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BOOK REVIEWS AND NOTICES*

*Barnet N. Berin, *The Fundamentals of Pension Mathematics*, pp. 125, Committee on Continuing Education of the Actuaries Club of New York, June, 1971, \$12.50.

The text consists of a loose-leaf collection of lecture notes developed by Mr. Berin in presentations to actuarial students under the sponsorship of the Actuaries Club of New York. The first half of the book consists of valuation formulas and equations for determining actuarial gain and loss by source. The second half of the book deals with some general practical problems.

The first chapter sets forth the concept of a funding method and its purpose. Unit credit, entry age normal cost, frozen initial liability, attained age normal, aggregate cost, terminal funding, and pay-as-you-go methods are discussed, along with the basic formulas for developing the normal cost and accrued liability. This section consists merely of a statement of the methods, with the exception of a defense of the unit credit method in which the author comments that too much attention has been directed to the fact that unit credit costs increase steadily for an individual employee and contends that in an open group cost increases in the aggregate occur infrequently. Unfortunately, the rise in cost under a unit credit plan is more likely to occur during the period of time immediately preceding the date an employer goes out of business or during a period when an entire industry is going downhill. It becomes apparent later on, however, that the author's interest in extensive gain and loss analysis may have led him to the unit credit method as being a rational method for gain and loss analysis, and thus he defends that method for funding.

The second chapter discusses the role of the assets, with comments on book value, market value, and adjusted asset systems. The author observes that an adjusted asset system must offer some method of smoothing or reducing variations in asset values. The author does not believe that there is any problem, however, in fluctuations in the amount of realized gains from year to year, but rather feels that the problem of fluctuations relates to the unrealized gains alone. Clearly, there can also be situations where the variation in realized gains exceeds the acceptable range. The chapter presents an extensive illustration of an adjusted book value method where gains are spread over a four-year period. In this example the asset value exceeds the full market value of the fund in two of the eight years in the illustration, and, while such an occurrence might be acceptable given very abnormal investment conditions such as those of the early 1930's where market values were depressed well below realistic levels, the use of an asset value in excess of market value cannot be considered conservative.

* 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*.

under the fairly normal investment climate that has existed in the recent past.

The third chapter explores the unit credit valuation and consists almost entirely of a discussion of the need for gain and loss analysis, the basic relationships, and various adjustments that are involved. The chapter ends with a set of practical exercises based on data for a given employee group at the beginning and end of a plan year, together with their average salaries, data on the new entrants, terminations and deaths, and other information sufficient to permit the conduct of an actuarial valuation together with gain and loss analysis on the unit credit method. The author merely asserts the value of such analysis without comments as to the cost involved or the significance of the results for cases of various size. While the author cannot be faulted for suggesting his own pet methods, the presentation appears to go too far in suggesting to the student that this is the only proper way to conduct an actuarial valuation.

Chapter 4 covers the entry age normal cost method. This method is described as "an immediate gain valuation," although Revenue Ruling 67-116 does set forth the circumstances under which the actuarial gains can be spread, and a number of practicing actuaries do spread the gains subject to these limits. The discussion again centers primarily on gain and loss analysis, although with this method alternatives are offered which make the analysis somewhat more arbitrary than in the case of the unit credit method. Again, the chapter closes with a set of practical exercises that should be of considerable value to the student.

Chapter 5 covers the aggregate cost method, with a discussion of actuarial gains and several practical problems, and again closes with a set of specific and useful examples. Chapter 6 covers the frozen initial liability method. The remainder of the text consists primarily of practical comments relating to data checks in the valuation, the problems involved in valuing disability pensions, death benefits, early retirement benefits, the content of the valuation report, cost estimates for plan changes, an introduction to tax deductions, option factors, multiemployer pension plans, group annuity dividend formulas, and variable annuities. While these latter chapters are incomplete, they do provide a practical starting point for the actuarial student.

In the chapter on ancillary benefits, the author observes that the one-year term cost method can be a most useful method for ancillary benefits but indicates that the one-year term cost method should be used only when accrued liabilities decrease (or increase only slightly) upon the occurrence of the event in question. This would usually be the case with disability pensions, widow's benefits, and preretirement death benefits. In the case of unreduced or supplemental early retirement benefits, the increase in the accrued liability upon retirement can be so great that it would not meet the author's test. While there is a suggestion that variable retirement ages might replace a single age, further discussion of the problems of valuing early retirement benefits would have been helpful here.

In the section on the valuation report, the author suggests that it is not

necessary to develop a valuation based on maximum likelihood estimates of valuation parameters, since a regular test of actuarial assumptions by gain and loss analysis will measure the effectiveness of the assumptions. There is an implication in this discussion that actuaries never employ the maximum likelihood estimates but rather that actuarial valuations are always conducted on the basis of conservative estimates of various parameters together with the use of offsetting, counterbalancing assumptions such as an understatement of both salary scale factors and rate of interest. In practice, however, the trend certainly is to further refinement and greater realism in valuation factors and assumptions.

The text is heavily weighted toward the development of actuarial gain and loss formulas, the desirability of such analysis, and the advantages of the unit credit method in connection therewith. No comment critical of either can be found. The presentation is thus unbalanced, since the disadvantages of gain and loss analysis are not set forth, nor are any of the alternative approaches to actuarial valuation. Further, because of the extensive subject matter, thorough treatment of each of the items was clearly not possible. On the other hand, the text does set forth some very interesting thoughts and commentary from a competent practicing actuary who has obviously had extensive experience in the field of private pension plans. As such, it offers added insights into various nooks and crannies of the actuarial valuation process, and many consulting actuaries and most students could profit from a thorough study of the text and the completion of the illustrative examples.

PAUL H. JACKSON

*Douglas G. Olson and Howard E. Winklevoss, *Variable Life Insurance: Current Issues and Developments*, pp. v, 131, Insurance Department, University of Pennsylvania, Philadelphia, Pa., 1971, \$5.00.

Although variable life insurance had been sold in Europe for as long as fifteen years and in Canada for a much shorter period, it aroused relatively little apparent interest in the United States until the late 1960's. The turning point was the presentation, at the November, 1969, meeting of the Society, of the paper on variable life insurance by three New York Life actuaries. The interest of a major company in variable life insurance, as evidenced by that paper, served as a catalyst to stimulate industry activity.

Determined not to repeat the variable annuity experience, an industry task force had been formed to co-ordinate efforts to get the regulatory environment for variable life insurance clarified. Within a very short time the NAIC had approved in December, 1969, a Model Variable Contract Law and had amended the Model Variable Contract Regulation (subsequently further amended in December, 1970), and the task force had broached the subject with the Securities and Exchange Commission.

Recognizing the importance and attention being accorded variable life

insurance, the Wharton School of the University of Pennsylvania conducted a conference in the spring of 1971 to "provide a forum for a general discussion of recent developments in variable life insurance." The proceedings of that conference comprise the book under review.

The book is divided into six parts, having the titles "Introduction," "Regulation," "Product Design," "Marketing," "Variable Life Insurance and the Capital Markets," and "Conclusion." The Introduction provides some background information and discusses the numerous decisions, particularly in the marketing area, that must be considered by a company contemplating the issuance of variable life insurance. Part II, "Regulation," contains three papers covering the areas of state regulation, federal regulation, and federal taxation.

The paper on state regulation details the areas of concern regarding variable life insurance from the point of view of a state insurance department, in particular the New York department.

The paper on federal regulation, one of the best in the book, describes the historical background and legal framework for any potential federal regulation of variable life insurance. In light of the basis for the Supreme Court decision in the variable annuity case, the task force has been at pains to define the class of policies for which it seeks exemption from the several federal securities acts in such a way that it is clear that the insurance element predominates over the investment element.

It should be noted that the generic term "variable life insurance" has no generally recognized definition at this time. Perhaps a convenient meaning would be the definition used in the industry's petition to the SEC (and also contemplated by the Model Regulation): "policies in which the death benefit varies to reflect the investment experience of a separate account." The distinction should be kept in mind between this broad class of variable life insurance policies and the much narrower subclass, characterized by several specific criteria, for which the industry seeks exemption.

The paper indicates that only five states have passed legislation that specifically authorizes the sale of variable life insurance. That number has now increased, as of this writing, to twenty-one. The approach to the SEC, alluded to in the paper, finally resulted in a hearing on the industry's petition, which began on April 10 of this year and is currently in progress.

The third paper of this section speculates on the probable tax implications of variable life insurance, from both policyholder and company viewpoints. This paper is just as pertinent today, since essentially no tax aspects of variable life insurance have been clarified to date.

Part III, "Product Design," contains four papers, three of which describe, respectively, the three most prominent variable life insurance designs to date: the New York Life, paid-up, and fully variable designs. The descriptions, although still basically accurate, should not be relied on for precise policy detail, since I understand that all three policies have been changed to some degree since the conference. The fourth paper presents a comprehensive treat-

ment of indexed life insurance (death benefits varying according to an external index, such as the consumer price index), in which the SEC has expressed little interest and which is excluded from the class of variable life insurance defined by the Model Regulation.

Part IV, "Marketing," anticipates the agent's likely response to variable life insurance and the marketing conditions that may be expected to prevail. There is also an interesting account of the Canadian companies' experience with variable life insurance.

Part V, "Variable Life Insurance and the Capital Markets," was presumably intended to examine the economic implications of variable life insurance. Both economists have avoided direct discussion of this aspect, however, and have addressed themselves instead to the question of the general availability of stocks for institutional investors and the price implications of such availability, with no specific reference to variable life insurance. It would seem that some form of analysis indicating the impact on the securities markets of various assumed levels of variable life insurance sales would have been desirable.

The Conclusion summarizes the areas that were covered at the conference and lists a number of unanswered questions that remain.

I feel that the chief value of the book lies in its use as a convenient single source of much information on variable life insurance. Nonetheless, some of the information is already outdated, and this outdated process is bound to continue. It would seem, then, that the book might be recommended mainly as a useful introduction to a subject that continues to occupy major industry attention.

EDWARD SCHER

[See also a review of this text in the September, 1971, issue of *The Actuary* by Anna M. Rappaport.—Ed.]

*Martin S. Feldstein, *The Rising Cost of Hospital Care*, pp. 88, Information Resources Press, Washington, D.C., 1971.

Martin S. Feldstein, Professor of Economics at Harvard University, on behalf of the National Center for Health Services Research and Development, has made a study of why hospital costs have risen so much and so rapidly. Anyone who is interested in putting the rapid rise of hospital costs into perspective would be well advised to spend the short time required to read this brief essay on Professor Feldstein's findings and conclusions.

In general, the study proceeds from an analysis of how and how much hospital costs have risen to why they have risen. Professor Feldstein emphasizes that the cost per day of hospital care has risen much more than the general level of prices for two reasons: first, a day of hospital care is a product that has been continually changing; second, hospital wage rates have been rising more rapidly than the general level of wages. These two phenomena, in turn, are primarily the result of increased patient demand for hospital services, which

has been intensified by increased insurance coverage and to which hospitals have responded by introducing more expensive technology and raising hospital wages.

From 1950 to 1968 the average cost per patient day in hospital has increased from \$15.62 to \$61.38, or 293 per cent. Because the consumer price index grew 45 per cent during this period, this implies an increase in relative hospital costs of 171 per cent. In 1950 private hospital insurance covered 25.7 per cent of total hospital costs; the percentage covered by government programs was identical. By 1968 the percentage of hospital costs paid by private insurance had increased to 44.2 per cent, with the government share rising to 40 per cent. When deductions are made in 1950 and 1968 for such third-party reimbursement, the "net" cost of an average hospital day is demonstrated to have risen only 28 per cent—that is, from \$7.59 in 1950 to \$9.70 in 1968. When this rise is "deflated" to account for the rise in the CPI, it is found that the relative net cost of a day in the hospital actually declined more than 16 per cent from 1950 to 1968. Feldstein exclaims, "It is not surprising that patients' demands for more and better hospital services have increased!"

Among factors causing the increasing demands for hospital services, the growth of private and public insurance coverage has been the greatest single cause, according to Feldstein. Other factors are rising income generally leading to a willingness to pay more for perceived higher-quality care; a changed attitude toward hospital care among lower- and middle-income groups; a change in the mix of kinds of diseases treated, manifesting itself in a reduction in the number of patients with infectious and parasitic diseases and an increase in the number with cancer and circulatory system diseases, the latter requiring more hospital days to treat. Although hospital use varies substantially by age and sex, Feldstein concludes that the changing demographic structure of the population has had no effect on the over-all demand for hospital bed days; while the percentage of persons over 65 in the population has increased from 8 to 10 per cent, at the same time the percentage of persons under 25 has also increased, thereby offsetting increased use of hospital beds by the elderly.

A chapter entitled "Changing Technology" stresses several key aspects of the relation between technical progress and health costs that have been generally ignored or incorrectly assessed:

1. The rise in cost per patient day is not evidence that there has been no technical progress or gain in productivity. Because hospital wages have risen so fast, hospitals have economized on labor by using more disposable items, by automating laboratories and clinical procedures, and in general by other forms of substituting equipment and supplies for personnel.
2. Changing demand can alter technology without any scientific progress. Expensive new techniques are introduced by a few hospitals and spread gradually over time to an increasing number of institutions. This spreading of high-cost techniques does not, of course, represent new scientific knowledge.
3. Technical progress can increase as well as decrease costs. While the cost of a given level of services may be lowered potentially by technical progress, the reaction of

patients may be to perceive a new opportunity for much greater benefits with a relatively small increase in cost.

4. The current approach to medical research may be biased toward producing information that causes technical progress to increase costs.

In a chapter on rising wage rates, Professor Feldstein points out that, whereas there has been an increase in the number of high-paid skilled employees (nurses and technicians), there has been an even greater increase in the number of lower-paid, relatively unskilled employees. Hence the average skill level of hospital employees has actually decreased. Furthermore, the wage levels for the low-paid hospital jobs have increased somewhat more slowly than the wage levels of the higher-paid technical and professional employees. Feldstein also explores "the catching-up hypothesis," that is, the hypothesis that the rapid rise in hospital wages has been a process of "catching up" with wage levels in other industries. While the average annual income of hospital employees (\$4,918 in 1968) was below the median income of manufacturing workers (\$6,371 in 1968) and was rising more rapidly, a comparison of certain types of jobs in hospitals which are comparable to nonhospital jobs, for example, clerical and housekeeping activities, shows that by now any differences have virtually disappeared.

In his summary chapter Professor Feldstein concludes that, because a day of hospital care is a product that has been continually changing, its rising cost is not comparable to price increases for other goods and services that consumers buy. Moreover, the changing character of the product implies that cost increases should not be interpreted as evidence of inefficiency or a low rate of technical progress. The production of high-cost hospital care is a self-reinforcing process: the risk of very expensive hospital care stimulates patients to prepay hospital bills through relatively comprehensive insurance, while the growth of such insurance makes hospital care more expensive.

In the extreme case in which everyone has hospital insurance—say, of the Medicare variety—patients' willingness to pay would cease to provide any check on hospital cost inflation; the level of hospital costs would then have to be determined by some type of government regulatory body. The experience in Canada and Europe indicates that governments have generally been unsuccessful in restraining hospital costs even when, in principle, they have the authority to do so.

Increasing the supply of hospital facilities and personnel will not serve to stabilize prices in the classical economic sense. On the contrary, more funds to increase the supply of facilities and personnel are likely to accelerate the increase in total spending on hospital care.

The general excellence of this essay is marred by the final paragraph, in which the author forgets his own prior observation that "the growth of insurance coverage is not an independent factor but is in part a response to the rapid increase in hospital charges" and argues that "the essence of the hospital cost problem . . . is that our current methods of hospital insurance have en-

couraged hospitals to raise wage rates and to increase the sophistication and expensiveness of their product more rapidly than the public actually wants. The challenge to government policy is to find new methods of organization and financing that will make the future development of hospital care more responsive to the true preferences of the people." Professor Feldstein ignores the fact that the hospital is the physician's workshop and that some of the expansion of hospital equipment and services is directly attributable to the desire of the physician to have the finest workshop. Community pride is also a factor. Finally, there is considerable doubt as to what are the "true preferences" of the people. "Spare no expense" is a not uncommon cry of the sick.

DANIEL W. PETTENGILL

*Mitchell Myer and Harland Fox, *Early Retirement Programs*, pp. 42, The Conference Board, Inc., 845 Third Avenue, New York, N.Y. 10022, 1971, \$1.00 for members of the Conference, \$5.00 for nonmembers.

This Conference Board study documents the basic trends in corporate early retirement practices during the 1960's, with special emphasis on the liberalization of benefits that occurred. The study also provides a detailed picture of current practices. The Conference Board's last study of corporate retirement practices was published in the early 1960's, at which time discussion centered on the merits of flexibility in the application of the normal retirement age concept to employees who were willing and able to work beyond age 65. During the 1960's the availability of social security at age 62, the more liberal early retirement benefits negotiated in several industries, and the use of early retirement as a management tool to reduce staff shifted the interest to early retirement benefits.

This study covers information obtained from 641 manufacturers and contains basic statistical information regarding the age and service requirements for pension benefits broken down by negotiated and unilateral plans and by industry, and there is a comparison with the percentages from the 1961 study. A separate chapter covers the company consent retirement. The use of consent as a basic requirement for early retirement has dropped off somewhat during the 1960's, but there was found to be an increase in plans providing both vested pensions and a company consent benefit in a more generous amount. In view of IRS strictures in this regard, this is somewhat surprising.

The study reviews the transformation of early retirement pensions from actuarial reduction into a varied benefit package tailored to particular objectives. Liberalized early retirement discounts, general supplements, senior supplements, and company option supplements are described, together with their prevalence by industry and size of company, and the general level of benefits provided.

In a final chapter a breakdown is given of the early retirements expressed as a percentage of total retirements. In 16 per cent of the companies reporting, more than 50 per cent of the retirements were early retirements. Under those plans with early retirement supplements or benefits greater than actuarial

equivalents, the percentage of eligible employees who retired early has increased from 2 per cent in 1961 to 5 per cent in 1970.

The various statistics assembled in this study will be most useful to practicing actuaries.

PAUL H. JACKSON

William Feller, *An Introduction to Probability Theory and Its Applications*, Vol. I (3d ed.), Vol. II (2d ed.), pp. 509, 670, John Wiley & Sons, Inc., New York, N.Y. 1968, 1970, \$14.45, \$15.95.

Although many actuaries have probably read other reviews of Professor Feller's Volume I, this classic book on probability easily merits another review. Volume I first appeared in 1950. The third edition was reprinted (with a few minor changes) after Professor Feller's death in 1970. This book helped to establish probability as a separate discipline in North America and indeed throughout the world. It has been the reviewer's privilege to use this textbook three times in a sequence of courses on probability and stochastic processes. This third year has revealed even greater depth in this well-written book. Perhaps a focus on several passages will inspire early users of Feller to consult the book again and new users to study more deeply. The description of the simplest queuing process on pages 306-7 is very well done and serves as an introduction to further study in queues in this book and elsewhere. There is much in common between the problems of collective risk theory and queuing theory, as Professor Hilary Seal has told us. Chapter 13 is devoted to recurrent events and renewal theory. The description of self-renewing aggregates with its table on pages 334-35 seemed to capture the interest of the reviewer's actuarial students. Markov chains are discussed in Chapters 15 and 16. These probabilistic models of natural phenomena will be increasingly used in demographic studies. This is also true of Chapter 17, which includes discussions of the birth-and-death stochastic process. Volume II demands much more mathematical background to be useful. The reviewer has used this volume in his research and found it very valuable. Many readers of this review would do well to consult a library copy of Volume II before purchasing it.

JOHN A. BEEKMAN

*C. Stanley Ogilvy, *Tomorrow's Math* (2d ed.), pp. 198, Oxford University Press, London, 1972, \$7.50.

For a number of years actuaries and many others have been jogging to improve and preserve their conditions of physical fitness. The book *Tomorrow's Math* gives actuaries a chance for some mental jogging, with the aim of sharpening their problem-solving abilities. C. Stanley Ogilvy's book has the subtitle "Unsolved Problems of the Amateur," and he delightfully presents challenging problems for all of us with an interest in mathematics. The problems are drawn from various branches of mathematics, as revealed by the table of contents: (1) "The Meaning of an Unsolved Problem," (2) "Applied Problems," (3)

"Problems concerning Games," (4) "Geometrical Problems," (5) "Arithmetical Problems," (6) "Topological Problems," (7) "Probability and Combinatorial Problems," and (8) "Glimpse of Some Problems of Analysis." Students of the Society's examination will appreciate the opening sentence of Chapter 7, which states: "There is no branch of mathematics quite so deceptively tricky as probability theory."

Some of the flavor of the kinds of problems discussed is disclosed by a recital of the more intriguing footnotes. Some that interested the reviewer were the following:

At the beginning of this chapter in the first edition there was a bridge problem of Ulam, who asked for a deal such that (1) North and South can make, against any defense, a grand slam in any suit provided that suit is trump, but (2) against good defense they can make only five no-trump. Three solutions were soon forthcoming, two from amateurs and one from the professional mathematician Marion K. Fort [p. 167, n. 39].

Leonard Euler (1707-83) [was] said to be the most prolific mathematician in history.

E. T. Parker, R. C. Bose, and S. S. Shrikhande solved the tenth-order problem, thus disproving Euler's conjecture. Their discovery made the front page of the New York Times (April 26, 1959), a most unusual occurrence for any topic in mathematics. Gardner's column in the November 1959 Scientific American gave the full story, and the front cover of the magazine carried a color picture of the 10×10 Graeco-Latin square of our Figure 12 [p. 168, n. 42].

That four colors are sufficient to color a map of thirty-four or fewer countries was proved by Philip Franklin of M.I.T., *Journal of Mathematics and Physics*, Vol. 16 (1937), p. 172 [p. 186, n. 129].

The reviewer feels that many actuaries will find this book an ideal source of wit-sharpening problems and hours of pleasure.

JOHN A. BEEKMAN

SELECT CURRENT BIBLIOGRAPHY

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

ACTUARIAL AND OTHER MATHEMATICS, STATISTICS, GRADUATION

Howard N. Fullerton, "Table of Expected Working Life for Men, 1968," June, 1971, issue of *Monthly Labor Review*. Reviewed in *The Actuary*, November, 1971.

"Guidelines for the Practice of Operations Research," *Operations Research*, Vol. 19, September, 1971. Reviewed in *The Actuary*, February, 1972.

LIFE INSURANCE AND ANNUITIES

William T. Hold and Jerry D. Todd, *The Foundations of Life and Health Insurance*, Bureau of Business Research, Graduate School of Business, University of Texas at Austin, 1971, \$2.00. Reviewed in *The Actuary*, March, 1972.

HEALTH INSURANCE

Lewis C. Robbins, M.D., M.P.H., and Jack H. Hall, A.B., M.D., *How to Practice Prospective Medicine*, Methodist Hospital of Indiana, Indianapolis, Ind., 1970, \$7.50. Reviewed in *The Actuary*, April, 1972.

U.S. National Center for Health Statistics, *Behavior Patterns of Children in School—United States*, pp. 78, Data from the National Health Survey, Series 11, No. 113, Rockville, Md., February, 1972.

Teachers' ratings on the adjustment, motor activity, peer acceptance, health problems, ability, and performance of children 6-11 years of age in school.

U.S. National Center for Health Statistics, *Marriages Trends and Characteristics—United States*, pp. 35, Data from the National Vital Statistics System, Series 21, No. 21, Rockville, Md., September, 1971.

Analysis of national marriage data, including trends over the last hundred years recent changes and national estimates by age and sex, with special emphasis on more detailed statistics by selected characteristics for 1967.

U.S. National Center for Health Statistics, *Health Insurance Coverage for Maternity Care: Legitimate Live Births—United States—1964-66*, pp. 53, Data from the National Vital Statistics System, Series 22, No. 12, Rockville, Md., October, 1971.

Statistics on health insurance coverage for maternity care for mothers of legitimate live births which occurred during 1964-66 in the United States, by race of infant, family income, geographic region, education of father, live-birth order, previous fetal deaths, and other socioeconomic, demographic, and geographic characteristics. The statistics are based on data collected in the 1964-66 National Natality Survey.

U.S. National Center for Health Statistics, *Differentials in Expectation of Additional Children among Mothers of Legitimate Live Births—United States—1964-66*, pp. 50, Data from the National Vital Statistics System, Series 22, No. 13, Rockville, Md., February, 1972.

Statistics on differentials in the proportion of mothers expecting to have additional children and in the average number of additional children expected, according to selected demographic and socioeconomic characteristics. Based on data collected by a questionnaire mailed to mothers for a sample selected from records of births in 1964, 1965, and 1966 which were filed with the National Center for Health Statistics.

U.S. National Center for Health Statistics, *Vital Signs Present at Birth*, pp. 19, Data Evaluation and Methods Research, Series 2, No. 46, Rockville, Md., February, 1972.

Report of a study of vital signs present at birth as observed in the delivery rooms of five hospitals, and study of the relationship of these signs of life to definitions of live birth and fetal death used for vital registration purposes; comparison of rates based on the study data according to alternate definitions which include various combinations of vital signs present at birth.

U.S. National Center for Health Statistics, *Trends in "Prematurity"—United States—1950–67*, pp. 51, Analytical Studies, Series 3, No. 15, Rockville, Md., January, 1972.

An analysis of the trend in live births registered in the United States, 1950–67, by weight at birth and period of gestation, including an assessment of the quality of the data. Other factors, such as age of mother, plurality, sex, and delivery in hospitals are included insofar as they have a bearing on the trends.

U.S. National Center for Health Statistics, *Persons Hospitalized by Number of Hospital Episodes and Days in a Year—United States—1968*, pp. 56, Data from the National Health Survey, Series 10, No. 64, Rockville, Md., December, 1971.

Statistics on persons with one or more episodes in short-stay hospitals during an average year, according to number of episodes, days hospitalized, and patterns of stay. Based on data collected in household interviews during 1968.

U.S. National Center for Health Statistics, *Convalescence at Home Following Hospitalization among Persons 55 Years of Age and Older—United States, July 1966—June 1967*, pp. 56, Data from the National Health Survey, Series 10, No. 65, Rockville, Md., January, 1972.

Statistics on the hospital and convalescent experience, that is, days confined to the house or days confined to the bed, of persons 55 years and over, by selected demographic characteristics. Bases on data collected in household interviews during the period July, 1966–June, 1967.

U.S. National Center for Health Statistics, *Hospital and Surgical Insurance Coverage—United States—1968*, pp. 49, Data from the National Health Survey, Series 10, No. 66, Rockville, Md., January, 1972.

Statistics on the number of persons under 65 years of age covered by hospital and surgical insurance are shown by age, sex, color, family income, education of head of family, marital status, living arrangement, size of family, usual activity, limitation of activity, occupation, employment status, class of worker, and geographic region and place of residence. Selected tables are shown for persons 65 years and older. All tabulations are based on data collected in household interviews during 1968.

U.S. National Center for Health Statistics, *Disability Days—United States—1968*, pp. 45, Data from the National Health Survey, Series 10, No. 67, Rockville, Md., January, 1972.

Statistics on volume of days of restricted activity and bed disability, and days lost from school, by age, sex, place of residence, geographic region, family income, usual activity, and color, based on data collected in household interviews during the calendar year 1968.

U.S. National Center for Health Statistics, *Acute Conditions, Incidence and Associated Disability—United States, July 1968—June 1969*, pp. 61, Data from the National Health Survey, Series 10, No. 69, Rockville, Md., February, 1972.

Statistics on the incidence of acute conditions and the associated days of restricted activity, bed disability, and time lost from work and school, by age, sex, calendar

quarter, residence, and geographic region, based on data collected in household interviews during the period July, 1968—June, 1969.

U.S. National Center for Health Statistics, *Decayed, Missing, and Filled Teeth among Children—United States*, pp. 47, Data from the National Health Survey, Series 11, No. 106, Rockville, Md., August, 1971.

Estimates of decayed, missing, and filled (DMF) permanent teeth and decayed, nonfunctional-carious, and filled (def) primary teeth among children by age, race, sex, and selected demographic characteristics, with a brief discussion of prevailing trends.

U.S. National Center for Health Statistics, *Intellectual Development of Children as Measured by the Wechsler Intelligence Scale—United States*, pp. 41, Data from the Health Examination Survey, Series 11, No. 107, Rockville, Md., August, 1971.

Information from the distribution of raw scores for the Vocabulary and Block Design subtests as well as scaled and standard scores or deviation IQ's derived from them by age and sex for noninstitutionalized children 6–11 years of age in the United States, obtained by administering this short form of the Wechsler Intelligence Scale for Children to a representative sample of this population.

U.S. National Center for Health Statistics, *Parent Ratings of Behavioral Patterns of Children—United States*, pp. 57, Data from the National Health Survey, Series 11, No. 108, Rockville, Md., November, 1971.

Specific behaviors, traits, degrees of responsibility, and use of "leisure" time of children, by age and sex.

U.S. National Center for Health Statistics, *School Achievement of Children by Demographic and Socioeconomic Factors—United States*, pp. 88, Data from the National Health Survey, Series 11, No. 109, Rockville, Md., November, 1971.

Findings from the Reading and Arithmetic subtests of the Wide Range Achievement Test by age, sex, race, region, size of place of residence, population change from 1950 to 1960, family income, education of parent, and grade in school—shown in terms of raw scores, standard scores, and grade equivalents.

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