employees, administration of participant and trustee record-keeping, and the reporting required by governmental agencies.

To illustrate the format of this book and its information, consider a typical chapter, 36 ("Investment of Profit Sharing Funds") and its companion statistical data chapter, 37 ("Investment Provisions of Member Plans"). Chapter 36 gives the reader a perspective on the subject. Most of the important considerations are identified and discussed: who has the primary responsibility of investing trust assets; legal and moral obligations of trustees; problems created by investments in employer securities; liquidity needs of profit-sharing plans; differences of risk assumed by participants in pension and profit-sharing plans and implications for investment policy; criteria to judge good investment management; and establishing realistic investment goals.

\* Books and other publications noted with an asterisk (\*) may be borrowed from the library of the Society of Actuaries under the rules stated in the *Year Book*.

Chapter 37 starts off with highlights from its survey of member plans: investment of company contributions is determined solely by the trustees in the majority (60.1 per cent) of member plans; investment committees are responsible for investments in 25.6 per cent of plans and share the responsibility in 6.4 per cent of plans; slightly more than a fourth (26.9 per cent) of member plans permit investment in employer stock.

Survey details are given showing who determines plan investments (trustee, investment committee, plan provision, participant, investment counsel), by the characteristics of type of plan, size of plan, age of plan, and pension coverage in effect. Similar data are given for investing in employer stock.

The book is concise, covers much territory, and should prove to be an excellent reference book for all interested in this subject.

GERALD A. LEVY

J. David Cummins, *Development of Life Insurance Surrender Values in the United States*, S. S. Huebner Foundation for Insurance Education, University of Pennsylvania, distributed by Richard D. Irwin, Inc., Homewood, Illinois, 1973, pp. 81, \$2.50.

This is Monograph No. 2 of the series being published. Its ultimate objective is described as "a historical analysis of the evolution of the concepts and practices which culminated in the present surrender value legislation." The treatment is chronological and in effect may be said to cover the century 1850-1950.

Professor Cummins confines himself solely to ordinary life insurance in the United States; Canada and Great Britain are barely mentioned. There is no reference to annuities or industrial insurance or case law concerning surrender values. One is most impressed by the historical detail uncovered by the author.

One cannot but inquire for whom the monograph is intended. A fair knowledge of life insurance development is assumed. To give one instance, there are several references to the tontine idea; that on page 71 reads: "For the most part the surrender value problem was submerged in the morass of the tontine struggle until 1879," but nothing is said about the tontine struggle which is essential to an understanding of United States life insurance development in that period.

There is much emphasis on Elizur Wright's work, as one would expect. He undoubtedly started the train of rigid legislation of almost every facet of life insurance practice which is a characteristic of United States life insurance and which has engendered its own problems. This glorification of Elizur Wright, who has even been called the father of life insurance, can be overdone. The monograph names many actuaries who have made contributions to the subject of surrender values; some of them have played a major role in raising the life insurance industry in the United States to the world leadership it has attained. This should be mentioned.

Much detail is given covering the "actuarial debates of the 1890's," and Professor Cummins deals with the "theoretically accurate measure of the present value of future costs of insurance," adding that "the criterion was attacked

on a number of grounds by assorted actuaries suffering from varying degrees of confusion."

The monograph loses something by not mentioning the current practice in Britain, where most companies do not guarantee surrender values, a situation which is supposed to give them greater flexibility in meeting changing conditions. My own point of view is that the guaranteed surrender values are a benefit only second to the sum insured, and any disadvantages in granting them must be considered a hazard the business must accept.

One regrets the derogatory statements made about life insurance companies in the early days of the business in the United States. Allowances should be made in the 1970's for hesitation in liberalizing policy conditions in the 1850's and 1860's, over a hundred years earlier.

It is stated that the Armstrong investigation of 1905 in New York followed "the disclosure of corruption in the life insurance industry." This statement could be misleading. My own reading gave me the impression that the corruption was very limited, and the offending individuals ceased to be connected with the companies following that investigation.

The references to natural reserves, asset shares, and statutory reserves would have meant much more if actual comparative figures had been given.

It should be noted that this is Monograph No. 2 of a series. No. 1, by Robert W. Cooper (*An Historical Analysis of the Tontine Principle*) was reviewed in *The Actuary*, April, 1973.

ARTHUR PEDOE

\*National Association of Swedish Insurance Companies, *Evaluation of Genetic Risks of Environmental Chemicals*, Royal Swedish Academy of Sciences, Ambio Special Report No. 3, pp. 27, 1973.

This is a report of a symposium held in Sweden in March, 1972, which was initiated and sponsored by the Swedish insurance companies. Thirty-four specialists participated, including five from the United States and four from Great Britain. They were drawn from departments of medical genetics, environmental hygiene, and biochemistry from various universities, hospitals, and research institutes. The subject is of major interest to actuaries; no actuaries participated, because the views of these other specialists were evidently the purpose of the symposium. We should thank the Swedish insurance companies; the symposium might lead to similar action on this side of the Atlantic.

The reports on the various matters discussed are quite brief and are addressed to fellow specialists, with references to eighty-six technical books and papers on the subjects under review.

The opening paragraph states: "Side effects of the development of modern chemical industry are pollution problems of entirely new dimensions. Living organisms, including human beings, are constantly exposed to a variety of chemicals released in the environment. It is almost a truism to state that the biological consequences of the pollution are largely unknown." It is stated that in the United States the production of synthetic organic chemicals approaches

10,000 million kilograms a year, including pesticides, food dyes, and many additives to plastics, rubber, paper, and detergents. The release of known toxic metals into the water and air has reached enormous magnitudes. The danger of lead poisoning is well known, but others representing real or potential hazards include nickel, cadmium, beryllium, and mercury. It is stated that in North America since 1923 the automobile has added about 5,000 million kilograms of lead to the atmosphere, from which it eventually reaches man. Some of the metals are released as, or are eventually converted to, volatile, organic forms and hence are more active in the biological and genetic sense.

The problems are the long-term effects as hereditary changes, cancer induction, and degenerative cellular effects leading to poor health and the production of abnormalities. The ability of certain chemicals to alter hereditary material has been known for three decades, but even geneticists were reluctant to appreciate the consequences. Only in recent years has general recognition been given to the danger. In the United States the Environmental Mutagen Society was founded. The dissemination of relevant knowledge should be beneficial.

Mankind has always been exposed to toxic agents naturally present in the environment, including those in foods. However, advances in science and technology have led to extraordinary growth of these agents. Further, in contrast to earlier eras, the fraction of the total population being exposed has approached 100 per cent because of easier communication.

One of the sections of the report is headed "The Relation of Cancer Induction and Genetic Damage." The following quotations are from this section: (1) "It seems likely that exposure to environmental chemicals is the determining factor in the causation of many types of human cancer." (2) "Chemicals which modify genetic material may cause a variety of diseases of unknown etiology, such as chronic degenerative diseases and congenital abnormalities."

The difficulties of research in this area are illustrated by the following quotation: "It is difficult to predict with confidence the genetic effects of chemical exposure by man. Some uncertainty will always remain unless observations are made on man himself. Human metabolism is different in many details from metabolism of other mammals."

ARTHUR PEDOE

#### SELECT CURRENT BIBLIOGRAPHY

In compiling this list, the Committee on Review has digested only those papers which appear to be of direct interest to members of the Society of Actuaries; in doing so, the Committee offers no opinion on the views which the various articles express. The digested articles will be listed under the following subject-matter classifications: 1—"Actuarial and Other Mathematics, Statistics, Graduation"; 2—"Life Insurance and Annuities"; 3—"Health Insurance"; 4—"Social Security"; 5—"Other Topics."

#### ACTUARIAL AND OTHER MATHEMATICS, STATISTICS, GRADUATION

U.S. National Center for Health Statistics, *Completeness and Quality of Response in the North Carolina Marriage Follow-back Survey*, pp. 42, Data Evaluation and Methods Research, Series 2, No. 56, Rockville, Md., July, 1973.

U.S. National Center for Health Statistics, *A Study of Infant Mortality from Linked Records by Age of Mother, Total-Birth Order, and Other Variables, United States, 1960 Live-Birth Cohort*, pp. 52, Data from the National Vital Statistics System, Series 20, No. 14, Rockville, Md., September, 1973.

U.S. National Center for Health Statistics, *Teenagers: Marriages, Divorces, Parenthood, and Mortality*, pp. 42, Data from the National Vital Statistics System, Series 21, No. 23, Rockville, Md., August, 1973.

U.S. National Center for Health Statistics, *Mortality Trends: Age, Color, and Sex, United States—1950–69*, pp. 40, Data from the National Vital Statistics System, Series 20, No. 15, Rockville, Md., November, 1973.

An analysis of countervailing changes in components of the nearly stable crude death rate during 1950–69, trends of age-adjusted and age-specific death rates by color and sex, and changes in sex and color differentials for mortality by age. Important trends include the rise in the death rate for young people 15–24 years of age, the fall in the death rate for older Americans 45 years and over, and the upturn in the level of excess mortality for young men, particularly for other-than-white young men.

U.S. National Center for Health Statistics, *The Prediction Approach to Finite Population Sampling Theory: Application to the Hospital Discharge Survey*, pp. 31, Data Evaluation and Methods Research, Series 2, No. 55, Rockville, Md., April, 1973.

The material presented is the result of an unorthodox approach to finite population sampling problems. Specifically, it describes the elements and results of an application of this approach to the Hospital Discharge Survey (HDS), a continuing sample survey of the Nation's short-stay hospitals conducted by the National Center for Health Statistics. It is not presented as a finished and polished analysis but as a basic sketch whose contents must be critically evaluated, adjusted, and refined if it is to be of real value in HDS. The mathematical model used in this work expresses plausible initial assumptions about certain variables of interest. With experience will come increasing knowledge concerning the HDS population and relationships among its variables. Such information must be used to alter and develop the basic model described in this report.

#### LIFE INSURANCE AND ANNUITIES

U.S. National Center for Health Statistics, *100 Years of Marriage and Divorce Statistics, United States, 1867–1967*, pp. 61, Data from the National Vital Statistics System, Series 21, No. 24, Rockville, Md., December, 1973.

U.S. National Center for Health Statistics, *Remarriages, United States*, pp. 27, Data from the National Vital Statistics System, Series 21, No. 25, Rockville, Md., December, 1973.

Analysis of national trends in remarriage, including data by previous marital status and color, variation by state, remarriage rates by age and sex, selection by previous marital status, and selected characteristics of remarrying persons in 1969.

#### HEALTH INSURANCE

The National Center for Health Statistics publishes "Vital and Health Statistics," which consists of several series of reports, some of the more recently published of which

may be of interest to actuaries. Several are digested below. To be placed on the mailing list for all items in the series, write to:

NATIONAL CENTER FOR HEALTH STATISTICS  
U.S. Public Health Service  
HEW Building South  
Washington, D.C. 20025

U.S. National Center for Health Statistics, *Current Estimates From the Health Interview Survey, United States—1972*, pp. 74, Data from the National Health Survey, Series 10, No. 85, Rockville, Md., September, 1973.

Estimates of incidence of acute conditions, number of persons reporting limitation of activity, number of persons injured, hospital discharges, persons with hospital episodes, disability days, and frequency of dental and physician visits. Based on data collected in the Health Interview Survey during 1972.

U.S. National Center for Health Statistics, *Uniform Hospital Abstract: Minimum Basic Data Set, a Report of the United States National Committee on Vital and Health Statistics*, pp. 17, Documents and Committee Reports, Series 4, No. 14, Rockville, Md., December, 1972.

This report, prepared under the auspices of the United States National Committee on Vital and Health Statistics, considers the purposes which would be served by data on patients discharged from hospitals and the minimum basic set of data items which it should be feasible to record and which would serve most of these purposes. The importance of having data available on hospitalized patients is underscored by the large volume of medical service rendered in hospitals—about thirty million patients per year—and the high and increasing cost of hospital care.

In addition to specifying the minimum basic data set, the report provides definitions of each item and classifications of the information which would be recorded.

U.S. National Center for Health Statistics, *Impairments Due to Injury, United States—1971*, pp. 53, Data from the National Health Survey, Series 10, No. 87, Rockville, Md., December, 1973.

Statistics on the prevalence of impairments due to injury, by characteristics of the person with the impairment, class and type of accident causing the injury, and measures of impact. Based on data collected in household interviews during 1971.

U.S. National Center for Health Statistics, *Health Statistics Today and Tomorrow, a Report of the Committee to Evaluate the National Center for Health Statistics*, pp. 24, Documents and Committee Reports, Series 4, No. 15, Rockville, Md., September, 1973.

U.S. National Center for Health Statistics, *Acute Conditions, Incidence and Associate Disability, United States—July 1970—June 1971*, pp. 57, Data from the National Health Survey, Series 10, No. 82, Rockville, Md., April, 1973.

U.S. National Center for Health Statistics, *Blood Pressure Levels of Children 6–11 Years: Relationship to Age, Sex, Race, and Socioeconomic Status, United States*, pp. 24, Data from the National Health Survey, Series 11, No. 135, Rockville, Md., December, 1973.

- U.S. National Center for Health Statistics, *Chronic Conditions and Impairments of Nursing Home Residents: United States—1969*, pp. 46, Data from the National Health Survey, Series 12, No. 22, Rockville, Md., December, 1973.
- U.S. National Center for Health Statistics, *Prevalence of Selected Chronic Digestive Conditions, United States—July–December 1968*, pp. 51, Data from the National Health Survey, Series 10, No. 83, Rockville, Md., September, 1973.
- U.S. National Center for Health Statistics, *Ophthalmology Manpower: Utilization of Supplementary Personnel, United States—1968*, pp. 48, Data on National Health Resources, Series 14, No. 9, Rockville, Md., May, 1973.
- U.S. National Center for Health Statistics, *Podiatry Manpower: A General Profile, United States—1970*, pp. 52, Data on National Health Resources, Series 14, No. 10, Rockville, Md., May, 1973.
- U.S. National Center for Health Statistics, *Visual Acuity of Youths 12–17 Years, United States*, pp. 44, Data from the National Health Survey, Series 11, No. 127, Rockville, Md., May, 1973.
- U.S. National Center for Health Statistics, *Intellectual Development of Youths as Measured by a Short Form of the Wechsler Intelligence Scale, United States*, pp. 42, Data from the National Health Survey, Series 11, No. 128, Rockville, Md., September, 1973.
- U.S. National Center for Health Statistics, *Vision Test Validation Study for the Health Examination Survey among Youths 12–17 Years*, pp. 36, Data Evaluation and Methods Research, Series 2, No. 59, Rockville, Md., December, 1973.
- U.S. National Center for Health Statistics, *Age at Menarche, United States*, pp. 29, Data from the National Health Survey, Series 11, No. 133, Rockville, Md., November, 1973.
- U.S. National Center for Health Statistics, *Selected Characteristics of Nursing Homes for the Aged and Chronically Ill, United States—June–August 1969*, pp. 38, Data from the National Health Survey, Series 12, No. 23, Rockville, Md., January, 1974.
- U.S. National Center for Health Statistics, *Volume of X-Ray Visits, United States—April–September 1970*, pp. 54, Data from the National Health Survey, Series 10, No. 81, Rockville, Md., April, 1973.
- U.S. National Center for Health Statistics, *Net Differences in Interview Data on Chronic Conditions and Information Derived from Medical Records*, pp. 58, Data Evaluation and Methods Research, Series 2, No. 57, Rockville, Md., June, 1973.
- U.S. National Center for Health Statistics, *Charges for Care and Sources of Payment for Residents in Nursing Homes, United States—June–August 1969*, pp. 69, Data from the National Health Survey, Series 12, No. 21, Rockville, Md., July, 1973.
- U.S. National Center for Health Statistics, *Utilization of Short-Stay Hospitals Summary of Nonmedical Statistics, United States—1970*, pp. 58, Data from the National Health Survey, Series 13, No. 14, Rockville, Md., August, 1973.

U.S. National Center for Health Statistics, *Prevalence of Selected Chronic Respiratory Conditions, United States—1970*, pp. 49, Data from the National Health Survey, Series 10, No. 84, Rockville, Md., September, 1973.

U.S. National Center for Health Statistics, *Color Vision Deficiencies in Youths 12–17 Years of Age, United States*, pp. 34, Data from the National Health Survey, Series 11, No. 134, Rockville, Md., January, 1974.

U.S. National Center for Health Statistics, *Examination and Health History Findings among Children and Youths, 6–17 Years, United States*, pp. 71, Data from the National Health Survey, Series 11, No. 129, Rockville, Md., November, 1973.

U.S. National Center for Health Statistics, *Literacy among Youths 12–17 Years, United States*, pp. 28, Data from the National Health Survey, Series 11, No. 131, Rockville, Md., December, 1973.

#### SOCIAL SECURITY

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," pp. 20, mimeographed, January, 1974. Noted in *The Actuary*, March, 1974.

Mr. Myers has updated the "Social Security Summary," which was reviewed in *The Actuary* in September, 1973. The new note includes a summary of the changes made in the amendments of July 1 and October 30, 1972, and July 9 and December 31, 1973, and also tabular histories of past tax rates and Medicare cost-sharing and premium rates.

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

*Veterans' Pension Increased*, Note No. 2—1974, Office of Research and Statistics, Social Security Administration, Washington, D.C., January 29, 1974. Noted in *The Actuary*, March, 1974.

This note is a summary of the recent veterans' pension legislation enacted on December 6, 1973, Public Law 93-177. This legislation provides for a 10 per cent cost-of-living benefit increase to veterans, their dependents, and their survivors. The new law restores most of the reduction in veterans' pensions which resulted from the 20 per cent social security benefit increase in 1972.

Free copies of this publication ("R&S Note No. 2—1974") may be obtained from the Office of Research and Statistics, Room 1120, Universal North Building, 1875 Connecticut Avenue, N.W., Washington, D.C. 20009.

A. Rettig and O. Nichols, *Changes in Social Security Benefits under Public Law 93-233*, pp. 16, Actuarial Note No. 85, Social Security Administration, Baltimore, Md., March, 1974. Noted in *The Actuary*, April, 1974.

This Actuarial Note discusses some of the features of the social security amendments enacted on December 31, 1973. It presents tables showing illustrative monthly benefits and a FORTRAN V computer program for reproducing the exact primary insurance amounts in the benefit table. It also includes the discussion of the automatic benefits provision.



Free copies may be obtained from the Office of the Actuary, Social Security Administration, now located in Suite 700, Altmyer Building, 6401 Security Boulevard, Baltimore, Maryland 21235.

#### OTHER TOPICS

The Life Office Management Association has published two additional reports on electronic data processing software and services. Reports Nos. 14 and 15 in this series were reviewed in *The Actuary*, September, 1972.

*Report No. 16, Evaluation of Software Packages* contains three papers, each of which discusses the evaluation criteria and techniques of three different life insurance companies in their search for outside software support.

*Report No. 18, EDP Software and Services Companies No. 2* is a sequel to Report No. 14 mentioned above and now contains brief information about 111 companies.

Life insurance companies not members of the Association may obtain copies of these new reports at the following prices: No. 16, \$5.50; No. 18, \$5.00.

#### REVIEWS FROM "THE JOURNAL OF THE INSTITUTE OF ACTUARIES"

##### *Reviews in Vol. 99, Part II*

*Salary Survey, 1971*, pp. iii, 33, The Institute of Statisticians, London, 1972, £2.00.

Sir John Walley, *Social Security: Another British Failure?* pp. ix, 289, Charles Knight, London, 1972, £4.50.

##### *Reviews in Vol. 99, Part III*

T. N. E. Greville (ed.), *Population Dynamics*, pp. ix, 445, Academic Press, London, 1972, £6.75.

Dan M. McGill, *Preservation of Pension Benefits Rights*, pp. xii, 382, Richard D. Irwin for the Pension Research Council, University of Pennsylvania, Homewood, Ill., 1972, \$9.50.

J. H. Pollard, *Mathematical Models for the Growth of Human Populations*, pp. xii, 186, Cambridge University Press, 1973, £5.80.

