

**TRANSACTIONS OF SOCIETY OF ACTUARIES
1975 VOL. 27**

BOOK REVIEWS AND NOTICES

U.S. Congress, "1975 Annual Reports of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds, of the Federal Hospital Insurance Trust Fund, and of the Federal Supplementary Medical Insurance Trust Fund," pp. 65, 39, and 36, House Documents Nos. 94-135, 94-136, and 94-137, Washington, D.C., U.S. Government Printing Office, May 6, 1975.

The Social Security Act provides that, on or before April 1 of each year, the boards of trustees of the old-age and survivors insurance and disability insurance trust funds and of both of the two medicare trust funds (hospital insurance and supplementary medical insurance) should submit to Congress reports presenting past operational data, future cost estimates, other actuarial analysis, and financing recommendations. Actually, there are three separate reports—one each for OASDI, HI, and SMI. Each of the boards of trustees consists of three cabinet officers (the secretaries of health, education, and welfare, labor, and the Treasury).

These reports contain a great wealth of valuable information and are really a model of what an actuarial valuation report should present. The reports provide a great contrast to many actuarial valuation reports that give only "bare bones" information about the actuarial status of the particular pension plan, often in such a form that only other actuaries can extract useful information from them (and perhaps not even that is always possible!).

Not only are the actuarial statuses of the OASDI and HI programs set forth in terms of level or average costs expressed as percentages of taxable payroll, but also short-range year-by-year projections in terms of both dollars and percentages of payroll are given. The only long-range year-by-year projections for OASDI and HI are in terms of percentages of payroll; this reviewer believes that they should also be shown in terms of dollars, despite the changing value of the dollar under the assumed economic conditions. Of great value is the range of estimates shown for both OASDI and HI under alternative economic assumptions.

The cost estimates for the SMI program are a simple short-range year-by-year projection in terms of dollars, as is befitting its essentially one-year-term method of financing.

Extensive description of the underlying assumptions and the methodology for the cost estimates is given for each of the three programs.

Among the many useful materials contained in the trustees' reports are the various promulgations which the secretary of HEW is required by law to make and the accompanying statistical data that underlie them. Such promulgations include the automatic increases in the OASDI benefit level, the exempt amounts in the OASDI earnings test, the maximum taxable and credit-

able earnings base for OASDI and HI, the inpatient hospital deductible under HI, the voluntary coverage premium rate under HI, and the SMI premium rate.

Also contained in these particular reports are the comments of the trustees on the recommendations of the 1973-74 Advisory Council on Social Security, which submitted its report in March, 1975. Each report also describes the nature of the trust fund involved and how it operates and is invested.

Of foremost interest in the 1975 reports is the one dealing with OASDI, because its financial situation has been so much in the news recently. The 1974 report had shown a very serious long-range financing problem, since there was a lack of actuarial balance of 2.98 per cent of taxable payroll, a cost overrun of about 25 per cent relative to the tax income. However, this report had not indicated any real short-range problems.

The 1975 report shows an even worse long-range situation—namely, an actuarial level average deficiency of 5.32 per cent of taxable payroll, or almost 50 per cent of the average value of future taxes. This situation in the last two years is certainly far different from that prevailing before the 1972 amendments, when the “acceptable limit” on the actuarial imbalance was only 0.1 per cent of taxable payroll, or about 1 per cent relatively.

The increase in the OASDI actuarial deficiency under OASDI as between the 1974 and 1975 reports results primarily from changes in the long-range economic assumptions. The 1974 report assumed annual rates of increase in earnings in the ultimate years (after about five years) of 5 per cent per year, as against 3 per cent increases in the consumer price index. The 1975 report uses 6 per cent/4 per cent assumptions. About 83 per cent of the increase in the actuarial imbalance is due to these revised economic assumptions. The remainder arises from changed demographic assumptions (lower mortality rates in the period after the year 2000) and higher disability incidence rates (to reflect the recent unfavorable experience and to project it somewhat into the future). However, the effect of these assumptions is partially offset by an assumed higher rate of labor force participation by females (which produces lower costs because of the effect of the antiduplication-of-benefits provision).

It is extremely significant to note that a “decoupling” of the benefit structure with regard to the initial computation of benefits (by using a wage-indexed procedure, applied to the past earnings record, as recommended by the Advisory Council on Social Security) would tend to neutralize the effect of changing economic conditions and would also eliminate from 45 to 60 per cent of the currently estimated long-range deficiency of 5.32 per cent of taxable payroll, depending upon the specific method adopted and the revised benefit formula used. A deficiency of only about 2.25-2.5 per cent of taxable payroll on the average over the long range would then remain, to be taken care of by additional financing.

The short-range financing picture for the OASDI system is equally bleak. The estimates in the 1975 report show that both the OASI and DI trust funds will be exhausted soon after 1979 unless additional financing is provided. The trustees recommended that such additional financing should be

obtained through increases in the tax rates, in the taxable earnings base, or in a combination of both. They oppose the use of a government subsidy obtained from general revenues (either directly or, as the Advisory Council recommended, indirectly by a transfer of the HI tax rate to OASDI and then by having a government subsidy to HI).

This reviewer strongly supports the trustees in their objection to a government subsidy to solve the financing problems of OASDI. However, he does not agree with them that some of such additional financing should come from raising the earnings base more than the automatic-adjustment provisions would do. The earnings base, in reality, is not properly a financing measure but rather is an element that determines the scope of the benefit protection. Moreover, sharp increases in the taxable earnings base provide unjustifiable benefit windfalls for current older workers, which certainly can be termed "upside-down social welfare" (with acknowledgment to James L. Clare).

It is true that such windfalls have occurred to a significant extent under OASDI in the past. In the reviewer's opinion, however, this was necessary in order to start successfully an earnings-related benefit plan that would operate in this manner over the long-range future. But there is no need to exacerbate this situation in the name of providing additional financing for the system.

Moreover, the short-range situation for OASDI will very likely be considerably worse than the estimates contained in the 1975 report indicate. These estimates are based on the economic assumptions that the annual rate of increase of wages will exceed the corresponding rate for the CPI by an average of somewhat more than 3 per cent in the five-year period 1976-80. This is a complete reversal of the situation in 1975, and it seems most unlikely to occur. If wages do not increase this much more rapidly than prices, then the projection of the trust funds will not be nearly as favorable, and they will be exhausted much sooner than the report indicated—possibly in 1979 for the DI trust fund and in 1980 for the OASI trust fund.

The medicare system was the part of the social security program that had financial difficulties in the late 1960's, primarily as a result of somewhat greater utilization of services and significantly higher prices than had been allowed for in the actuarial cost estimates. In the early 1970's the situation reversed, largely as a result of the effect of price controls and, in the case of HI, the much more rapid increase in the taxable earnings base than in the general level of earnings. The latter factor results in higher tax income for HI without a concomitant rise in benefit liabilities (in contrast to OASDI, where such liabilities are created under these circumstances, although they are not as large as the additional tax income).

As a result, medicare has recently seemed to have no substantial financing problems. However, new financial problems for HI appear to be developing. This program has an actuarial lack of balance of 0.16 per cent of taxable payroll, or about 6 per cent relatively, according to the 1975 report. The 1974 report showed a small favorable balance (0.02 per cent of taxable payroll). It may well be that, in the years to come, inflationary trends will be greater than

the rather favorable ones assumed in the 1975 report, and then new financial problems will arise.

The balance of the HI trust fund is estimated in the 1975 report to increase slightly in the next few years, from \$9.1 billion at the end of 1974 to 11.9 billion at the end of 1977. In any event, it would appear that the HI trust fund is in no danger of exhaustion in the next few years, even though it may not increase as rapidly as shown in the report.

The SMI trust fund had been in the deepest trouble of all the trust funds in the past—namely, in mid-1970, as a result of the arbitrary, undesirable freezing of the premium rate for July, 1969, through June, 1970, by a lame-duck secretary of HEW in December, 1968. As of June 30, 1970, the balance in the fund was only \$57 million, or less than one month's outgo, and only 10 per cent as large as the liabilities for incurred but unpaid claims and the associated administrative expenses.

Now, however, the SMI trust fund is in the strongest financial position of any of the trust funds. For the first time in the program's history, the assets on hand at the end of a fiscal year (namely, June 30, 1974) exceeded the liability for benefits then incurred but unpaid and the associated administrative expenses. The assets on June 30, 1974, amounted to \$1,267 million, while the estimated liabilities were \$1,204, giving a reserve ratio of 105 per cent. Thus even the strict standards of actuarial solvency for private health insurers were met by SMI. It is estimated that the same condition will prevail in the next two fiscal years.

Finally, let us consider the views of the trustees with regard to the recommendations of the 1973-74 Advisory Council. Such views may have a significant effect on the manner in which the social security program develops in the future.

As to the OASDI program, the trustees concurred with the Advisory Council on the following points: (1) the benefit structure as it is affected by the automatic-adjustment provisions should be stabilized by decoupling it, and (2) the statutory ceiling of 7 per cent on the OASDI tax rate for the self-employed should be eliminated, and such rate should be one and one-half times the employee rate.

The trustees agreed with the Advisory Council that additional financing was necessary for OASDI, both in the short range and in the long range. However, the trustees were opposed to the council's recommendation that this should be obtained by shifting part, and possibly eventually all, of the HI tax rate to OASDI and financing HI from general revenues (in whole or in part). Instead, the trustees recommended that the additional financing for OASDI should come from (1) increases in the tax rates, (2) increases in the maximum taxable earnings base beyond what the automatics would do, or (3) both the preceding sources.

The trustees did not comment on the other benefit and coverage changes proposed by the Advisory Council, other than to state that they should be considered in the light of their financial implications.

As to the HI program, the Advisory Council made only the financing recom-

mentation described previously in connection with OASDI, and the trustees disagreed therewith. Both groups neglected to consider the question as to whether the HI tax rate for the self-employed should continue at the same rate as for employees or, consistent with the Advisory Council recommendation for OASDI, should be increased to one and one-half times the employee rate.

ROBERT J. MYERS

James Schulz, Guy Carrin, Hans Krupp, Manfred Peschke, Elliot Sclar, and J. Van Steenberge, *Providing Adequate Retirement Income*, pp. 330, University Press of New England, Hanover, N.H., 1974, \$15.00.

This book proceeds in a series of steps from an analysis of what is meant by "adequate retirement income" through an examination of the social security systems of four countries (Sweden, Germany, Belgium, and Canada) to a program of reform for the United States pension system. It would be impossible to find fault with the general concept that "it is time that a broad review of our retirement income maintenance system was undertaken and serious thought given to the requirements of providing adequate retirement income to the future aged." There is no doubt, either, that exploration of the ways in which other countries have approached these problems is worthwhile, since no nation has a monopoly on brains and ingenuity.

However, there is left a feeling of disappointment that the promise was not fulfilled. Moreover, it is difficult to determine the audience for whom the book was intended, since the material is too complex for most laymen yet too simple for most professionals in the field. The authors are all professors, so it might be supposed that the intended audience is also academic.

The setting of a standard of adequacy is essentially dealt with in two pages only (pp. 40 and 41), which appears to give this subject less space than it deserves. One would have hoped that there could have been fuller treatment of the impact of taxes, the percentage of preretirement expenses that are connected with working, the decline of wants, and other data that would define more precisely the proper relationship between incomes before and after retirement.

On the other hand, the description of the development of social security in the four countries covered is interesting, informative, and relevant. However, even here there are troublesome aspects. In the first place, one is left wondering whether the countries were selected by chance or with an eye to proving that United States social security is "behind the parade," since it happens that three of them (Sweden, Germany, and Belgium) have chosen to adopt social security programs far ahead of the "floor of protection" which is the approach followed so far in the United States. Second, the treatment of private plans in these countries is very cursory: in the German section they are not mentioned at all, while for Belgium it is stated (quite incorrectly) that "almost nothing is known about the private pension schemes in operation" (p. 149).

The analysis of the foreign benefit programs and their comparison with the United States is performed by a sophisticated simulation system. This is marred by the use of some curious earnings histories assumed for hypothetical employees. For example, the work history given the most prominence (p. 197) provides for a salary of about 82 per cent of national average at age 25, increasing to about 110 per cent of national average in the middle years from age 35 to age 50 and then declining to 82 per cent of national average earnings when the employee reaches age 64. Not many actual workers have this career pattern, and it gives rise to some anomalous results in the analysis.

The final section of the book, which proposes a program of reform for the United States, is political rather than rigorously intellectual. Perhaps this is necessary, since the development of a social security program is, quite clearly, a political process. Moreover, it is only too easy to take sides in the controversy, and the authors are no exception. For example, on page 231 it is stated, without any real evidence, that "we *feel* that the minimum guarantee through social security should be about 55%" (emphasis added). Again, on page 270, it is stated that the social security system "has already proved its superiority and popularity" over private pension plans and that there is "general agreement that current (social security) benefits are too low." These are subjective judgments, and their iteration without demonstration makes the book a polemic instead of a theoretical treatise. This view is reinforced by the relative lack of consideration of costs. The impression given is that the only need is to design a satisfactory benefit formula and, if the resulting contribution rates are high, then general revenue financing can pick up any balance (p. 271).

At this juncture, the American public has not agreed, as the authors suggest, to a "*substantial* transfer of income from the working to the retired population" (p. 275; authors' emphasis). Perhaps it should, but the case as presented in this book is (as the verdict on ambiguous evidence is given in Scotland) "not proved."

G. ASHLEY COOPER

Robert Posnak, *Ernst & Ernst GAAP—Stock Life Companies*, pp. xx+682, 1974.

This is the book long awaited by many in the hopes that it would be a relatively comprehensive, well-considered, and well-illustrated exposition of this complex subject. Many of those who have been working with GAAP over the years found much of value in the "memorandum" *Natural Reserves and Life Insurance Accounting*, published in August, 1970, and have been eagerly awaiting its sequel, this book. The current book represents the completion of the project of which the early memorandum was a milestone. Expectations have been more than fulfilled.

One of the most pleasurable aspects of the text is that a sense of humor is carried through the whole thing. This is not an easy task considering the nature of the subject. In fact, the introduction to the book should be considered required reading for every actuary. Use of the text will be sought by every

knowledgeable person connected with generally accepted accounting principles (GAAP) work.

Perhaps the success of the book is due in no small part to clarity of diagnosis of problems and objectives by those who initiated the project. In the introductory portion, it is stated "the problem giving rise to this research project is the fact that the application of generally accepted accounting principles to life insurance companies has not definitely been determined. Underlying this general problem is the problem that the nature and practices of the life insurance business are not adequately understood from the accounting point of view." The text must surely go a long way toward promoting such an understanding.

The following comments are, however, presented from the point of view of the actuary who may desire to enhance his knowledge of GAAP through use of this text. The book will be of value particularly to the actuary practicing in the field, for the following reasons:

1. It contains a great deal of practical and well-illustrated information on actuarial principles and practices in connection with GAAP.
2. It shows how generally accepted concepts and practices are applied to the life insurance business. (This is a corollary of its announced purpose of elucidating the nature and practices of the life insurance business from the accounting point of view.)
3. It treats the subject of GAAP with more breadth and depth than any other currently available publication. The entire subject, including many peripheral areas of which an understanding is needed to utilize the principles and concepts of GAAP, are covered by the text. The material is well organized and clearly presented.
4. Different points of view are presented, and exposition of theory is well reasoned. The author indicates his own preferences.
5. Throughout the entire text almost every point discussed is illustrated by a numerical example. Many of these examples are based upon a model company which was created and examined in some detail for purposes of preparing this book. The value of these illustrations to the reader cannot be overestimated.

Each reader is bound to find much in the text that he wholeheartedly applauds and at least some material with which he disagrees. Most of the disagreements will arise because of the very nature of the subject. Some of the material has become dated because of the lessons already learned in GAAP practice.

Part I ("Introduction") presents an exposition of the various concepts of income as applied to life insurance. The theoretical aspects of profit recognition are explored. The discussion proceeds to examine the complex and controversial subject of revenue recognition on a practical level. This discussion, as any appropriate treatment of the revenue recognition question requires, examines the nature of reserves. The exposition should be of particular interest to the actuary, since reserves are examined primarily from their effect on the income statement as opposed to the balance sheet. The relationship between

reserves and revenue recognition is presented, with further details reserved for later discussion.

The material on adverse deviation presents valuable historical information. It outlines the two viewpoints concerning provision for adverse deviation: on the one hand, that this provision is primarily a matter of conservatism and, on the other, that it is a means of implementing the release from risk theory. To illustrate the concept, an extensive illustration is presented. This is one of many illustrations that will be extremely valuable to anyone not overly familiar with the intricacies of GAAP and the subject being illustrated in particular. It also shows a point of view which seems to be implicit throughout the text—that there are expense reserves on the one hand and benefit reserves on the other and never the twain shall meet. The discussion seems to imply (apparently unintentionally) that there is something wrong with an expense reserve on a closed block of business decreasing (that is, becoming more negative when viewed as a portion of the reserve liability).

Exceptions to the lock-in principle are noted. The concept of treating the persistency assumption differently from the other valuation assumptions is presented, indicating that the possible result would be to recalculate reserves where actual experience differs from that assumed, even though existing reserves would be sufficient to mature the contracts. It is indicated that this would occur only under very extreme circumstances. The matters of development and maintenance expenses are covered, including some of the more difficult problems, such as inflation, associated with these topics.

The actuarial committees have (1) viewed the provision for adverse deviation as implementing the release from risk theory; (2) viewed reserves as a unified amount which is separated into two portions simply for purposes of presentation; (3) seemed to anticipate few exceptions to lock in; and (4) viewed persistency in the same light as other assumptions. However, the actuary who is inclined to be caught up in theoretical dogmatism is deposited back into the real world on the fleshiest portion of his dignity when the author, in justification for his interpreting the provision for adverse deviation as a tool to introduce conservatism, says that “this point of view was based . . . partly on the fact that none of the many consulting actuaries whose counsel was sought on the matter were prepared to suggest how the release from risk concept should be implemented.”

Part II (“Benefits”) begins with certain terminology ground rules, including discussion of “adjusted reserves” and other terms. The role of the accountant and the actuary in establishing the valuation assumptions is discussed, followed by an analysis of the matters covered by Recommendation 1.¹ Practical comments for setting the values of each assumption follow. Numerical examples are included to show the effect on reserves and profits of varying the value of each assumption under given circumstances. (Actuaries actively concerned with some of the unresolved questions in connection with GAAP,

¹ Recommendations and Interpretations referred to are those of the American Academy of Actuaries Committee on Financial Reporting Principles.

such as further definition of the term "conservatism," will find this material, as well as some of the preceding chapters, excellent grist for their cognitive faculties.)

Chapter 10 on "Dividends" describes the different situations in which companies may find themselves because of restrictions imposed by law and/or practice. The question of the extent, if any, to which dividends provide a provision for adverse deviation is treated. A number of practical problems are presented. The chapter does much to overcome some incorrect impressions which may remain after a cursory reading of the Audit Guide. Proposed Recommendation 6 and its Interpretations employ some of the same concepts of classification and analysis as does this chapter.

Practical matters, including the determination of intermediate (ad interim) reserve factors, are explored in some depth. Prior to the advent of GAAP, it appeared that many actuaries felt the classical mean reserve formula to be an appropriate approximation to intermediate reserves in most real-life situations. The introduction of GAAP, along with the illustrations in this text, has shattered this rather peaceful state of affairs. The illustrations show that, with respect to intermediate reserves as well as in connection with many other practical matters concerning GAAP, it is necessary to rethink things from first principles, as opposed to adopting methods which prior to GAAP might have been labeled "traditional." (A minor off-key note is reference at one point to a reserve as a "fund.") Detailed formulas for the actuarial calculations underlying the examples used throughout the text are presented.

Part III ("Expenses") begins with a clear and detailed presentation of terminology related to the subject. The discussion of the actuarial approach to cost accounting does not clearly spell out the idea, still followed by most companies, of assigning all costs of an insurance company to policy years. The concepts of variability and attribution are treated in some detail. The question of renewal acquisition costs is also discussed. Throughout this entire discussion the reader is continually reminded that the Audit Guide as adopted did not provide for complete matching of costs which in the pricing process are considered first-policy-year costs against revenues (which was the basis for one of the exceptions taken to the Audit Guide by the Joint Actuarial Committee) and that the Audit Guide does not use the concept of assigning all costs to policy years.

The material on amortization of acquisition costs includes detailed discussion of both the "factor method" under which reserve factors are determined and the "sum-of-the-year's premiums method" and "related worksheet methods." (It was the discussion of the "sum-of-the-year's premiums method" contained in the memorandum which was the predecessor of this book that apparently led to the development of many of the types of amortization tables used in the industry today.) The case for and against amortization with interest is discussed in depth. (The Academy committee's Recommendation 1 points out that, in accordance with the concepts of matching and an overall reserve, actuarial principles require the use of interest.) The matter of persistency experience varying from that assumed is given special attention.

Part IV ("Other Lines of Business") deals with lines of business other than individual ordinary life in some detail. An example of the depth of the text is the discussion in Chapter 18 ("Industrial Insurance") of the cost differential between the extended term and cash surrender nonforfeiture options. Subjects that are characteristic of the industrial way of doing business, such as time contracts, are analyzed in some detail, and extensive numerical illustrations are presented to show how they may be accounted for on a GAAP basis.

The first topic treated in Chapter 19 ("Individual Health Insurance") is the classification of policies between short term and long term. The conclusion is reached that "the nature of commercial health insurance is such that prorated gross unearned premiums should be held in respect of active lives in all cases and acquisition costs should be amortized to income in proportion to premiums earned." Later in the text it is clearly indicated that deferral of acquisition costs on commercial insurance may be entirely appropriate depending on persistency expectations. The nature and characteristics of individual health insurance are reviewed. The exposition of how GAAP accounting is applied to individual health insurance is again illustrated profusely with examples using for the most part noncancelable disability income coverages. Other insurance products that must be accounted for in the GAAP statement are given attention, ranging from simple yearly renewable term reinsurance, on the one hand, to immediate participation guaranteed group annuity contracts, on the other.

Part V ("Special Problems") covers a wide range of topics. The material in Chapter 23 ("Deferred and Uncollected Premiums") is an extremely extensive and well-illustrated exposition of this difficult and, to the layman (as well as to many others), apparently unintelligible subject. Most actuaries interested in GAAP accounting will probably find some time spent with this chapter particularly worthwhile. With respect to the controversial subject of the handling of deferred and uncollected premiums, the author reviews some of the practices that appear to be permitted under the Audit Guide and concludes that "deferred and uncollected premiums represent reserve adjustments."

The procedures for performing recoverability and loss-recognition tests are described, along with such special situations as participating business and experienced unit maintenance costs that are greater than the gross premium structure can support. The material on deferred taxes and business combinations will be helpful to those with special interests in these subjects. The discussion of business combinations is one of the areas where the material is a bit dated.

Some of the other considerations involved in GAAP statement work are discussed with particular attention to the role of the actuary. This subject is obviously of extreme interest to all actuaries. With respect to the publishing for the public of the actuarial opinion, the author concludes that "such mention [of the actuary's opinion] might take the form of discussion in the text [of the stockholders' report], publication of the actuary's letter reporting the

scope and results of his review, or a note to the financial statements"; this is in accord with Opinion A-6, which, in reference to the Guides to Professional Conduct, says that "the objective of Guide 2c will be more fully satisfied if the auditor's opinion identifies the actuary or if published financial statements include a formal actuarial opinion."

The author concludes that "accountants and actuaries were so exhausted by the traumas of 1973 that they didn't have the energy to count their riches and in fact would gladly have handed them back if only the agonies could have been reversed." Many life insurance company presidents and former presidents would have been glad to oblige if this were possible.

WILBUR H. ODELL

Reports of the Quadrennial Advisory Council on Social Security, pp. 179, House Document No. 94-75, 94th Cong., 1st sess., U.S. Government Printing Office, Washington, D.C. 20402, March, 1975, \$1.95.

Gigantic size and awesome complexity are two of the characteristics that impress most people who study the social security system in the United States. To analyze its many programs and emerge with a clear conception of the system's intricately interwoven structure and multitudinous operations is not an easy mental exercise. Even when consideration is restricted to the old-age, survivors, disability, and health insurance (OASDHI) programs, which commonly, but mistakenly, are thought to constitute the social security system, the task of analyzing the programs is a formidable one. Yet making such analyses and coming up with recommendations for improvement in the programs was the assignment of the 1975 Advisory Council on Social Security. All in all, this reader of the *Reports* believes that the council completed its assignment in a most commendable manner.

The statutory authority for the Advisory Council states that it shall be appointed "for the purpose of reviewing the status of the Federal Old-Age and Survivors Insurance Trust Fund, the Federal Disability Insurance Trust Fund, the Federal Hospital Insurance Trust Fund and the Federal Supplementary Medical Insurance Trust Fund in relation to the long-term commitments of the old-age, survivors, and disability insurance program and the programs under parts A & B of Title XVIII, and of reviewing the scope of coverage and the adequacy of benefits under, and all other aspects of, these programs, including their impact on the public assistance programs under this Act." This is truly a tremendous assignment under any circumstances, but doubly so for the 1975 council, whose period of deliberations was reduced to about nine months rather than the customary eighteen or nineteen months because of a delay in its appointment. As a result, the *Reports* contain relatively little analysis in areas as important as Medicare and disability benefits.

The format of the *Reports* lends itself to easy reading. For those whose time is limited, scanning the "Summary of Major Findings and Recommendations"

and the Introduction will provide a good general picture of the contents of the *Reports*. Those with further interest in the subject will find each topic discussed at length in the seven chapters that comprise the report on the cash benefits program. In addition, certain in-depth studies were developed by subcommittees appointed from the council's membership. These subcommittee reports are contained in the appendixes. The subcommittee on financing employed a group of outside consultants—actuaries and economists—and their report is included in Appendix A. Last, but by no means least in importance, is a section entitled "Statements of Council Members." As stated in a footnote to the "Summary of Major Findings and Recommendations," "the Council's findings and recommendations reflect a consensus of the Council and not necessarily the precise view of any individual member on any issue. To the extent that Council members have chosen to express their differences from the Council's findings and recommendations, such expressions are contained in the section of statements at the end of the report." Only by reading these statements can one ascertain how often and how far the viewpoints of individual members vary from the consensus.

The council's studies and deliberations culminated in a consensus on the following findings and recommendations:

1. *Purposes and principles of OASDI*.—The earnings-related OASDI program should remain the nation's primary means of providing economic security in the event of retirement, death, or disability. It should be supplemented by effective private pensions, individual insurance, savings, and other investments; it should be undergirded by effective means-tested programs. Future changes in OASDI should conform to the fundamental principles of the program: universal compulsory coverage, earnings-related benefits paid without a test of need, and contributions toward the cost of the program from covered workers and employers.

2. *Benefit structure—replacement rates*.—Provisions of the present law for computing average monthly earnings and for adjusting the benefit table to increases in the consumer price index may result over the long range in unintended, unpredictable, and undesirable variations in the level of benefits. The benefit structure should be revised to maintain the levels of benefits in relation to preretirement earning levels that now prevail. Benefits for workers coming on the rolls in the future should be computed on the basis of a revised benefit formula using past earnings indexed to take account of changes during their working lives in the average earnings of all covered workers. As under present law, benefits for people on the rolls should continue to be increased as price levels increase.

3. *Retirement test*.—This test should be liberalized by reducing benefits by \$1 for every \$3 of earnings between the exempt amount and twice the exempt amount, and by \$1 for every \$2 of earnings above that level. In addition, except in the first calendar year of benefits, the provision under which a full benefit may be paid for any month in which a beneficiary earns less than one-twelfth of the annual exempt amount should be eliminated.

4. *Equal treatment of men and women.*—The requirements for entitlement to dependents' and survivors' benefits that apply to women should apply equally to men. At the same time, the law should be changed, effective prospectively, so that pensions based on a person's work in employment not covered by social security will be subtracted from his social security dependents' benefits.

5. *Universal compulsory coverage.*—Social security should be applicable to all qualified employment.

6. *Minimum benefit.*—The minimum benefit in the present law should be frozen at its level at the time the new benefit structure recommended in item 2 above goes into effect, and the new system should not pay benefits in excess of 100 per cent of the indexed earnings on which the benefit is based.

7. *Definition of disability.*—The definition of disability should be revised to provide disability benefits to workers aged 55 or over who cannot qualify for benefits under present law but who are so disabled that they can no longer perform jobs for which they have considerable experience. These benefits should be 80 per cent of the benefits granted for those who qualify under the present law.

8. *Miscellaneous recommendations.*—Further study should be made of (1) effects of the social security program on different racial and ethnic groups, (2) ways of simplifying the social security program and its administration, and (3) the frequency of cost-of-living adjustments in benefits. In addition, a general study of social security should be made by a full-time nongovernmental body, covering such matters as funding versus pay-as-you-go; possible effects of social security on capital formation; productivity; the proper size of the trust funds; the incidence of payroll taxes; and other basic questions.

9. *Actuarial status of cash benefits programs.*—A comparatively small amount of additional financing is needed immediately to maintain the trust funds levels. Beginning about the year 2005, the program faces serious deficits. Steps should be taken to ensure the financial integrity and long-range soundness of the program.

10a. *Tax rates: employee-employer.*—No increase should be made, beyond those already scheduled in present law, in the total tax rates for employees and employers for OASDHI. However, the OASDI tax rate should be gradually increased, as OASDI costs increase, and the increases should be met by re-allocating taxes now scheduled in the law for Part A (hospital insurance) of the Medicare program. Income lost to the hospital insurance program by this reallocation should be made up from the general funds of the Treasury. Hospital insurance benefits are not related to earnings, so should be phased out of support from the payroll tax.

10b. *Tax rates: self-employed.*—The present 7 per cent limitation should be removed, and the OASDI tax rate should be the same multiple of employee contribution rates as was fixed when self-employed were first covered—150 per cent.

11. *Retirement age.*—Current demographic projections show a sharp rise in

the number of people who will have reached retirement age relative to the working-age population in the first several decades of the next century. Although not recommending an increase in the age of eligibility for social security retirement benefits, the council does believe that such a change might merit consideration in the next century, when the financial burden of social security taxes on people still working may become excessive.

It is quite apparent that not all of the foregoing eleven findings and recommendations of the council are of outstanding importance—except, of course, to those who might be affected directly or indirectly by the operation (or non-operation) of a particular provision. If one were to single out those of greatest importance, they would probably pertain to (1) financing—the actuarial status of the trust funds and (2) replacement ratios—the problems caused by the linked operation of the automatic escalator provisions which apply to benefits and to the taxable wage base. Both of these problem areas call for the application of actuarial expertise in the quest for solutions, and readers who delve into the body of the *Reports* will find ample evidence of the professional contributions that have been made by some well-known members of the Society in the development of the *Reports*.

The Subcommittee on Financing confirmed the conclusions of the 1974 trustees report as to the deficit position of the funds over the next seventy-five years. That report refers to the 1975 trustees report, then in preparation (see *The Actuary*, June, 1975), and also the report of the panel to the Committee on Finance, United States Senate (see *The Actuary*, May, 1975). The reader will find it worthwhile to review the report of the Subcommittee on Financing, including the report of the consulting actuaries and economists, which covers the analysis in detail.

The projected current costs of the OASDI program, when compared with present and projected tax rates, show a relatively small deficit over the period 1975–2005 but a very much larger deficit from 2005 to 2050. As the subcommittee's report states, "while there are several reasons for this shape of the deficit, the most important one is demographic." Of the principal demographic factors—fertility, mortality, and migration—fertility is presently, and likely to remain for the foreseeable future, the most unpredictable and influential. The relatively small number of births during the depression years of the 1930's was followed by a sharply increased number of births in the baby boom that followed World War II. Thereafter, fertility rates began to decline, until at present they have reached the very low rate of 1.9, which is below the population replacement rate. As the subcommittee points out, "it is this historic birth pattern that largely determines the deficit." They note further that costs will rise slowly in the near future because the working population has been growing rapidly as the war babies have entered the work force, and this will continue for some years. "After all of the war babies have entered the work force, costs will still rise slowly for a short period during which the relatively small numbers of depression babies start to draw retirement benefits. Starting about 2005, however, the process reverses itself. Then the war babies begin to draw social security benefits in ever larger numbers, while the work force is not increasing

at a commensurate rate because of the low fertility rate now existing and forecasted for the future." The effects of these demographic changes may be noted from data presented in the subcommittee's report: in 1950 there were only six beneficiaries for every hundred workers; today there are thirty beneficiaries for every hundred workers; by 2030 it is estimated that the relationship will be forty-five beneficiaries for every hundred workers.

Although economic assumptions account for a much smaller portion of the deficit, the financial subcommittee treats these assumptions in a very thorough manner, stressing their importance and the need to consider them most seriously in any corrective proposals. The most important factors are the rate of increase in wages, both stated and real; the rate of increase in the CPI; and, of lesser importance (and not considered in the formal studies of the committee), rates of unemployment and labor force participation. Under the present law, benefits are often unpredictably influenced by relative (and absolute) rates of increase in wages, CPI, and real wages. The subcommittee recommended that the wage-base escalator and the benefits escalator be "decoupled" and that under a new system "a person's benefits shall rise solely in accordance with wages during his working years and shall rise solely in accordance with the CPI in years after his retirement." To accomplish this decoupling, benefits would be linked to *indexed*, rather than crude, wages, based on the ratio of average covered wages in the year of retirement to covered wages in the year earned, and the benefit formula simplified and adjusted to something of the following form: 100 per cent of the first \$123 of average monthly indexed earnings (AMIE) plus 31 per cent of all AMIE above \$123 (the \$123 adjusted upward each year as average covered wages rise). The formula cited is merely illustrative—a three-factor formula also was suggested. The subcommittee stated that it "is convinced that decoupling is by far the most important step to be taken to improve the system."

Actuaries probably will not have the same interest in some of the other topics discussed in the *Reports* that they have in the sections that pertain to the financial status of the trust funds and the problems of "decoupling." Those, however, who have been involved in problems dealing with equal opportunity for men and women might find that chapter 5—"Treatment of Men and Women under Social Security (with Respect to Sex and Marital Status)"—together with Appendix B ("Report of the Subcommittee on the Treatment of Men and Women under Social Security") is well worth reading. Social security, over the years, has reflected the socioeconomic picture of current conditions. Today both rapid socioeconomic changes and the equal rights movement bring to the forefront considerations of nondiscrimination in OASDI benefits. As the *Reports* indicate, the equal rights amendment to the Constitution would, if adopted, raise serious doubts as to the constitutionality of any provision in the social security law which is different for men and women. The *Reports* cite several areas where real or apparent differences exist under the law and go on to make recommendations for correction of the inequities.

Some, who in the past have had the opportunity of reading a summary of

the principles that heretofore have characterized social security, may find chapter 2 of special interest, even if they do not necessarily agree with all its statements of "purpose and principles of Social Security." This reader found Appendix D rather interesting. It lists the recommendations of previous advisory councils and the legislative action that has been taken on each recommendation. The "pass" list is quite impressive.

Two insurance executives were among the thirteen members of the 1975 Advisory Council: Mr. J. Henry Smith, F.S.A., then chairman of the board, Equitable Life Assurance Society of the United States, and Mr. Edwin J. Faulkner, president, Woodmen Accident and Life Company.

K. ARNE EIDE

Dan M. McGill, *Fundamentals of Private Pensions*, pp. 502 (3d ed.), published for the Pension Research Council by Richard D. Irwin, Inc., Homewood, Ill. 60430, 1975, \$10.95.

The third edition of *Fundamentals of Private Pensions* by Dr. Dan M. McGill is the most comprehensive text yet on the subject of pension plans. The second edition of *Fundamentals* has been on the syllabus of the Society of Actuaries since its publication in 1965. The third edition is not merely an updating of the prior edition but an almost entire rewriting. The author estimates that no more than 20 per cent of the material in the second edition is unchanged. The new edition covers the wide variety of developments within the last ten years, as well as the sweeping changes brought about by the passage of the Employee Retirement Income Security Act, and also shows a deeper exploration of many of the fundamentals of private pensions.

The timing of a new basic text on pension plans presented a dilemma. The developments of the last ten years, even without ERISA, made a new publication most desirable. The passage of ERISA made the second edition of *Fundamentals* and all other texts on pensions obsolete, so a new text was urgently needed. The required regulations were not yet published, and, further, in many respects the exact interpretation of the law is still obscure. From one vantage point it would have been better to wait until the regulations are published, so that the text could have encompassed a complete and accurate description of the application of all aspects of the new law. But the publication of regulations may continue over a long period, and the preparation of the text could not await the final edict.

The author has provided a full explanation of the new law and interpretations which seemed likely to him, noting that the interpretations of the law were uncertain at the time of writing. Future regulations will probably prove that some of the author's interpretations are not accepted, but even with such minor flaws I believe that two years from now this text will be considered an excellent explanation of ERISA.

The chapter on integration with social security deals both with the purposes in plan design and with the regulatory requirements of the Internal Revenue

Service. It presents both an overall view of the integration requirements and a careful explanation of the details and also explores the history and philosophy of the development of the regulations.

Chapter 11, "Adjustment of Pensions for Inflation and Productivity Gains," faces the problem of providing an adequate retirement income in an inflationary period, with costs the employer can afford to pay. It deals both with having the initial amount of pension appropriately related to the salary at the time of retirement and with adjustments after retirement. Equity variable annuities, cost-of-living adjustments, wage-indexed benefits, other formula increases, and ad hoc adjustments are discussed. There is also an interesting presentation on *répartition*, an approach developed in France to deal with inflation. This system, which covers about two-thirds of French workers, is a sophisticated modification of the pay-as-you-go approach, too complex to be described in this brief review. While this system is not immediately applicable to plans in the United States and Canada, future runaway inflation may well force us to explore such radical approaches to providing pensions.

The wide variety of funding instruments, with their strengths and weaknesses and their implications for current and future employer costs and for benefit security, are objectively and carefully explored.

Of particular interest to actuaries will be the six chapters on actuarial considerations, which, as compared with the prior text, represent a very substantial expansion in the actuarial material. The presentation is made in terms of concepts rather than in formulas, and simple numerical illustrations are provided. These sections will provide a good introduction to the actuary or actuarial student just entering the pension actuarial field, as well as a stimulating review for the well-established veteran. Further, since the presentation does not presume prior knowledge, a reading of these sections should help the non-actuary to understand our work better.

A chapter on actuarial cost factors explores with some thoroughness population decrements (death, disability, retirement, and other terminations) and increments (new hires), salary scales, retirement ages, interest assumptions, and expenses. This chapter includes concise but incisive paragraphs on select and ultimate termination rates, mortality improvement, the components of salary increases, the interrelation of inflation assumptions with respect to investment returns, and salary increases and cost-of-living adjustments, and a discussion of the concepts of immature, mature, and overmature populations.

Actuarial terminology presents problems because there is no uniformity in the terms used within the profession. To help solve this problem, the author clearly defines the terminology he uses and explains the relation of alternative terms to the particular set he uses. A uniform terminology is badly needed.

Not only do actuaries differ in terminology; they differ significantly in their concepts of what methods should be used and how. Some actuaries will disagree with various aspects of the presentation on actuarial cost methods, but all will find it carefully and well presented even in the aspects they disagree with. The author divides the accrued liability between the normal cost liability

and the supplemental cost liability. The annual amortization of the supplemental cost liability is called the "supplemental cost," and the total of the normal cost and the supplemental cost are designated the "annual cost" of the plan. Under the accrued benefit cost method, after an explanation of the conventional accrued benefit cost method, several modifications are presented on which actuaries' opinions differ.

A chapter on pension cost illustrations and forecasts provides illustrations of the various actuarial cost methods on the conventional closed group method and forecasts using open group valuation techniques.

A separate chapter deals with the valuation of ancillary benefits, including vesting for active and terminated vested participants, preretirement and post-retirement death benefits, disability benefits for active and disabled participants, the valuation of employee contributions, and special considerations for small plans. This chapter presents a variety of possible approaches and suggestions for the practicing actuary.

A chapter on funding views the objectives and philosophy, the statutory funding standards, and the effects of various actuarial methods upon the pattern of funding.

A final chapter on plan termination insurance reflects the author's in-depth knowledge of this subject. Dr. McGill was author of a pre-ERISA book on pension termination insurance and currently serves as chairman of the Advisory Committee of the Pension Benefit Guaranty Corporation.

DONALD S. GRUBBS, JR.

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—"Life Insurance and Annuities"; 2—"Health Insurance"; 3—"Social Security."

LIFE INSURANCE AND ANNUITIES

Railroad Employees with Less than 10 years of Service and Their Chances of Receiving Railroad Retirement Benefits, pp. 6, Actuarial Note No. 3-74, U.S. Railroad Retirement Board, Chicago, Ill., October, 1974. Noted in *The Actuary*, December, 1974.

This note presents probabilities that railroad employees with less than ten years of railroad service will remain in railroad service until various future points in time. Railroad employees have a ten-years-of-service requirement for receipt of any retirement or survivor benefit. Data for this note were obtained from separation rates for calendar years 1968-71, which were used in the twelfth valuation of the railroad retirement account.

Erwin S. Janush, *Occupational Differences in Separation Rates of Railroad Workers, 1968-71*, pp. 43, Actuarial Study No. 11, U.S. Railroad Retirement Board, Chicago, Ill., September, 1974. Noted in *The Actuary*, March, 1975.

This study, which is the latest in a series, presents an analysis of separation data in the railroad retirement system in the period 1968-71. Experience rates are shown separately for active service mortality, disability retirement, nondisability retirement, and withdrawal.

HEALTH INSURANCE

The National Center for Health Statistics publishes "Vital and Health Statistics," which consists of several series of reports, some of the more recently published of which may be of interest to actuaries. Several are digested below. To be placed on the mailing list for items in the series, write to:

National Center for Health Statistics
U.S. Public Health Service
HEW Building South
Washington, D. C. 20025

U.S. National Center for Health Statistics, *Prevalence of Chronic Skin and Musculoskeletal Conditions, United States—1969*, pp. 59, Data from the National Health Survey, Series 10, No. 92, Rockville, Md., August, 1974.

Statistics on prevalence of chronic skin and musculoskeletal conditions by measures of impact of the conditions and selected demographic characteristics. Based on data collected in the Health Interview Survey during 1969.

U.S. National Center for Health Statistics, *Characteristics of Persons with Corrective Lenses, United States—1971*, pp. 37, Data from the National Health Survey, Series 10, No. 93, Rockville, Md., September, 1974.

Statistics on persons aged 3 years and over by selected demographic characteristics. Based on data collected in household interviews during 1971.

U.S. National Center for Health Statistics, *Prevalence of Chronic Circulatory Conditions, United States, 1972*, pp. 55, Data from the National Health Survey, Series 10, No. 94, Rockville, Md., September, 1974.

Statistics on prevalence of chronic circulatory conditions by measures of impact of the conditions and selected demographic characteristics. Based on data collected in the Health Interview Survey during 1972.

U.S. National Center for Health Statistics, *Current Estimates, from the Health Interview Survey, United States—1973*, pp. 77, Data from the National Health Survey, Series 10, No. 95, Rockville, Md., October, 1974.

Estimates of incidence of acute conditions, number of persons reporting limitation of activity, number of persons injured, hospital discharges, persons with hospital episodes, disability days, and frequency of dental and physician visits. Based on data collected in the Health Interview Survey during 1973.

U.S. National Center for Health Statistics, *Limitation of Activity and Mobility Due to Chronic Conditions, United States—1972*, pp. 56, Data from the National Health Survey, Series 10, No. 96, Rockville, November, 1974.

Statistics on persons limited in activity and mobility as a result of chronic conditions, by age, sex, color, family income, living arrangements, geographic region, and place of residence. Statistics are also presented on chronic conditions reported as the main cause of limitation and the duration of limitation. Based on data collected in household interviews during 1972.

U.S. National Center for Health Statistics, *Physician Visits, Volume and Interval since Last Visit, United States—1971*, pp. 56, Data from the National Health Survey, Series 10, No. 97, Rockville, Md., March, 1975.

Statistics on the time interval since last physician visit, volume of physician visits, and number of visits per person per year by selected demographic characteristics. Statistics on number of physician visits by place of visit, type of service, and condition causing visit for diagnosis and treatment. Per cent distribution of persons by frequency of visits in a year. Based on data collected in health interviews during 1971.

U.S. National Center for Health Statistics, *Acute Conditions, Incidence and Associated Disability, United States, July 1972—June 1973*, pp. 68, Data from the National Health Survey, Series 10, No. 98, Rockville, Md., January, 1975.

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, place of residence, and geographic region; based on data collected in household interviews during the period July, 1972—June, 1973.

U.S. National Center for Health Statistics, *Prevalence of Selected Impairments, United States—1971*, pp. 64, Data from the National Health Survey, Series 10, No. 99, Rockville, Md., May, 1975.

Statistics on the prevalence of impairments involving vision, hearing, speech, paralysis, absence of extremities, and orthopedic defects by type, site, and etiology. Distributed by age, sex, color, family income, education of head of family, usual activity status, place of residence, geographic region, and associated chronic activity limitation. Based on data collected in the Health Interview Survey during 1971.

U.S. National Center for Health Statistics, *Decayed, Missing, and Filled Teeth among Youths 12–17 Years, United States*, pp. 34, Data from the National Health Survey, Series 11, No. 144, Rockville, Md., October, 1974.

Estimates of decayed, missing, and filled (DMF) permanent teeth among youths by age, race, sex, and selected demographic characteristics, with a brief discussion of prevailing trends.

U.S. National Center for Health Statistics, *Hematocrit Values of Youths 12–17 Years, United States*, pp. 40, Data from the National Health Survey, Series 11, No. 146, Rockville, Md., December, 1974.

Hematocrit values are presented and discussed by age, sex, race, and socioeconomic level of youths 12–17 years of age in the United States, 1966–70.

U.S. National Center for Health Statistics, *Surgical Operations in Short-Stay Hospitals, United States—1971*, pp. 46, Data from the National Health Survey, Series 13, No. 18, Rockville, Md., November, 1974.

Statistics are presented on the surgical operations and procedures performed in nonfederal short-stay hospitals, based on data abstracted by the Hospital Discharge Survey from a national sample of the hospital records of discharged inpatients. Estimates of the number of operations and the rates are shown for the surgical classes and categories of operations, by sex, age, and color of inpatients with surgery and by geographical region and bed size of the hospitals.

SOCIAL SECURITY

History of the Provisions of Old-Age, Survivors, Disability, and Health Insurance: 1935-1973, pp. 11, Office of the Actuary, Social Security Administration, Baltimore, Md., May, 1974. Noted in *The Actuary*, May, 1974.

A. Retting and O. Nichols, *Some Aspects of the Dynamic Projection of Benefits under the 1973 Social Security Amendments (P.L. 93-233)*, pp. 6, Actuarial Note No. 87, Social Security Administration, Baltimore, Md. 21235, April, 1974. Noted in *The Actuary*, May, 1974.

Jane Ceccarelli, *OASDI Digest—the Cash Benefit Provisions of the Old-Age, Survivors, and Disability Insurance System*, Social Security Administration, Washington, D.C., August, 1974. Noted in *The Actuary*, October, 1974.

This digest presents a detailed description of the OASDI portion of the social security program, in convenient and readable form. It is an update of a previous publication issued in April, 1971, and it covers legislative changes through December 31, 1973.

Richard S. Foster, *An Analysis of the Stability of the Geographic Index of Reimbursement*, pp. 8, Actuarial Note No. 86, Social Security Administration, Baltimore, Md., April, 1974. Noted in *The Actuary*, October, 1974.

The publication *Medicare: Health Insurance for the Aged: Geographic Index of Reimbursement by State and County* was reviewed in the November, 1973, issue of *The Actuary*. This note analyzes the current situation with respect to the stability of this geographic index on the basis of the indexes tabulated for 1969, 1970, and 1971. The note suggests that the geographic index seems to show a reasonable degree of stability where there is sufficient experience to average out the effects of any random fluctuations in utilization.

Francisco Bayo and Steven F. McKay, *U.S. Population Projections for OASDHI Cost Estimates*, pp. 33, Actuarial Study No. 72, Social Security Administration, Baltimore, Md. 21235, July, 1974. Noted in *The Actuary*, December, 1974.

This study presents the population projections for the United States which are being used by the Social Security Administration in estimating the cost of the social security program. Detailed discussions are given of the mortality, fertility, and migration assumptions.

Dual Benefit Windfalls for Active Railroad Employees, pp. 6, Actuarial Note No. 5-75, U.S. Railroad Retirement Board, Chicago, Ill., August, 1975. Noted in *The Actuary*, November, 1975.

This note discusses changes in the Railroad Retirement Act concerning dual beneficiaries—that is, those individuals who would be eligible for benefits under both railroad retirement and social security systems. Discussion of the eligibility provisions of the Railroad Retirement Act of 1974 for windfall benefits is included, and an example showing the windfalls is computed. Estimates are given of the number of persons now eligible for windfall benefits by age group and of the amounts payable from 1975 to 2034.

REVIEWS FROM "THE JOURNAL OF THE
INSTITUTE OF ACTUARIES"

There were no reviews in Vol. 101, Part II, No. 417 (1974), or Vol. 101, Part III, No. 418 (1974).

Reviews in Vol. 102, Part I, No. 419 (1975).

E. Chalmers, *The Money World*, Macmillan & Co., London, £5.95.

R. W. Cooper, *Investment Return and Property-Liability Insurance Ratemaking*, pp. xxii+144, Richard D. Irwin, Inc., Homewood, Ill., 1974.

Review in Vol. 102, Part II, No. 420 (1975).

Alan Brown, *The Application of Collective Risk Theory to Life Assurance*, M.Sc. thesis, University of Melbourne, 1973.

Reviews in Vol. 102, Part III, No. 421 (1975).

Ronald Pressat, *A Workbook in Demography*, pp. 292, Methuen, London, 1974, £7.90.
Alfred Sauvy, *General Theory of Population*, pp. x+550, Methuen, London, 1974, £3.75.

REVIEWS FROM THE "TRANSACTIONS OF THE
FACULTY OF ACTUARIES"

Review in Vol. 33, Part 2, No. 239 (1974).

B. Benjamin and H. W. Haycocks, *The Analysis of Mortality and Other Actuarial Statistics*, pp. viii+392, Cambridge University Press, £3.00.

Review in Vol. 33, Part 3, No. 240 (1975).

Patricia A. Wilkie, "The Making of the Actuarial Profession in Scotland, 1815-1870," unpublished honors degree thesis.