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BOOK REVIEWS AND NOTICES*

Society of Actuaries' Textbook, *Health Insurance Provided through Individual Policies*, Edwin L. Bartleson, principal contributor, pp. x, 197, Society of Actuaries, Chicago, Ill., 1963.

This succeeds the Society's previous text on this subject, published only seven years ago.¹ Because "the dynamic field of Health Insurance has undergone many changes" during this period, publication of the revised text is timely. In addition, certain sections have been revised to improve the presentation. The book is a comprehensive and concise exposition of individual health insurance.

One of the changes noted is a marked increase in long-term noncancellable or guaranteed renewable policies, with premiums calculated on a level-premium basis. Reflecting the increased importance of such policies, the sections on premiums and the appendix on notation and formulas have been rewritten. A simple commutation column development is followed throughout, involving only functions quite analogous to those familiar in life contingencies. Continuation tables and asset-share computations are explained and illustrated. There is a thorough discussion of the elements entering into the premium basis, and sources of data are suggested. A valuable list of references to recent papers with morbidity data is included, but over the long run the general references will be of greater value, as additional data become available in this rapidly developing field.

The incorporation in surgical schedules of "Relative Value" scales, as developed by various medical societies, is noted, and the evaluation of one schedule in terms of another is illustrated. Other new developments noted in hospital and surgical expense policies are daily room-and-board benefits as high as \$30 and payable for as long as a year, high special hospital expense and surgical expense benefit limits, a diagnostic expense benefit for services not rendered in a hospital, and benefits payable during confinement in a convalescent or nursing home. The expense of administration of anesthetics, while commonly covered under the special hospital expense benefit, is increasingly being covered under a special benefit. In contrast, such special benefits as those for poliomyelitis, "dread diseases," and major surgery, also mentioned in the text, are decreasing in importance. While both this text and its predecessor refer to the introduction of noncancellable hospital and surgical expense policies, such policies are quite rare in the sense of "noncancellable" defined by the National Association of Insurance Commissioners. Most hospital and surgical expense policies are issued on a guaranteed renewable basis, with the right re-

* 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*.

¹ Reviewed in *TSA*, IX, 108.

served to change premiums on a class basis if the original premiums prove insufficient.

As stated in the text, the maternity benefit most commonly included in hospital and surgical expense policies generally provides a benefit equal to ten times the daily hospital benefit. A benefit structure not mentioned, but becoming almost as common, for a normal birth provides an amount equal to ten times the daily hospital benefit, for a caesarean section or ectopic pregnancy fifteen times the daily hospital benefit, and for miscarriage an amount equal to or up to five times the daily hospital benefit.

Another trend of great importance noted is the increasing number of hospital, surgical, and medical expense policies issued to persons over age 65. While policies available to such persons formerly were limited, it is noted that now such coverage is offered even on a mass-enrollment basis not requiring any evidence of insurability. While it is outside the direct province of the text, this coverage is offered both by some individual companies and by groups of co-operating companies in an increasing number of states. Such efforts, together with the extension of coverage under group plans to retired employees, are rapidly expanding the medical coverage of persons over 65 to meet a substantial demand.

Major Medical Expense policies were relatively new when the previous text was published. This text, accordingly, provides a more complete description of the policy, including a more exact specification of the beginning and end of a benefit period. Increased maximum benefits and high coinsurance (80 per cent instead of 75 per cent) of eligible expenses are noted, as well as the "inside limits" on certain expenses that some insurers have found it advisable to impose. Variation of the deductible amount with the insured's income is not mentioned in the text but is a development of some importance. In policies incorporating this feature, the deductible amount is fixed by the insured's income either at the time of issue or at the time of claim and reflects the fact that medical expenses tend to vary directly with the income of the insured. Corresponding variation of the deductible amount tends to offset variation of the amount of claim and hence tends to equalize the cost of insurance for persons with different incomes.

An example showing how a major medical deductible amount may eliminate duplication of benefits provided by hospital and surgical insurance is carried over from the previous text. That the benefits under the hospital and surgical policy just equal the deductible amount under the major medical is somewhat fortuitous. A surer way of achieving the desired result has been attained by one company, which makes the major medical deductible amount directly dependent upon the total benefits paid by all companies on the claim in question.

Disability income, or loss-of-time, policies have a much longer history of development than medical expense policies. Consequently, there are but a few new developments reported in this field. In addition to the trend toward noncancellable or guaranteed renewable policies already mentioned, trends toward longer coverage and benefit periods extending to lifetime for accident and to age

65 for sickness, and larger monthly income benefit limits, are noted. Although not noted in the text, a number of companies recently have extended from two to five years the period during which inability of the insured to perform the usual duties of "his" occupation is considered total disability.

Full coverage of substandard risks by extra premiums was mentioned in the previous text as well as in this, but increased use has led to a much more thorough discussion of the subject in the present text. Such coverage is now available for lives with estimated morbidity of 500 per cent or more. Two illustrative schedules of substandard class limits are shown. One proceeds by steps of 25 per cent extra morbidity to 100 per cent extra, then by steps of 50 per cent to 300 per cent extra. The other proceeds by steps of 10 per cent extra morbidity to 50 per cent extra, then by steps of 25 per cent to 100 per cent extra. Although this latter schedule is used by at least one company, it is questionable if current knowledge would warrant general adoption of such narrow class limits up to 50 per cent.

The chapter on underwriting has been considerably revised, with a special section on antiselection and discussion of medical coverage overinsurance. An aspect of such overinsurance not mentioned is the adverse reaction of the medical profession to payment of benefits exceeding expenses. Sections on the effect of the economic cycle and habitat on health insurance are revised. It is noted that medical expense policies generally are written on a nonmedical basis. An exception might be made for lifetime major medical expense benefits issued at the older ages.

Two policy provisions required by new laws are mentioned. One is the ten-day examination privilege during which the policy may be surrendered for full refund of any premium paid. The other provides a conversion privilege for any person (other than the policyholder) whose coverage under a family policy ends because he no longer qualifies as a family member.

The material on reserves has been revised, particularly that on the "present values of amounts not yet due on claims." While there is little change in the chapter on "Annual Statements and Federal Income Tax," two pages deal specifically with the new Federal Life Insurance Company Income Tax Act of 1959. The annual statement is too large a subject to be fully explained in a text on health insurance. Consequently, the sections on reserves and the annual statement are in the nature of notes on how the general principles involved apply to health insurance. An appendix shows the full *Report of Task Force 4* on minimum required reserves and also the text of an earlier advisory ruling of the NAIC on the same subject.

The appendix representing the Uniform Individual Accident and Sickness Policy Provisions Law in the United States remains, of course, substantially unchanged. The appendix on Canadian practices, however, has been revised in line with the revised Uniform Accident and Sickness Act in Canada. This appendix includes a section on statutory conditions and an account of the special status of medical expense insurance in Canada at the time of writing.

In summary, this book achieves its purpose of explaining "health insurance

as it is provided by insurers through individual or family policies," and, in addition to being an indispensable text to actuaries in this field, it should be of great interest to others concerned with this subject.

GORDON D. SHELLARD

J. E. Greider and W. T. Beadles, *Law and the Life Insurance Contract*, pp. xii, 472, Richard D. Irwin, Inc., Homewood, Ill., 1963.

The authors have as their objective an up-to-date commentary on all aspects of the life insurance contract. They have avoided using technical legal terminology and attempted to use simple language designed to be understandable by the layman, particularly someone interested in the life insurance business. The book contains many illustrations of court decisions bearing on all phases of the life insurance contract and explains certain frequently used legal terms applying to life insurance. There is a deliberate pattern of repetition of concepts as the authors discuss the formation, operation, and termination of the typical life insurance contract. This repetition may be bothersome to the average reader, but it has certain advantages for the student of actuarial science or life insurance.

The first few chapters of the book are devoted to a general discussion of life insurance law and its relationship to common law and equity. The authors explain the various elements and factors that are necessary to the formation of a life insurance contract, with particular emphasis on the peculiarities of this type of contract as compared with other contracts. One chapter explains what is meant by the word "agency" as it applies to the sale and operation of life insurance contracts. Following the general introduction, several chapters are devoted to the formation, construction, and validity of the contract. This discussion includes such matters as the offer and acceptance, determination of the effective date, and special benefits or policy provisions, such as designation of beneficiary, disability, accidental means death benefit, and the incontestable clause.

The middle section of the book deals with the operation of the contract and covers such items as the payment of premiums, use of the policy as property (that is, assignments), right to change beneficiary, right to borrow on the policy, testamentary disposition, reinstatement of a lapsed policy, and remedies that may be used to correct or modify contracts (i.e., interpleader, rescission, reformation, etc.). The final chapter contains a discussion of the various legal questions arising at the time of termination of the life insurance contract. Special attention is given to the problems raised in the settlement of claims when suicide, war, aviation, accident, or mysterious disappearances are involved.

Court decisions either in part or in full are used for the purpose of illustrating the type of legal reasoning employed in interpreting life insurance contracts. These illustrations are selected also to give a broad picture of the variety of decisions that have been rendered on a particular subject at different points of time, in different levels of courts, or in different jurisdictions. However, the method of selecting and presenting the court cases considerably limits the value of the book from the viewpoint of a lawyer or an actuary charged with the re-

sponsibility of developing new contracts of life insurance. Despite this criticism, *Law and the Life Insurance Contract* is a valuable contribution to the field of insurance literature. Anyone interested in a thorough discussion of the legal aspects of the life insurance contract will find this book interesting and informative.

KENNETH D. MITCHEM

J. F. Follmann, Jr., *Medical Care and Health Insurance*, pp. xv, 503, Richard D. Irwin, Inc., Homewood, Ill., 1963.

There are a number of excellent books available today on health insurance and, no doubt, a great many, representing many viewpoints, on medical care and on medical economics. The unique value of Mr. Follmann's book lies in the fact that it seeks to present a comprehensive survey of medical care viewed primarily and systematically in its relation to health insurance as a financing medium. It aptly bears as a subtitle "A Study in Social Progress." It is undoubtedly the most comprehensive and thoroughly documented of the few works so far undertaken in this important area.

The subject is quite obviously a timely one, a great deal having been said about it in the last two years, both publicly and privately, both political and otherwise. So much of what has been said has been irresponsible and inaccurate, and so often conceived solely for ulterior purposes of political and social propaganda, that this book can be of great value in leading serious people back to the facts as they are really known and to a balanced perspective built on unprejudiced concepts. As Mr. Follmann himself says in his Preface: "It is the hope that *Medical Care and Health Insurance* will assist in the understanding of a complex and at times misunderstood area of social concern. Through an analysis of the methods of financing medical care in both the United States and other nations, and a bringing together of material from many and diverse sources, the book attempts to give perspective to the subject."

The book is written in such a manner that it can be appreciated by any thoughtful layman as well as by the expert in health insurance or in medical economics. Mr. Follmann's approach is to build his discussion of each topic in a careful and thorough manner that begins with a consideration of the absolutely basic fundamentals, exhaustively considering all reasonable variations and aspects of the idea. By way of example, on the opening page of the first chapter, which deals with the broad concept of "Medical Care in Our Society," he enters into a discussion entitled "Medical Care Is Many Things," in order to show what a wide spectrum of activity the subject can be regarded as covering. In his attempt at thoroughness in discussing basic fundamentals, the author frequently belabors what is abundantly obvious, but this is perhaps excusable in view of the wide confusion that has come to surround so much of the subject. While this at times will become tedious to any informed reader, it still serves at least to remind one of the author's conscious effort to remain circumspectly thorough and cautious in approaching each topic of the book.

Following his introductory chapter, Mr. Follmann commences upon a survey of the methods of financing medical care in other nations. He considers in detail a great many interesting and significant aspects of the medical programs in most of the nations having one form of government system or another. These include, among other topics, the type of mechanism used, the method of reimbursing the providers of care, the extent of coverage among classes of the population, the extent of medical care included in the various programs, methods of financing used, and the cost of government programs. In comment on the subject, the author makes this significant statement: "It is to be noted that in no nation with a government program had the insurance companies provided any coverages of consequence for the costs of medical care, nor was the group purchase of private coverages prevalent. . . . Canada, of course, is the exception, although, by the time a government program was placed under consideration, less than half the population had coverage under all types of private plans." In discussing the costs of government programs, Mr. Follmann confirms the opinion of many insurance experts and economists: "There is considerable evidence that the introduction of a government medical care program can bring about an increase both in the use of medical care services and in the expenditures for them." Coupled with this is a consistent underestimating of future costs by government forecasters.

The author next takes up the broad subject of the financing of medical care in the United States, discussing expenditures for care generally, the problem of documenting true sources of payment, and the various uses of private funds, such as consumer personal resources, employer financing, benefits required by law (e.g., Workmen's Compensation, State Disability Benefit laws), legal liability payments for injury, philanthropy, provision of care without charge, and private investment. A separate chapter is devoted to the role of government, which the author shows to be very extensive even in the absence of a compulsory national plan covering the general population.

A survey of the development and extension of private health insurance in the United States is then undertaken. The author traces a brief history of private health insurance and then turns to a discussion of the number and types of private health insurers at the present time. In introducing this subject, he makes these cogent comments:

Each type of insurer has its distinct approach, providing the buyer of insurance the opportunity to choose the kind of plan best suited to his needs. . . . It is necessary to recognize that many aspects and concepts of private health insurance are relatively recent, that some must be looked upon as experimental, and that this form of insurance, like medical care itself, must remain in a dynamic state of evolution. Because of this, monopoly has no place. . . . The keen competition that exists among insurers of all types in the United States has spurred experimentation. . . . It has made private insurers responsive to changing needs. . . . Each learns from the progress made by others. Each benefits from the mistakes of his competitor. The beneficiary of this process is the public. . . .

This situation is unique in the United States. In no other nation at any time has there ever been such vitality, diversity, comprehensiveness, and flexibility. . . .

Further topics in this chapter deal with the rapid growth in number of persons covered, the steadily broadening scope of coverage, and the total role played by private insurance in the financing of care. The author's treatment of this latter subject seems particularly excellent. His discussion centers upon the question of what kind of measurement should be applied to this, pointing out that the meaning of the results is heavily dependent upon this choice. One can consider the portion of total medical expenditures of all types paid by private insurance, or the portion of certain specified types of expenditures, or the total expenditures of insured persons, or the expenditures for covered forms of care among insured persons. The author contends, with good logic, that this latter basis is likely to provide the most adequate and meaningful picture. In his concluding evaluation of this subject, the author makes this observation which deserves to be remembered carefully by students of medical financing: "A private voluntary health insurance system, then, cannot be evaluated alone in terms of the number of people covered or the types and degrees of benefits in force at a given moment, since it cannot reach optimum performance unless all persons who need health insurance protection become insured and unless the benefits purchased are adequate in relation to their needs. It must be evaluated in terms of what it is capable of making available, given the demand."

Chapter vii takes up the subject of the extension of coverage among the aged. The author begins with a discussion of background factors on demography, health status, and economic status which comprise an excellent analysis of these factors as they relate to his general subject. The following chapter extends the discussion to coverage of other special groups: rural persons, migratory workers, small employer groups, dependents, and impaired risks.

The next section of the book includes several chapters which deal with the problems of insurance coverage for special areas of care and expense not usually covered in traditional hospital, surgical, or medical insurance. The topics are: mental illness, drugs, dental care, skilled nursing-home care, private nursing care, and vision care. The discussion of these subjects is generally most informative and comprehensive and should be of much value to those concerned with extension of coverage to these sometimes very difficult experimental areas. The author makes one inaccurate statement in his treatment of existing nursing-home coverage, when he says, on page 283, that "by mid-1962, several large insurance companies were making available coverages specifically including the cost of skilled nursing home care. In almost all instances the nursing home coverage was in conjunction with coverage for persons aged sixty-five and over. In all instances the insurance was sold on a group or mass-selling basis with the consequent reduction in overhead expenses." This is quite incorrect, since several prominent companies have specifically included skilled nursing, or "convalescent," home coverage in their individually underwritten major medical contracts since mid-1961. It is somewhat surprising that so well informed an expert as Mr. Follmann has apparently overlooked this significant fact in his treatment.

On the subject of vision-care insurance, the author makes a concluding com-

ment which would certainly be assented to vigorously by the majority of health insurance specialists:

Vision care, furthermore, hardly appears to answer the test of a sound insurance mechanism. While the group of exposure units may be sufficiently alike and numerous enough to be predictable, and while the loss insured against can probably be verifiable, some basic insurance problems still remain. It appears from all the known data that in the field of vision care the loss insured is neither sudden nor sizable in its occurrence. There seems to be a large element of election on the part of the insured as to when he will seek vision care, as well as to the choice of materials. This, coupled with the fact that the average cost to an individual for vision care appears to be about \$10-\$15 a year, seems to cast doubt as to either the feasibility of, or the need for, an insurance plan. The smallness of the average loss would mean, furthermore, that the administrative costs of an insurance plan would be quite high in relation to the claims paid.

A similar observation is made by the author in the next chapter, dealing with prevention of loss, where he says:

In the design of their health insurance coverage, insurance companies do not, as a general rule, contemplate benefits for routine physical examinations. . . . Such services are relatively nominal in cost, particularly since they occur infrequently; . . . they are anticipatory and elective in nature; . . . expenditures for such services lend themselves to personal budgeting or direct provision by employers or others rather than to an insuring mechanism. To employ any type of insuring mechanism would simply be to add an administrative cost to the cost of the examination.

The chapter on prevention of loss, however, contains much useful discussion as to how health insurers might consider other avenues of furthering their emphasis on prevention, such as health education, accident-safety programs, discounts for good experience, etc. Similar valuable discussion is contained in another chapter dealing with rehabilitation.

The final part of the book deals with a number of topics under the headings of "Current Problems," "Misimpressions," "Current Issues," "The Question of Compulsory Health Insurance in the United States," and "The Future." Included in these chapters is discussion on the topics of overinsurance, inflation and other increases in medical costs, unnecessary utilization, insurance and the "creation" of money, relation of premiums to benefits paid, cancellation of coverage, the quality of care, freedom of choice, shortages of personnel and facilities, and several other relevant and interesting topics. These "miscellaneous" matters add considerably to the total usefulness of the book and to the completeness of its treatment of the whole subject. The chapter on compulsory health insurance serves as an excellent summary of the history of federal legislative attempts and helps to put this issue into an objective and balanced perspective.

The book has a few drawbacks. As already mentioned, there is perhaps a tendency unnecessarily to belabor obvious matters. The book includes a rather tedious degree of fine statistical detail that tends to detract from the main text; some of this might better have been relegated to an appendix or to footnotes. Much of the quotation of other authors and individuals seems rather purpose-

less, adding little or nothing to the discussion. At times, the author seems to strain too much to justify the progress or the adequacy of private health insurance in specific areas, in a way that seems to weaken the very strong case that he really has to present.

There is no question, however, but what Mr. Follmann's book is a valuable and significant addition to the available literature on its subject. It contains a wealth of information and discussion in areas where comprehensive, accurate information and expert opinion is often difficult to find and draw upon. The book will be invaluable to interested layman and expert alike.

E. PAUL BARNHART

*W. J. McNerney and Study Staff, University of Michigan, *Hospital and Medical Economics: A Study of Population, Services, Costs, Methods of Payment, and Controls*, 2 vols., pp. xii, 1,492, Hospital Research and Educational Trust, Chicago, 1962.

Hospital and Medical Economics is one of the latest examinations in this field and probably the most extensive to date. It is a thoughtful, penetrating work and might be expected to influence both the form and the content of other examinations to come. There are elements in the research technique and methodology which are original and constitute innovation, particularly with respect to the multivariate analysis of the data and the screening process and verification of findings. The study also points the way to further methodological improvements.

The events leading to this study had their start in rate increases by Blue Cross and Blue Shield plans in Michigan in 1956 and the consequent appointment of a commission by G. Mennen Williams, then governor. After public hearings disclosed a great variety of facts and opinions, the commission decided on the need for research upon which conclusions might be based. By early 1958, arrangements were completed for the University of Michigan to conduct the study under the direction of Professor Walter J. McNerney, with financing by a grant from the W. K. Kellogg Foundation. The study was completed and tendered in mimeographed form to the commission in the fall of 1961, and in early 1962 further hearings were held. The report of the commission, containing forty-five recommendations, was made to the governor in June, 1962. The published study reviewed here is an edited version of the report tendered the commission in 1961.

Among the many persons, sources, agencies, and organizations credited for co-operating in the conduct of the study are the Health Insurance Association of America, the Health Insurance Council, and the insurance industry.

The presentation includes 538 statistical tables, 42 figures, and 35 appendixes. It is divided into five major parts: "Introduction," "The Consumer of Care" (covering utilization and expenditures for health care, needs, attitude, and health insurance coverage), "The Providers of Care" (including the character and effectiveness of hospital use, changes in medical practice in the hospital, an

inventory of manpower, and hospital operations and cost determinants and their impacts upon the cost of health insurance), "The Economic Bridge: Prepayment, Insurance and Government" (including the characteristics of insurance, a study of experience and community rating, the effect of group characteristics on claim experience, the relationship of medical services utilization to the benefit structure, the effect of layoffs on continuity of coverage and claim experience, and the role of government in rendering and paying for care), and "Controls." The numerous areas covered by the study bear evidence to the complexity of any consideration of the utilization of and expenditures for health and medical care services. The study appropriately notes the necessity to interrelate these areas and their interactions and inferentially, at least, cautions against an oversimplified view of medical economic matters.

Among the stated purposes of the study are (1) to supply useful facts, (2) to make the problems explicit, and (3) to demonstrate the role fact-finding can play in over-all planning. It is recognized that the study has limitations in that it sheds light only on selected areas and does not cover many important and related subjects.

According to the study director, the report "is not cast in traditional mold." "It is, at once, a book, a series of monographs, a research manual, and a useful blueprint for action. It mixes fact, interpretation, and philosophy. Some of the material, such as that on criteria of effectiveness, is of long-term significance to the country as a whole; some is relevant to short-term considerations in Michigan. . . . Deliberately, the contents remain in project form, reflecting the forces that created the inquiries and the purposes for which they were formulated."

As a result of this amorphous nature, combined with the great mass of the study, it is not a simple matter to view or grasp the work in its entirety. This is indeed regrettable, since one is aware of the presence of considerable information and data which can be useful. Even more difficult is the establishment of a relationship of one section, part, or project of the study to the remainder. Without seemingly endless cross-examination, it is impossible to judge how related, or even consistent, are the parts in relation to the whole. The result makes for cumbersome reading. While more adequate cross-references may have helped, the absence of a common thread which would bind the study into a whole remains as a handicap to the reader or student. The reader is thus left with a sense of unfulfillment as well as doubts. These, in turn, become accentuated when it is observed that a direct relationship between the hypotheses, the findings, the discussions, and the recommendations is not always evident. In instances the conclusions feel forced, in that they do not appear to follow logically from or be supported by the findings.

Medical care utilization and expenditures are examined in considerable detail according to such variables as age, sex, family income, health insurance coverage, urban-rural residence, availability of services, educational level of the consumer, and by means of multivariate analysis. The forms of care examined include hospital services (pp. 122-55) by admissions, length of stay, services received, and reason for hospitalization; doctors' and dentists' services (pp. 156-

71); and others (pp. 172-79), including drugs, laboratory tests, vision care, nursing, and convalescent homes. Total medical expenses of individuals and families and the sources of their payment are also examined (pp. 183-213) according to age, sex, income, health insurance coverage, and by means of multivariate analysis. Unmet medical care needs are discussed. The problem of the low-income population group is stressed with respect to both medical care and coverage by health insurance; the examination throws light on certain aspects of this problem.

One of the sections of the study of interest to insurers runs from chapters xx to xxvii inclusive, where the character and effectiveness of hospital use, including over-use and under-use, are discussed. On the basis of data derived from 11,000 hospital discharges and the medical records of 5,750 cases which fell within eighteen selected diagnoses, a study is made of the effect of charges and sources of payment upon utilization of services; consideration is given to the relationships of such variables as geographic location, size of hospital, scope of medical services, and physician characteristics. An evaluation is made, in some detail, of the appropriateness of both hospital admission and length of stay. This evaluation is based upon (1) predetermined criteria for admission; (2) the procedures both necessary and consistent with the diagnosis; (3) complications affecting length of stay; (4) the expected length of hospital stay; and (5) indications for discharge. The initial review was made by a panel of physicians using the criteria according to a common interpretation. Where the initial review indicated inappropriate use, the attending physician was interviewed in order to arrive at a final evaluation. This is one aspect of the study which contrasts with utilization committee activities which are aimed at specific stays of 1 or 2 days, or more than 14 days, and other techniques which rely principally on the judgment of the reviewing physician and his individual interpretation of the clinical abstract. In the latter situations the data produced are open to criticism because of the lack of objective criteria. This aspect of the study thus makes a contribution in that it formulates an approach for medical staff evaluation of the effectiveness of hospital use which will produce credible information developed on an objective basis and thereby permit measurement of both under-use and over-use. A shortcoming is that the information produced represents a picture of the way in which hospitals in Michigan were used with respect to the selected diagnoses at a given point in time. However, these data are not correlated with variations in the ways and the extent to which the hospital bill was or was not financed by insurance or prepayment. Furthermore, the extent to which corrective measures applied by the medical staff or the administration of the hospital might eliminate problems in future confinements is not considered.

Also of interest is the discussion of hospital costs and utilization in chapters xli-xliii, and of hospital financing in chapters xlvi-lvii inclusive. Chapter lv considers the effect of Blue Cross reimbursement on hospital financing.

Specific aspects of insurance and prepayment are reported and commented upon in five sections of the study: "Prepayment and Insurance Organizations: Characteristics and Coverages," "Experience Rating and Community Rating,"

"Effect of Group Characteristics on Claim Experience," "Relationship between Benefit Levels and Hospital Utilization," and "Effect of Layoffs on Continuity of Coverage and on Claim Experience." These sections contain sixteen recommendations. Unfortunately, in evaluating the effectiveness of health insurance, the study does not examine, thoroughly and with conviction, the diverse factors entering into decisions for the purchase of insurance and how these affect not only the presence or absence of insurance but also the types and degree of coverage. Yet the study passes judgment on the performance of insurance.

Adverse comment with respect to insurance company coverages and practices, in at least some instances, appear to be made without sufficient substantiation in the study findings and without taking into account all the relevant factors. One example may be cited in the discussion of experience and community rating. On page 1054 it is recommended that "legislation should be adopted regulating extreme forms of experience rating" (in the original version submitted to the governor's commission this reads: "Legislation should be adopted requiring health insurers and prepayers to use community rating, properly defined and within reasonable limits"). It is not clear, particularly for statutory purposes, what constitutes "extreme forms of experience rating." The text of the original version was equally vague in that it did not define the terms "proper defined" and "reasonable limits." However, on page 1073, the study recommends that "the impact of experience rating should be studied in greater depth."

It is difficult to determine the rationale, or even the intent, of a study which recommends prohibitive legislation, on the one hand, and further study, on the other. This confusion is compounded when the section on the effect of group characteristics on claim experience calls upon insurers to "focus upon problems of utilization and costs, to implement controls, to start educational programs to make groups more cognizant of the implications of their utilization of health services, to introduce measurement of effectiveness selectively, to anticipate income needs, and to design appropriate underwriting procedures." Since experience rating could play an important role in realizing this recommendation, it is difficult to understand why a prohibition of this form of rating is recommended.

The study concludes with a 240-page discussion of controls of the quantity of care, of the utilization of care, of the cost of care, and of the quality of care. Each is examined from the standpoint of the influence which can be exerted variously by hospitals, physicians, Blue Cross, Blue Shield, insurance companies, third-party purchasers, and several types of public agencies. On this subject alone the study makes 113 recommendations.

Since the study was conducted variously between 1958 and 1960, it cannot avoid being out of date in several respects. This is particularly evident in such instances as the discussions of the availability of health insurance coverages for the aged (which has been publicized as if the information were current), the availability of health insurance coverages for forms of medical care other than hospitalization and surgery, the present degree of accomplishment by private health insurance, and the present degree of experimentation by health insurers of

all types. It is unfortunate that the data throughout the study are not always clearly dated so that the student could remain aware of their timeliness and therefore of their present validity or invalidity. This failing, where it occurs, might have been overcome by indicating in the text that circumstances change and by showing recent trends which affect such change.

Much of the study, furthermore, as a result of its background, is limited to and specific as respects circumstances in the state of Michigan. Such findings may or may not be relevant to other geographic areas. This the reader would have to judge for himself.

Hospital and Medical Economics points the way for additional study into many facets of its broad subject. In several instances such areas are specifically identified in the study.

J. F. FOLLMANN, JR.²
D. W. PETTEGILL

Report of the Committee of Inquiry into the Unemployment Insurance Act, pp. x, 207, addressed to His Excellency The Governor General in Council by the Committee of Inquiry, Mr. Ernest C. Gill, Chairman, Ottawa, Canada, November, 1962.

The Committee of Inquiry was appointed by the Committee of the Privy Council on recommendation of the prime minister of Canada and pursuant to an Order in Council dated July 17, 1961. Its instructions were to inquire into and report upon the suitability of the scope, basic principles, and provisions of the Canadian Unemployment Insurance Act and the regulations thereunder and the manner of operating and, in particular, to inquire into and report on (a) the provisions deemed necessary to deal with seasonal unemployment; (b) the means of correcting any existing abuses or deficiencies; and (c) the relationship between programs of support for the unemployed and other social security measures.

The committee was organized during the early part of August, 1961, and appointed to its staff Mr. Richard Humphrys, F.S.A., as secretary and director of research and Mr. T. R. Walsh, Q.C., as its counsel. On August 31, 1961, a notice was published in daily newspapers across Canada inviting organizations, associations, and individuals to submit information, proposals, and opinions relating to the work of the committee. Public hearings were held in Ottawa during November and December, 1961, and the final report of the committee was submitted in November, 1962.

The need for the committee was obvious; something had to be done in an attempt to correct the conditions that were leading rapidly to complete bankruptcy of the Canadian Unemployment Insurance Fund. Commencing with the fiscal year 1954-55, benefits had exceeded contributions in every year and had exceeded total revenues (contributions plus interest) during all of that period with the exception of the two year period 1955-57. The balance in the fund, which had reached a maximum of \$927 million in December, 1956, had

² Mr. J. F. Follmann, Jr., is director of the Information and Research Division of the Health Insurance Association of America.

dwindled steadily in the ensuing years, reaching a 1961 low of \$110 million in May.³ Clamor and criticism in the Parliament, in the press, and among business and other interested groups had been mounting daily; charges and counter-charges as to the responsibility for the impending financial collapse of the plan were being hurled about by rival political parties. In this political climate the committee came into being.

The *Report* of the committee is an excellent and well-documented work. Designed for either cursory reading or detailed analysis, it is organized in five chapters, exclusive of several appendixes, as follows: (i) "Introduction and Summary of Recommendations"; (ii) "A Brief History of the Unemployment Insurance Act"; (iii) "Analysis of Financial Operation of the Unemployment Insurance Act"; (iv) "Conclusions and Recommendations"; and (v) "Conclusion."

The history of unemployment insurance in Canada, as detailed in the *Report*, shows very clearly that the plan originally adopted was an insurance plan and not a plan of unemployment assistance or social welfare, and the committee's report stresses this fact strongly and repeatedly. In fact, the committee felt strongly enough in the matter to repeat the following statement of insurance principles as they apply to unemployment insurance:

A plan of insurance must have an actuarial basis. There must be a definition of the risk insured against and the conditions under which indemnity will be paid; the area of insurance must be limited to contingencies, not situations that are certain to occur; there must be some possibility of estimating the rate of occurrence of the contingency; the amount of the indemnity (under unemployment insurance, the rate and duration of payment) must be determined; and the premium or contribution must be calculated which is needed to provide a fund sufficient to meet all probable claims.

For an unemployment insurance plan to be genuine insurance, it follows that (1) the insured person, to have an insurable interest, must be subject to the risk of losing something of real value; (2) the actual occurrence of this contingency must be easy of verification and of proof that it falls within the scope of the insurance contract.

Under unemployment insurance, as regards (1), the contingency is loss of employment and the earnings therefrom. A person who is not normally in insurable employment to a substantial extent and within a recent period of time has nothing of substantial value to lose and cannot have an insurable interest. As regards (2), there must be a ready means of determining when an insured person is unemployed and whether he meets the minimum conditions for the receipt of benefit.

From this statement enunciated by the Unemployment Insurance Commission several years ago, every student of social insurance may derive sound advice.

The history of the Canadian Unemployment Insurance Plan has been quite similar to that of many of the plans in the United States and several European countries. At the outset the Canadian plan was relatively limited in scope of coverage and benefits; financial safeguards in the structure of the plan operated successfully to prevent a depletion of the accumulated funds. However, over the years the original plan was broadened in scope and direction, differences in interpretation of various provisions in the act arose, and abuses and misuses entered into and affected its operation. It is of special interest to actuaries to

³ The Unemployment Fund declined even more drastically during 1962 and in April, 1963, reached a deficit position of approximately \$23 million.

note that the pitfalls and problems which have caused much of the financial trouble and have precipitated the present crises in the Canadian plan were not unknown or unanticipated when the act was put into effect. In 1935 Mr. Hugh H. Wolfenden, consulting actuary, submitted to the government of Canada an actuarial report on the Employment and Social Insurance Act,⁴ and in the same year Mr. A. D. Watson, who was then chief actuary of the Insurance Department in Canada, also submitted an actuarial report.⁵ In addition, Mr. Watson also prepared an actuarial report for the 1940 act. These reports discussed thoroughly the basic principles underlying a system of insurance for unemployment, the types of employment to which such insurance could be successfully applied, the rates of contribution necessary to provide benefits within the framework of the insurance as defined, some of the problems that might be encountered, and, finally, some of the pitfalls to be avoided. A parallel reading of the various reports and the history of the Canadian Unemployment Insurance Act reveals that there were ample warnings concerning the consequences of departure from tested insurance principles. Moreover, earlier experience under social insurance schemes in Great Britain and Germany had indicated how the financial stability of an unemployment compensation plan could be undermined by not adhering to such principles. Unfortunately, the warnings were not heeded.

The crisis that occurred in the financing of Canadian unemployment insurance benefits probably could not have happened had the original act of 1940 been continued in essentially the form in which it was enacted. The design of the Canadian Unemployment Insurance Act of 1940 was sound. The risk insured against was clearly defined; the conditions under which benefits would become payable were sharply delineated; careful estimates had been made of the claims expected (with conservative margins for higher than normal levels of unemployment), and the scale of contributions necessary to provide the benefit had been calculated prudently. Competent professional counsel—actuaries and others—had participated in the design of the act. One wonders how the plan could, with this background, fare so disastrously financially. In seeking an answer to this question, it might be said that in one respect the act was born at the wrong time. Had the plan commenced operations in 1935, as originally scheduled, the early years then would have been depression years and the consequent experience might have served as a restraining influence in considering proposals for liberalization of the plan. However, as the committee points out, the auspicious start of operations in July, 1941 (the date of commencement of contributions), and the very favorable financial experience during the years of World War II caused legislators and others to view the rapidly accumulating

⁴ H. H. Wolfenden, *The Employment and Social Insurance Act, Actuarial Report on the Rates of Contribution for the Unemployment Insurance Benefits and the Provisions with Respect to Supplementary Unemployment Benefits* (2d ed.; Ottawa: J. O. Patenaude, 1935).

⁵ A. D. Watson, *Actuarial Report on the Contributions Required To Provide the Unemployment Insurance Benefits within the Scheme of the Draft of the "Unemployment and Social Insurance Act"* (Ottawa: J. O. Patenaude, 1935).

fund as more than needed for the plan as then designed and hence available in part to extend unemployment insurance benefits into areas which had been originally excepted. The resultant liberalizations, which contributed greatly to the rapid depletion of the fund during the 1950's, departed significantly from the sound principles of the original act. Thus a strong argument may be made for the tenet that the consequent financial problems have not been due mainly to high rates of unemployment (although obviously this factor was very important) or to failure to increase taxable wage bases and rates, commensurate with increases in wages and benefits. Rather, the results have been due to the gradual erosion of safeguards in the original act and to extensions to areas of social security that lie outside the scope of a bona fide unemployment insurance plan.

A count reveals about thirty significant instances of changes in coverage during the period the plan has been in existence. Although many of them were fairly minor and had little effect on the finances of the plan, some have had a definitely adverse effect and have contributed much to the plan's current financial plight. Among the more significant of these have been the following: (a) the extension of coverage, first to those engaged in lumbering and logging in British Columbia (1946) and later to employment in lumbering and logging elsewhere (1950); (b) employment in inland transportation by water (1946); (c) stevedoring (1948); (d) employment connected with landscape gardening (except nurseries) and to several specific agricultural employments (poultry raising and egg grading, raising of fine horses, horticulture employment), and forestry (1956); and (e) fishermen (1957).

One characteristic common to the types of employment mentioned above is seasonality. In 1946, when coverage was extended to the occupational categories shown in (a), seasonal regulations were also established. The purpose of these regulations was to prevent the payment of benefits to employees during an annual period of layoff because of seasonal curtailment in their particular occupation or industry. Unfortunately, these safeguards were gradually removed through the introduction of the supplementary benefit (1950), under which certain exceptions from disqualification were granted under the seasonal regulations during the supplementary benefit period. Although some attempt was made to restore the effectiveness of the seasonal regulations in the 1955 act, the application of the regulations was postponed and finally revoked without ever being put into effect. The *Report* does not state why seasonal regulations were not kept in effect or were not reinstated in 1955. However, there is a likelihood that some political pressure was exerted to prevent the withholding of benefits to seasonal workers during the period from 1955 to the present time, especially in view of the high rates of unemployment during these years. The actions, or rather lack of them, with respect to seasonal regulations illustrate one way in which the safeguards of the original act were eroded or else entirely withdrawn. There is no doubt that many people obtain unemployment insurance benefits on the strength of employment which is highly seasonal. The receipt of benefits under these conditions was certainly not the intent of the original act and had been strongly criticized by advisers and experts in the field.

Perhaps the most significant deviation from insurance principles occurred in the granting of coverage to fishermen in 1957. The committee considers the problems of attempting to provide unemployment insurance for fishermen to be practically insurmountable and for this reason has suggested that self-employed fishermen be excepted from any new plan that might be put into effect as a result of their investigation. As the committee pointed out, there is no doubt that the fishing industry in Canada suffers from severe fluctuations in earnings and from long periods of unemployment, but the problem is such that there is no logical basis for its inclusion in a bona fide insurance plan. If assistance is to be provided, it must be through means other than extending insurance coverage and accepting a relatively token amount of contributions in return for which a disproportionately large amount of benefits will inevitably be disbursed.

Seasonal employment also creates problems of definition of insurable interest. Does a person who works in a seasonal occupation for a relatively short period each year have a genuine insurable interest for unemployment compensation? Some examples might be cited: (1) a farmer who obtains some work as a logger during winter months and (2) a housewife who works a few weeks each summer in a canning plant. The first instance typifies the case of a normally self-employed person who earns a small amount of wages during his off season; in the second instance, the person normally is not attached to the labor market but enters each year and withdraws after a few weeks' work. In neither of the cases does the person have a real insurable interest. In actuality, they are not losing employment but rather adding a "bonus" to their income each year through extraoccupational, seasonal work; they have nothing to lose and, hence, no insurable interest. Moreover, during the period after 1955, benefits under the Canadian act were so increased and qualifying conditions so weakened that benefits actually became a form of public assistance without the customary means test.

Coverage of self-employed fishermen deviates from another insurance principle, namely, that the insured should be unable to exercise control over the occurrence of the contingency insured. It is fairly obvious that such control is in the hands of the insured when no true employer-employee relationship exists. Such self-employed may, to a considerable degree, dictate the conditions and timing of their employment or unemployment. Under the influence of both seasonality of employment and absence of a firm employer-employee relationship, operation of the unemployment insurance plan among Canadian fishermen rapidly disintegrated into a thinly disguised social assistance program.

Some indication of the extremely unfavorable financial experience resulting from insuring fishermen may be obtained from data extracted from several annual reports of the Canadian Unemployment Insurance Advisory Committee. From date of inception of their coverage through the end of the fiscal year 1961-62 unemployment insurance contributions by fishermen and their employees totaled \$4.6 million; the government contributed an additional \$0.9 million. Benefits paid totaled \$50.1 million, or about nine times the total contributions.⁶

⁶ *Labour Gazette*, LX, No. 2 (February 29, 1960), 188, and LXII, No. 11 (November 30, 1962), 1249 (Department of Labour, Canada).

The *Report* discusses supplementary (later renamed seasonal) benefits in considerable detail. The names applied to these benefits are quite descriptive, defining both purpose and extent of the coverage, although it is questionable whether any of those who drafted the new legislation could foresee the far-reaching financial consequences of either the "supplementary" or the "seasonal" character of the benefit as it finally evolved. The purely seasonal benefits granted under supplementary benefits arise from a provision that grants benefits to anyone who cannot qualify for regular benefits but who has at least fifteen weeks of contributions subsequent to March 15 preceding date of claim. The second or supplemental characteristic of these benefits arises principally from a provision that enables a claimant to obtain supplementary benefits after exhaustion of regular benefits, providing the date of termination of the regular benefit *period* occurs after May 15. This provision in effect sets up a system of "extended" benefits.

Initially, supplementary benefits had little financial effect upon the fund, and an optimistic outlook soon developed with respect to possibilities for extension of its coverage and relaxation of restrictions in its application. The gradual extension of the period during which benefits would be paid (from seven weeks in 1949-50 to thirty weeks in 1957-58 but curtailed to twenty-five weeks in 1959-60 and later), the easing of qualification rules, and the elimination of seasonal regulations—all coming at a time when unemployment was increasing—multiplied the drain on the fund and resulted in depletions far greater than had been foreseen.

About one-half of the committee's *Report* is devoted to their conclusions drawn from the study and their recommendations for a revision in the unemployment compensation system in Canada. A carefully marshaled body of argument based on their research is set forth in support of recommendations for a new three-part program to alleviate the hazards of unemployment in Canada. The program would consist of the following:

I. A basic insurance plan, adhering to tested insurance principles, supported by joint contributions of employers and employees (but not the government, as is the case in the present plan) and designed to provide a limited duration of benefits for unemployment of the frictional type (i.e., unemployment normally thrown up by the operation of the economic system).

II. A plan of extended benefits supported by general taxation and designed to provide further benefits to those who have exhausted their entitlement under the insurance plan and, under certain conditions, to those whose unemployment follows a seasonal pattern.

III. For the residual hard core of unemployed persons, who are unable to obtain re-employment after an extended period of time, an assistance plan on a test-of-needs basis. This plan essentially would be the existing system of local or regional public assistance programs as authorized under the Unemployment Assistance Act and financed presumably on the same basis as that of the Unemployment Assistance Act.

Generally, the recommendations of the committee would offer a program that returns to many of the principles incorporated in the 1940 act, insofar as

Part I of their plan is concerned. It is contemplated that problems arising from seasonal occupations will best be handled through Part II of the plan. It is interesting to note that a separate plan for self-employed fishermen is recommended, to be tailored more in accordance with the needs and circumstances of fishermen than is possible under the general unemployment insurance plan.

Students of unemployment insurance in the United States will probably be puzzled by the committee's arguments against experience rating in a new Canadian insurance plan. Although the arguments advanced for excluding experience rating as part of the plan are valid, it is equally possible to argue that experience rating might help to curb some of the abuses that exist in the present Canadian plan.⁷

K. ARNE EIDE

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.

The review section of the *Journal of the Institute of Actuaries* contains digests in English of articles appearing in foreign actuarial journals.

ACTUARIAL AND OTHER MATHEMATICS, STATISTICS, GRADUATION

*S. S. Wilks, *Mathematical Statistics*, pp. 644, John Wiley & Sons, Inc., New York, 1962, Library of Congress No. 61-17365.

The purpose of the book, as noted in the Preface, is "to introduce mathematical statistics to readers with good undergraduate backgrounds in mathematics." The book was prepared mainly from material presented to graduate students at Princeton University—an earlier version was published in 1943 by Princeton University Press under the same title. More than four hundred problems are included. There is a sizable reference list and index of authors for those persons who wish to pursue the subject further.

The discussion of sampling theory is preceded by and based on a development of probability theory. From considerations of set theory and sample spaces, the author derives the notions of probability measure, statistical independence, random variables, and conditional random variables. He then introduces distribution functions for one-, two-, and k -dimensional random variables, discussing mean values and moments, and characteristic functions and generating functions. The section on probability theory is rounded out by an extensive presentation of special discrete and continuous distributions.

Sampling theory is introduced for the one-dimensional case; means and variances of sample means and variances are developed and then extended to the k -dimensional case and matrix sampling. Methods of statistical estimation—linear, parametric, and nonparametric—are described and the testing of hypotheses under these three methods is discussed.

The treatment of sampling theory also covers sequential statistical analysis, time series, and multivariate statistical analysis including discriminant analysis.

⁷ In this connection see "Digest of Panel Discussion on Unemployment Insurance," *TSA*, V, 319-35.

C. De Boor, "Best Approximation Properties of Spline Functions of Odd Degree," *Journal of Mathematics and Mechanics*, XII, 747, September, 1963.

A spline function of given degree is a function defined in different intervals for the independent variable by different polynomials of the given degree, in such a way that derivatives up to and including the order 1 less than the degree are equal for the two polynomials at each point of junction. This paper considers the problem of finding the smoothest possible interpolation function for n given data points (not necessarily equally spaced). The smoothest function is defined to be that for which the integral over the range of interpolation of the square of the k th derivative is smallest. No restriction is placed on the nature of the function except that it reproduce the given ordinates exactly and have continuous derivatives up to and including the order k . The solution is shown to be a spline function of degree $2k - 1$ having junction points at the given data points and reducing to polynomials of degree $k - 1$ outside the interval of interpolation. This spline function is uniquely determined by the properties just mentioned. Numerical procedures are not discussed.

*A. Malta, *Nouvelles tables financières*, Vol. I, Dunod, Paris, 1963.

Table 1 presents values of $(1 + i)^n$ and v^n to eight places in the decimal as follows:

- 1) for $i = 0.05$ to 10.00 by intervals of 0.05 , and by intervals of 0.25 beginning with 0.125 ;
 $n = 1$ to 120 by single intervals, with single intervals of $1/12$ up to 1 ;
- 2) for $i = 10.125$ to 20.125 by intervals of 0.125 ;
 $n = 1$ to 50 by single intervals, with single intervals of $1/12$ up to 1 .

Table 2 presents values of $j(m)$, $j(m)/i$, and $i/j(m)$ to eight places in the decimal as follows:

- 1) for $m = 2, 4, 12, \infty$.
 $i = 0.05$ to 21.65 by intervals of 0.05 , and by intervals of 0.25 beginning with 0.125 .

LIFE INSURANCE AND ANNUITIES

**Annals of Life Insurance Medicine*, Vol. I, pp. 187, Springer-Verlag, Berlin, 1962.

This new publication, which lists the Swiss Reinsurance Company as editor, has an editorial committee consisting of Drs. E. V. Higgins and H. E. Ungerleider of New York and Drs. H. Jecklin and E. Tanner of Zurich. Mr. A. C. Webster, F.S.A., is a member of its editorial board.

The statement of aims contains the following: "We believe the problems of insurance medical statistics and their interpretation are insufficiently discussed at conferences on insurance medicine. Epidemiology and Prophylaxis continue to be the neglected 'poor relations,' despite their great importance in preserving and extending the life expectation of Man.

"Instead of the limited regional thinking which is customary today in this field, it would surely be of interest and benefit to many for all of its aspects to be assembled, reviewed and reported on a global scale. The continually growing ramifications of political and economic interdependencies throughout the world demand an ever broader basis of operation."

The Contents lists seven papers, namely: "The Investigation of Mortality," Dr. Hans Wiesler; "Metabolic Causes of Myocardial Ischemia," Professor Alfred Pletscher; "Ethnological and Clinical Considerations on the Relationship between Body Weight and Arteriosclerosis," Professor Gotthard Schettler; "An Appraisal of the Exercise Electrocardiogram Test," Dr. Richard S. Gubner; "The Prognostic Implications of the Electrocardiogram," Dr. Harry E. Ungerleider; "Cancer—the Challenger," Dr. E. V.

Higgins; and "The Demonstration of Anti-hypertensive Substances in the Urine," Dr. E. Tanner.

M. F. Stone, *A Calling and Its College: A History of the American College of Life Underwriters*, pp. xii, 425, Richard D. Irwin, Inc., Homewood, Ill., 1963.

The author details a half-century of activity, Dr. Huebner's role as a crusader, and the work of the men who are dedicated to this project, that is, putting the life insurance business on a professional basis and establishing the means by which this could be achieved.

Miss Stone describes events which led to the incorporation of the American College of Life Underwriters in March 22, 1927, and those which led to the purchase of land for its own building in June, 1959. The college has been described as "the first permanent national center of insurance education on the collegiate and professional level." The author highlights the major policy actions of this organization, its growth to the present, and closes with the following sentence, "To be ever in the way of becoming is the aim of its leaders."

L. Guralnick, "Mortality by Occupation and Cause of Death among Men 20 to 64 Years of Age: United States, 1950," *Vital Statistics—Special Reports*, Vol. 53, pp. 93, U.S. Public Health Service, September, 1963.

This is a sequel to an earlier report on mortality by occupation and industry digested in *TSA*, XIV, 561.

J. P. Jones and L. R. Lisle, "Analysis of Benefits under 26 Selected Private Pension Plans," *Actuarial Study No. 56*, pp. 24, Division of the Actuary, Social Security Administration, Washington, January, 1963.

This study presents examples of benefits under twenty-six large private pension plans based on provisions as of January 1, 1962, with eighteen illustrative categories of wage and service history assumptions. They are not intended to represent "typical" or "average" retirement benefits for all United States workers, but to illustrate the interaction of the plan with OASDI formulas. Retirement was assumed at age 65 after thirty and forty years of service and with various level-wage and increasing-wage patterns. There are eleven tables and two charts which show benefits in dollar amounts and as a per cent of final wage.

Pension amounts under private plans show a wide range—not only due to different years of service and different wage levels but also because of variations in the benefit formulas. Some plans provide for a flat benefit which is added to the OASDI benefit. Other plans provide for an "offset" from the total benefit of a part of the OASDI benefit, while some plans provide for co-ordination by applying in the formula a percentage-of-earnings factor which is lower for annual earnings up to \$4,800, the maximum annual amount creditable under OASDI.

It appears that an employee covered under these plans, with the assumptions made in this study, can anticipate an average retirement benefit at age 65 of about one-half of his final wage, with about half of this retirement income from OASDI. This study does not consider wife's, survivor, or disability benefit provisions.

HEALTH INSURANCE

"Department of Defense Disease and Injury Codes," 1 July 1963.

This manual is designed "to provide a uniform system of medical diagnosis nomenclature and statistical classification for use by the Army, Navy, and Air Force of the

United States." The diagnosis code lists are based upon the *Standard Nomenclature of Diseases and Operations* published by the American Medical Association and the *Manual of International Statistical Classification of Diseases, Injuries and Causes of Death* by the World Health Organization; the latter was adapted to military needs. The several parts of the manual are as follows: Part I, "Diagnosis Nomenclature—Statistical Classification"; Part II, "Body Parts—Statistical Classification"; Part III, "Diagnosis Nomenclature—Alphabetical Index"; Part IV, "Body Parts—Alphabetical Index": Table A, Alphabetical Index to Body Parts Codes; Table B, Multiple Body Part Code List; Part V, "Body Part Diagnosis List"; Part VI, "External Causes of Injury—Statistical Classification"; Part VII, "Surgical Operations and Specified Procedures"; and Part VIII, "Histologic Classification of Neoplasms."

Parts VII and VIII have not yet been published. Other topics may be covered as occasion requires.

U.S. National Center for Health Statistics, *Origin, Program, and Operation of the U.S. National Health Survey*, pp. 41, Public Health Service Publication No. 1000, Series 1, No. 1, Washington, August, 1963.

The contents include sections on the need for and development of health statistics, problems of measurement, data available prior to the National Health Survey, experience in health statistics collection, and features of the origin, program, and operation of the Survey. The potentials and limitations of the Survey program are also described. The Appendix reprints a report containing "Recommendations for the Collection of Data on the Distribution and Effects of Illness, Injuries and Impairments in the United States," by the Subcommittee on National Morbidity Survey of the United States National Committee on Vital and Health Statistics, October, 1953; this report provided the basis for specific legislative authorization of the National Health Survey program. A second Appendix contains the National Health Survey Act.

U.S. National Center for Health Statistics, *Measurement of Personal Health Expenditures*, pp. 59, Public Health Service Publication No. 1000, Series 2, No. 2, Washington, June, 1963.

A special sample of urban households was selected to test a brief questionnaire on family medical and dental expenditures for use in the Health Interview Survey. Short self-enumeration forms were initially secured from about half of the sample and direct interviews were held with the rest. A subsequent intensive interview was conducted in the same households. The report points out areas of agreement and of divergence between the detailed interview and the other approaches for soliciting data regarding personal health expenditures.

U.S. National Center for Health Statistics, *The One-Hour Oral Glucose Tolerance Test*, pp. 34, Public Health Service Publication No. 1000, Series 2, No. 3, Washington, July, 1963.

"The publication, based on data collected during a study of 24 male prisoner volunteers aged 40-52 years from the Federal Correctional Institution in Milan, Michigan, contains statistics on responses to 100-gram and 50-gram doses of glucose given fasting and one, two, and three hours after a meal." The study strongly suggests that any of the procedures under investigation tend to rank persons with respect to glucose tolerance in about the same order from low to high, that a casual glucose tolerance procedure yields results quite similar to a standardized procedure, but that any procedure will yield variant results when repeated on the same individual. Therefore, administration of a glucose challenge whenever a person comes in for examination, no matter when

or what he last ate, appears to be an entirely reasonable method of testing for carbohydrate tolerance.

U.S. National Center for Health Statistics, *Family Income in Relation to Selected Health Characteristics, United States*, pp. 50, Public Health Service Publication No. 1000, Series 10, No. 2, Washington, July, 1963.

The data were gathered by interview through the United States National Health Survey. The accompanying table, excerpted from the report, shows that males experienced a decline in work-loss days from all causes of disability and from injury with rise in family income; the association is not as definite in the case of females. A similar situation is found in the discharge rates and average lengths of stays in short-term hospitals.

SEX AND AGE	ANNUAL FAMILY INCOME					
	All Incomes	Under \$2,000	\$2,000-3,999	\$4,000-6,999	\$7,000 and Over	Unknown
Work-Loss Days per Currently Employed Person per Year, All Causes*						
Males:						
25-44.....	4.3	6.8	5.0	3.9	3.8	6.0
45-64.....	6.8	12.4	8.5	6.4	5.1	5.5
Females:						
25-44.....	5.6	6.3	6.6	5.9	4.7	5.2
45-64.....	6.1	6.5	5.7	5.9	7.1	3.1
Work-Loss Days per Currently Employed Person per Year Due to Injury†						
Males:						
25-44.....	1.44	2.55	1.78	1.27	1.07	2.54
45-64.....	1.52	2.93	1.65	1.55	1.14	1.04
Females:						
25-44.....	.71	.25	.86	.97	.34	1.37
45-64.....	1.21	1.12	.84	1.46	1.38
No. of Patients Discharged per 100 Population per Year from Short-Stay Hospitals‡						
Males:						
25-34.....	7.3	7.5	8.9	6.9	6.6	7.6
35-44.....	8.5	10.0	9.9	8.5	7.7	6.0
45-64.....	11.3	12.7	12.1	10.0	11.5	12.4
Females:						
25-34.....	26.3	25.2	24.4	26.8	25.0	37.2
35-44.....	16.0	15.0	15.2	16.5	16.5	14.3
45-64.....	11.8	11.0	10.6	11.8	11.2	18.1
Average Length of Stay in Short-Stay Hospitals in Days‡						
Males:						
25-34.....	9.3	14.5	12.9	6.9	8.4
35-44.....	11.8	23.4	12.9	8.4	7.2	44.6
45-64.....	12.2	15.0	12.3	11.5	10.6	14.9
Females:						
25-34.....	5.2	6.3	5.0	5.1	4.8	5.7
35-44.....	6.7	8.6	7.5	6.2	6.2	8.4
45-64.....	11.5	10.6	9.6	15.2	9.5	10.4

* Survey period covers July, 1960—June, 1961.

† Survey period covers July, 1959—June, 1961.

‡ Survey period covers July, 1958—June, 1960.

U.S. National Center for Health Statistics, *Length of Convalescence after Surgery, United States, July 1960-June 1961*, pp. 47, Public Health Service Publication No. 1000, Series 10, No. 3, Washington, July, 1963.

The data were collected by interview as part of the National Health Survey. The study was confined to six types of operations selected because the procedure was easily identifiable in the interview and because a sufficient number of cases was available for analysis; these were tonsillectomy, appendectomy, hemorrhoidectomy, hernia, hysterectomy, and delivery other than caesarean. For the survey, length of convalescence was defined as the number of days from the date of operation on a hospitalized patient to the date on which the person returned to his or her usually full-time activity of working, keeping house, or going to school. The principal findings are shown below.

Type of Operation	Average No. of Postoperative Hospital Days	Average No. of Posthospital Convalescent Days	Average No. of Convalescent Days from Surgery to Resumption of Usual Full-Time Activity
Tonsillectomy	1.3	9.0	10.2
Appendectomy	6.3	21.8	28.1
Hemorrhoidectomy.....	6.0	22.2	28.2
Hernia	6.8	35.1	41.9
Hysterectomy.....	8.8	43.2	52.0
Delivery other than caesarean	3.9	11.5	15.4

An increasing duration of convalescence was noted with increase in age of the patient, especially for tonsillectomy and appendectomy. Although duration was also associated with age for the other operations selected for study, other factors such as sex and usual activity had a more important role. A longer convalescence was recorded for usually working persons than for others.

U.S. National Center for Health Statistics, *Disability Days, United States, July 1961-June 1962*, pp. 52, Public Health Service Publication No. 1000, Series 10, No. 4, Washington, October, 1963.

The National Health Survey defines disability as "a general term used to describe any temporary or long-term reduction of a person's activity as a result of an acute or chronic condition." This report presents data showing restricted-activity days, bed-disability days, school-loss days, and work-loss days according to several social, economic, and geographic characteristics. The following data regarding work-loss days are excerpted from the report; these data were gathered in household interviews.

WORK-LOSS DAYS PER CURRENTLY EMPLOYED MALE PER YEAR

INDUSTRY; OCCUPATION; FAMILY INCOME	AGE, YEARS				
	17 and Over	17-24	25-44	45-64	65 and Over
Industry group:					
All groups	5.7	3.1	4.6	7.8	9.4
Agriculture	7.4		5.7	9.8	10.5
Mining	7.0		6.7		
Construction	5.7	4.8	4.4	7.6	
Manufacturing	5.7	3.8	4.1	7.9	16.1
Transportation and public utilities	6.4		4.9	8.7	
Wholesale and retail trade	4.7	2.4	4.5	6.3	4.9
Finance, insurance, and real estate	4.0			6.2	
Service and miscellaneous	5.7		4.8	7.7	9.0
Public administration	7.0		5.7	8.2	11.3
Occupation group:					
Professional, technical, and kindred workers ..	3.9		3.2	5.4	7.1
Farmers and farm managers	7.9		4.6	9.2	11.5
Managers, officials, and proprietors, except farm ..	5.2		3.5	5.9	11.9
Clerical and kindred workers	4.2		4.2	6.6	
Sales workers	3.9		2.7	5.8	
Craftsmen, foremen, and kindred workers	6.5	5.4	4.5	9.0	8.3
Operatives and kindred workers	5.8	3.6	5.1	7.8	11.1
Service workers	7.4	4.0	6.1	9.8	10.1
Farm laborers and foremen	6.8		7.5	12.7	
Laborers, except farm and mine	7.5	3.2	7.9	9.9	
Family income:					
Under \$2,000	8.0	2.9	6.0	13.0	8.9
\$2,000-\$3,999	7.5	4.0	6.4	10.3	10.2
\$4,000-\$6,999	5.4	2.8	4.6	7.0	10.6
\$7,000 and over	5.1	3.0	3.7	7.1	10.3

NOTE: Figures are not shown when they do not meet standards of reliability or precision.

SOCIAL SECURITY

Department of Health, Education, and Welfare, *Social Security Handbook on Old-Age, Survivors, and Disability Insurance, Second Edition*, pp. 314, Washington, January, 1963.

This *Handbook* summarizes, in considerable detail, the content of law, regulation, and, to some extent, administrative procedures governing the operation of the Old-Age, Survivors, and Disability Insurance program. It contains as well a brief description of related benefit programs.

With respect to OASDI, the *Handbook* is quite complete. The contents refer to inclusions and exclusions from coverage, requirements for entitlement to benefits, kinds and amounts of benefits, and events requiring termination, withholding, or deductions. Some of the material (e.g., selection of a payee in the case of a minor or incompetent beneficiary) is not readily available elsewhere. Unfortunately, there are a number of misprints in the section relating to the reduction of old age and wife's benefits when the initial claim is made between ages 62 and 65. Generally, the material is accurate, complete, and well indexed, resulting in a convenient reference.

R. J. Myers, *Summary History of Cost Estimates for Disability Benefits*, pp. 3, Actuarial Note No. 3, Social Security Administration, Washington, July, 1963.

This actuarial note gives a brief historical summary of the cost estimates for the monthly disability benefits under OASDI. The changes in the cost estimates arose both from amended benefit provisions and from revised cost assumptions.

The estimated intermediate cost, on a level basis, was 0.42 per cent of taxable payroll for the initial program enacted in 1956 (as against the available financing from the $\frac{1}{2}$ per cent combined employer-employee contribution rate). Certain downward adjustments were made to reflect more refined methods of cost estimating and the availability of some data from the operations of the system. As a result, the benefits were liberalized in both 1958 and 1960, with the cost at the latter date being raised to .56 per cent of taxable payroll. Accordingly, at this time, the program showed a deficit of .06 per cent of payroll, as against a margin of safety of .08 per cent of payroll indicated for the estimates of the original program. It was thought that the former deficit was within the margins of variation possible, so that the financing of the program was not changed. Later experience, however, has indicated that the level cost, on an intermediate basis, is .64 per cent of taxable payroll, so that some increased financing is necessary for the expanded program.

G. Hutchinson, *Payees for Lump-Sum Death Payments Awarded in 1962*, pp. 2, Actuarial Note No. 5, Social Security Administration, Washington, August, 1963.

This note shows the distribution of lump-sum death payments under OASDI as between spouse of the deceased, other persons who paid burial expenses, and funeral homes (60, 21, and 19 per cent, respectively).

M. C. Hart, *Conversion of Existing Benefits under Formula Changes*, pp. 6, Actuarial Note No. 6, Social Security Administration, Washington, October, 1963.

This note contains a historical summary of the basis of conversion of benefits under the OASDI program for those on the roll when changes in the benefit formula were enacted. Particular attention is directed to the methodology underlying the conversion included in the 1950 Amendments.

Railroad Retirement Board, *Actuarial Study No. 7: Method of Financing Used by the Railroad Retirement System—Analysis of Characteristics, Principles, and Implications*, pp. 28, Chicago, June, 1963.

This study is a reference source on the characteristics of the method of financing used by the Railroad Retirement system. It gives a detailed explanation with particular emphasis on the effect of payroll assumptions (and declining payrolls) and on the importance of the financial interchange with the Old-Age, Survivors, and Disability Insurance system.

Among the actuarial concepts examined are the criteria of actuarial soundness, unfunded liability (the deficit for present members is about \$5 billion), and the normal cost (8.92 per cent, as compared with an ultimate scheduled employee tax rate of 9 $\frac{1}{4}$ per cent).

A. W. Brewster and Peggy Mitchell, *State Employees' Health Benefit Programs*, Health Economics Series, No. 2, Public Health Service, Washington, 1963, pp. 21.

State and local governments comprise the largest group of employers who provide few (or no) health benefits for their employees. In 1962, only thirteen states and Puerto Rico were providing health benefit programs to all their employees. Detailed information on these programs is tabulated in this study.

Taken together, the thirty-one health benefit programs offered by the thirteen states reflect the variety of health benefit plans made available to the majority of workers in private employment and the federal government. None of the state plans is self-insured.

H. Malisoff, *The Financing of Extended Unemployment Insurance Benefits in the United States*, pp. 52, The W. E. Upjohn Institute for Employment Research, Kalamazoo, Michigan, April, 1963.

This report presents the results of a study of recent local, state, and national programs that have provided, through a diversity of methods, for an extended duration of unemployment benefits beyond the limits set for regular benefits. For purpose of comparison, the types of benefits studied are designated as:

1. Regular or normal state benefits (RB)—payable through either the twenty-sixth week or the regular maximum if less.
2. Extra-regular benefits (ERB)—those regular benefit weeks after the twenty-sixth, payable in any period, and financed from state funds except when federal emergency legislation provided for reimbursement to the state for ERB.
3. State-provided extended benefits (EB)—payable in periods of high unemployment, as stipulated by statute.
4. Temporary Unemployment Compensation (TUC)—extended benefits payable by seventeen states during 1958–59 under an agreement with the federal government which provided financing through repayable federal advances.
5. Temporary Extended Unemployment Compensation (TEUC)—extended benefits payable by all states in 1961 and 1962 under agreement with the federal government which provided for repayment by deferred increases in the federal unemployment tax during 1963 and 1964 (1962 and 1963 taxable payrolls).

The author opens his discussion with a brief description of the operation of the TUC and TEUC programs, including comments on some existing or anticipated financial problems that arise in several of the participating states because of the cumulative tax rate incorporated in the repayment schedules. The experience of each of the twelve states having independent extended benefit (EB) plans is then presented in somewhat greater detail. The more important extended benefit proposals that have been made during the period 1961–63 are discussed, and in the concluding section the author outlines his appraisal of past programs and suggests several alternatives for financing such benefits in the future.

J. P. Jones, *Remarriage Tables Based on Experience under OASDI and U.S. Employees Compensation Systems*, Actuarial Study No. 55, pp. 38, Division of the Actuary, Social Security Administration, Washington, December, 1962.

Widow remarriage experience in the United States in the general population is available only for certain states and by attained age groupings. This study contains data based on remarriage experience under OASDI and under the United States Employees' Compensation system (workmen's compensation for Federal employees) including two new tables (with commutation columns at 3 per cent)—the 1916–55 United States Employees' Compensation Remarriage Table and the 1956 OASDI Remarriage Table. It also contains a comparison of remarriage rates under the OASDI and United States Employees' Compensation systems with remarriage rates under the Canada Pension Act (employment-related injuries for the armed forces), the Railroad Retirement Act, and the available experience in the general United States population.

The data suggest that remarriage rates under OASDI do not differ greatly from those of the general population in spite of the possible deterrent effect on remarriage of the resulting termination of the OASDI benefit. There is some evidence, which is not statistically significant, that young widows with children are more likely to remarry than young widows generally, although it appears that remarriage rates vary inversely

with the number of children. The increases in the widow remarriage rates from 1940 to 1950 are considerably higher than the corresponding reported increase in the over-all population marriage rate during this period. As in all studies of remarriage of widows, the rates by duration are low for the first year, reach a peak after two or three years, and then show a gradual decline.

The study also lists the principal available remarriage tables by name, source, mortality base, and commutation columns available.

OTHER TOPICS

R. J. Myers, *Comparison of Mortality in Large Western European Countries with that of the United States*, pp. 3, Actuarial Note No. 4, Social Security Administration, Washington, August, 1963.

This note compares mortality experienced in 1959 in England, France, and West Germany with that of the United States. It shows that these countries are at about the same general level, with lower mortality in the United States at the youngest and oldest ages, and generally higher mortality rates at ages 10-69.

"With Special Reference to the Situation and Recent Trends of Mortality in the World," *Population Bulletin of the United Nations, No. 6-1962*, pp. 210, New York, 1963.

"Attention is focused chiefly on measures of the level of mortality and its changes, rather than on the problems of prevention and cure of disease and the saving of life. An effort is made to relate the recent changes to long-term past trends of mortality." The crude death rate for the world is estimated at 19 per 1,000 for 1955-59 and the expectation of life at birth at 50-60 years for 1955-58.

*M. Spiegelman, "The Organization of the Vital and Health Statistics Monograph Program," a paper in *Emerging Techniques in Population Research*, published by the Milbank Memorial Fund, New York, 1963.

The basic objectives are contained in the statement: "Using the opportunity provided by the 1960 census of population for a close examination of current vital and health statistics, the purpose of this proposal is to produce a series of monographs based on specific and general topics which will not only present analyses of these current findings but also discuss trends and bring into evidence whatever data from local surveys or clinical experience, in this country or elsewhere, are pertinent."

*E. M. Kitagawa and P. M. Hauser, "Methods Used in a Current Study of Social and Economic Differentials in Mortality," a paper in *Emerging Techniques in Population Research*, published by the Milbank Memorial Fund, New York, 1963.

The approach followed in the conduct of this study is contained in the statement: "The serious problem posed by the limitation of personal, social and economic information about the decedent on the death certificate, and the lack of correspondence between the reporting of particular characteristics on the death certificate and on the census population schedule for the same person, is resolved by matching death certificates for persons who died after the 1960 Census to the 1960 census schedules. Such matching of death certificates with census returns provides not only all of the census information for the decedent, but also for the decedent's family, household, and housing unit. In addition, it has the advantage of assuring comparable information for the numerator and the denominator of the death rate."

L. I. Dublin, *Suicide: A Sociological and Statistical Study*, pp. viii, 240, Ronald Press Co., New York, 1963.

The author, who retired as second vice-president and statistician of the Metropolitan Life Insurance Company in 1952, was asked by the National Institute of Mental Health to bring up to date his work on this subject of thirty years earlier. He "approached the subject to point up the distribution of suicide in the various groups of the population in our country and abroad; the influence of environment; and the emotional factors which are presumably involved. Clearly, the phenomenon of suicide presents a complex reaction of the individual to the forces to which he is exposed.

"In spite of the many additional studies that have been made of the incidence of suicide and the impressive advances in psychiatry, the phenomenon is still as baffling as ever."

The book is divided into five parts, namely: "People Who Commit Suicide," "The Setting of Suicide," "The History of Suicide," "Psychological Aspects of Suicide," and "Toward the Conquest of Suicide."

The Appendix contains twenty-two tables of suicide data.