The Newsletter of the Society of Actuaries
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THE Actuary

Financing the U.S. Military Retirement System

by A. Haeworth Robertson

The United States military retirement system has been the focus of considerable attention in recent months, particularly as a result of rising government expenditures and the continuing debate over federal budget deficits.

In fiscal year 1986, the system paid $17.6 billion in benefits to some 1.5 million retirees and survivors. These expenditures amounted to 6.3% of the total military budget of $281.4 billion and 50% of basic payroll. Benefit expenditures have risen steadily over the years, but the system is relatively mature and expenditures are projected to stay in the range of 47% to 54% of basic payroll during the next 75 years.

Revised Financing Procedure

Until fairly recently, the military retirement system was operated on a "current cost" basis; that is, with annual appropriations for the Department of Defense budget equal to projected expenditures for the year. Public Law 98-94, enacted in September 1983, changed this procedure and provided that effective October 1, 1984, the military retirement system would be advance funded by the annual payment to a newly established retirement fund of the normal cost plus an installment to amortize the unfunded accrued liability.

The Board of Actuaries appointed by the President to oversee the financing of the system has determined that the normal cost is 51.3% of basic pay for FY 87 (the fiscal year

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A Comparison of Actuarial Practice in the U.S. and U.K.

by J. Phillip Turner

The actuarial profession in the U.K. is a more tightly-knit community than the fragmented profession in the U.S. Given the relative size of the two countries and the ease of travel to London from the other U.K. cities, this is not surprising. The Institute of Actuaries in England and Wales and the Faculty of Actuaries in Scotland are the only bodies which set examinations and professional standards for actuaries in the U.K.

The Institute's principal meetings take place in the evening at the venerable Staple Inn Hall, which has been home to the Institute library and administrative offices for exactly 100 years. It is a comfortingly familiar professional home to most U.K. actuaries. An Institute meeting is typically devoted to the discussion of a paper presented by a member. Although the paper may deal with a specialty subject, the attendance is not usually confined to actuaries practicing in that field, so there is a good deal of intermingling between the different specialties.

In recent years there has been a weakening of the traditional ties to London. Many insurance companies have moved their principal offices out of London, and regional societies, such as the Yorkshire Actuarial Society, have become increasingly important as professional forums. In 1986, for the first time, the Institute held a two-day convention similar in format to typical Society meetings here in the U.S. The meeting, held in Birmingham, dealt with life insurance issues. A similar meeting is planned this year to deal with pension issues.

As an actuarial student, I found the organization of the Institute's correspondence courses for the actuarial examinations extremely helpful. The courses for the actuarial examinations are presented as a series of lessons, each followed by a test. Each student is assigned a tutor who will mark each test and return it, together with model solutions and comments. There is a strong correlation between students who complete these tests and students who are successful on the exams. This system requires a

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good deal of voluntary effort on the part of Institute members. I perhaps obtained the best of both worlds by studying under the system and then leaving the country before taking my turn as a tutor!

An interesting philosophic difference between the two countries is the concern in the U.K. about the independence of an actuary from corporate control. As a consequence, the major U.K. consultants have traditionally been organized as partnerships of self-employed actuaries rather than corporations. More recently, the Institute has permitted actuaries who work for corporations to describe their service as "independent actuarial advice," provided that the directors of the corporation write to all their actuaries stating that the corporation will not attempt to influence this advice. The Association of Consulting Actuaries in the U.K. will still only admit self-employed actuaries as members.

Though the language of compound interest and mortality theory is essentially the same in the U.K. as in the U.S., when I moved to the U.S., I noted a much greater focus on funding methods in pension practice. This is undoubtedly a consequence of the way minimum funding standards, maximum contributions and financial reporting requirements are defined in the U.S. It may also result from the existence of a much more creative range of plan designs than are encountered in the U.K.
In the U.K., though it is common for future contributions to be made up of both level amortization payments and a percentage of payroll, there is much greater flexibility in apportioning the total contribution between these. An additional item, "surplus" or "deficiency," is usually shown in the equation of balance and carried forward from year to year to avoid frequent changes in the contribution percentages. However, the 1986 Finance Act requirements (including prescribed actuarial assumptions), which deal with overfunding, and the long arm of the FASB have resulted in a greater awareness of funding methods and a move towards the projected unit credit method in the U.K.

The U.K. state pension consists of a level amount plus a "second tier" earnings-related amount. Employers with qualified plans may elect to provide this "second tier" benefit from their pension plan in lieu of paying a portion of the Social Security taxes. This is referred to as "contracting-out," and much of a pension actuary's work in the U.K. is related to this issue. In addition to the decision whether or not to contract-out, which depends primarily on the age and sex distribution of plan participants, a contracted-out plan must maintain minimum funding levels for this part of the total benefit. These requirements are expressed as a minimum relationship of assets to liabilities rather than as the ongoing contribution requirement for minimum funding standards here in the U.S.

Another significant part of an actuary's work in the U.K. relates to the calculation and disposition of "transfer values." A direct plan-to-plan transfer of assets is usually made for an employee who changes employment — where both employers have qualified plans. In exchange for the transfer value, an incoming employee is awarded a notional period of back-service in the new plan which will be included in the service used to calculate the final benefit from his new employer. The actuary is required by regulations to ensure that transfer payments represent reasonable value for the alternative deferred benefits allowing for the economic conditions at the time.

Certain employers, most notably in the public sector, belong to "clubs" with an agreed-upon basis for transfer between two plans in the club. These may achieve perfect portability in the sense that, if an employee spends his career with different employers who have identical plans, his final benefit would be based on his final salary and his full career of service.

Many pension valuations in the U.K. are performed using discounted cash-flow techniques to establish an actuarial value of assets. Although this ties in neatly with the valuation of liabilities, the choice of a rate of growth of dividends for equity investments becomes the unpredictable factor in the assumptions, which may or may not leave the actuary comfortable with the results.

Given the higher rates of personal taxation in the U.K., the actual choice of investments tends to place more emphasis on the differing tax positions of a pension plan and other investors.

My first exposure to "life-office" work in the U.K. was as a consultant to Friendly Societies. These delightful anachronisms, which provide mainly sickness benefits of a few pounds a

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week to a handful of members, enable the student to experience the preparation of an entire valuation by hand on one large sheet of paper using amazingly antiquated 19th century sickness tables, no more recent tables being available.

When I first moved to the U.S., I was surprised by the extent of reliance on the statutory basis in life insurance company valuations. My current impression is that the development of the role of the valuation actuary here in the U.S. has made the responsibilities of U.S. life actuaries more similar to those of their U.K. counterparts, while new policy forms and the increasing use of profit-testing techniques in the U.K. have made product development in the U.K. more similar to the development of new products in the U.S.

I believe it would be a fair summary to say that, although there are differences between the actuarial professions in the U.K. and the U.S., the underlying trends in many areas are convergent. To our increasingly internationally minded clients and a public long confounded by the mysteries of actuarial science, this must be most welcome.

My wife claims that it makes no difference whether she is in the U.S. or the U.K.; she can recognize an actuary a mile away. It would seem that certain professional characteristics have converged already!

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Military Retirement Cont'd.

ending September 30, 1987) and that it will decline gradually to the ultimate rate of 40.3% in FY 2016 and later as an increasing proportion of participants become covered by the reduced benefits applicable to those entering service on or after August 1, 1986. (Benefits were reduced approximately 17% for such entrants.)

Moreover, the Board has determined that the initial unfunded accrued liability, as of October 1, 1984, is $528.7 billion and that it is to be amortized by the payment on October 1 of each year of approximately 29% of basic pay for such year. This will result in the amortization of the unfunded liability in about 60 years. Accordingly, the contribution to the retirement fund during each of the next 60 years is projected to be in the range of 70% to 80% of the active duty basic payroll.

N.B.: Since basic pay is approximately 76% of "total pay" (basic pay plus a quarter's allowance and a subsistence allowance, and the federal tax advantage accruing to such allowances since they are not subject to federal income tax), the percentages cited should be multiplied by 76% to yield approximate figures expressed as a percentage of total pay. For the remainder of this discussion, however, all costs will be related to basic pay in order to be consistent with the usual practice of the Department of Defense.

Effect of Funding

When the system was operated on a current-cost basis, the entire cost was paid from the Department of Defense budget. Under the new advance-funding procedure, the normal cost is paid from the Department of Defense budget, but the payment to amortize the unfunded liability is made by the Treasury. The normal cost is projected to decline gradually from 51.3% of basic pay in FY 87 to an ultimate level of 40.3%, while the actual benefit expenditures are projected to increase gradually from 49.7% in FY 87 until they peak at 53.8% in FY 2005. Thereafter, benefit expenditures are projected to decrease until they reach an ultimate level of 47.1% in 2052. Therefore, future retirement benefit expenditures from the Department of Defense budget will generally be somewhat less under the new procedure than under the old procedure (except for the years 1987-88, when normal costs are expected to be slightly higher than projected expenditures).

Any excess of benefit expenditures over the normal cost will be met from the trust fund which will accumulate as the unfunded accrued liability is amortized. These figures do not tell the whole story, however, since the assets of the trust fund are required by law to be invested in Treasury securities and since the Treasury payment to amortize the unfunded accrued liability can arise from either of two entirely different sources. For example, additional taxes can be collected currently in an amount equal to the amortization payment. In this event, the nation's current taxes will increase; the current deficit will decrease, the total national debt will be unchanged; the portion of the national debt held by the public will decrease; and the portion held by the government will increase. This procedure will clearly result in a change in the national economy, a change that presumably will strengthen the economy and make the payment of future benefits more secure.

An alternative way to "fund" the accrued liability is to issue new Treasury securities and place them in the retirement fund. In this event, the nation's current taxes will be unchanged; the current deficit will be unchanged, the total national debt will increase; the portion of the national debt held by the public will be unchanged; and the portion of the national debt held by the government will increase. This procedure will not result in a change in the national economy and thus will not make the

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AERF Request For Proposal

There is a need for a monograph on the intellectual foundations of the actuarial profession. A great deal of soul searching has gone on within actuarial circles seeking to define the unique expertise of an actuary. The answers will come, in large part, by defining the intellectual foundations of the actuarial profession as a whole. To this end, the Actuarial Education and Research Fund is announcing a request for proposal (RFP) to write a comprehensive monograph on the fundamental concepts of the actuarial profession. Essentially, this project is to identify and delineate the common ideas used in all areas of actuarial practice. The need to define fundamental actuarial concepts has moved the Interim Actuarial Standards Board to promote a monograph on the intellectual foundations of the actuarial profession and the AERF to sponsor such an undertaking. The monograph is to include sections on economics of risk, time value of money, random variables, individual insurance models, conservatism, adjustments, collective or individual balance, and classification. Additional concepts are to be added as deemed appropriate. Interested parties should contact the AERF office at 500 Park Boulevard, Itasca, IL 60143 (312) 773-3010 for a detailed copy of the RFP. Proposals will be accepted until January 31, 1988. A review draft of the monograph must be completed by November 1, 1988. AERF intends to publish this work by June, 1989.

Military Retirement Cont'd.

future benefits more secure. It follows, therefore, that little will have been accomplished by thus funding the accrued liability, unless the psychological advantages of having "assets" in the retirement fund to guarantee the payment of future retirement benefits are greater than the disadvantages of creating a larger national debt.

A substantive advantage will accrue from accumulating a retirement fund consisting of Treasury securities only if it results in a strengthening of the national economy. Increased current taxes will probably strengthen the national economy; increased national debt certainly will not.

Conclusion

The new method of financing the military retirement system may appear to have advantages over the former current-cost method. First, the cost of benefits accruing for each current year of service is clearly identified and segregated from the cost of benefits accruing for past years of service. Second, provision is made for amortizing the accrued liability for prior service benefits, thus recognizing the cost of such benefits and, to a certain extent, enhancing the security of such benefits.

The real effect on the economy, however, of amortizing this past service liability will depend upon whether the amortization is achieved by increasing current taxes and decreasing the current deficit, or by merely increasing the national debt and leaving the current deficit unchanged. It should be noted that the first four amortization payments from 1984 to 1987 were achieved by increasing the national debt, and no change in this procedure appears imminent.

In short, the new financing method will not weaken the financial condition of the military retirement system, and it has the potential to strengthen its financial condition if the funding of the past service liability is handled appropriately.

A. Haeworth Robertson is Managing Director at William M. Mercer-Meidinger-Hansen, Inc. He is the Chairman of the Department of Defense Retirement Board of Actuaries.

Editorial

Employee Benefits – Need for Change

by Barnet N. Berin and Robert D. Paul

(Ed. note: Robert D. Paul, not a member of the Society, is vice chairman of the Martin E. Segal Company. He is a leading pension, compensation, and employee benefits designer.)

Since the end of World War II, more and more retirees have been getting two checks, one from Social Security and one from a company pension plan. The connection between poverty and old age has been broken by an enlightened public policy that has led to the rapid growth of company sponsored and collectively bargained pension plans during this time. That policy has been to encourage the development of privately sponsored pension plans by allowing tax deductions for contributions to these plans. Taxes on these employer contributions and investment earnings are paid later when benefits are paid to retired employees.

Complexities

In 1974 Congress enacted the Employee Retirement Income Security Act, and frequently thereafter additional laws regulating employee benefit plans have been enacted. These in turn have required extensive regulations to explain their arcane provisions. Recently the Tax Reform Act of 1986 greatly increased the complexity of maintaining a qualified employee benefit program. For employee benefit plans, tax simplification has become a quagmire of obscure language, overly precise discrimination tests, and new rules that prospectively change benefit entitlements in mid-career. One inevitable result will be the creation of a second set of benefit programs outside the scope of these restrictions that may end up costing the U.S. Treasury just as much in taxes, at a later date, as is supposedly being saved now.

Objectives

We have lost sight of the original goal: the encouragement of privately sponsored employee benefit programs so that workers and their families can live in dignity in retirement.

One reason for losing sight is obvious. Trying to raise tax revenue to meet the current budget crisis, as is true of many short-run strategies, loses sight of long-term interests. Surely the encouragement of private solutions to the problem of maintaining adequate retirement income which will relieve the pressure on Social Security and other public responses to poverty in retirement is a more cost-effective solution than the modest amount of tax revenue collected now.

A second reason for losing sight of the original goal is that most of the additional complications that have been written into the law address the issue of preventing small company owners from using the employee benefit programs as a tax shelter rather than as a systematic way of providing for life insurance, health insurance and pensions for their employees. In a small company, the principal owner's salary is almost always disproportionate when compared with the other employees; it cannot be otherwise. Because benefits are usually salary-related, disparities are unavoidable and apparent. Rather than tackle this subject directly, a burden has been placed on all companies to satisfy a variety of tests to avoid the kind of discrimination that can only occur in a small company. Reporting and disclosure are extensive and complex. Although larger companies have little difficulty meeting the rules, the cost of administering the programs grows larger and larger. Benefit design now turns on questions of compliance rather than on what is good practice. Many companies are reconsidering their commitment to defined benefit plans because of the excessive paper work and other costs of compliance.

Consequences

The complications created by this plethora of laws are so great that the Internal Revenue Service is having considerable difficulty dealing with

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them. Regulations promised a year or two ago are still not published. Questions remain unanswered for months, sometimes years. New statistical tests required under the Tax Reform Act of 1986 for group life and health insurance will only add to the burden of regulation and enforcement for the IRS. Experts at the IRS are in short supply, especially in offices around the country. Answers to the same question vary; sometimes, the answer is simply not known. Some questions are never put to the IRS because plan sponsors and their advisors cannot wait the length of time it takes to get answers. But sponsors still face risks of excise taxes and interest penalties for serious mistakes.

Endless reporting and testing by plan sponsors are performed as faithfully and carefully as possible. Increasing time and expense are spent in attempting to comply with the mounting complexity. The reports are completed, checked, mailed to the appropriate agency in Washington, D.C., received in huge bags of mail, opened, and then much later filed away, rarely ever to be examined or even looked at again. Paper accumulates; eventually the reports will be thrown away. But they require attention—administration that serves no useful purpose. There are caretakers of never-used documents.

Simplify

The target of most of these efforts in the employee benefit field is the small company. In a simpler world we could do one of two things: have special rules that apply only to small companies or simplify the rules for all plans, recognizing that no set of rules or regulations will be 100% foolproof or perfect no matter how complex. Simplicity has virtues all its own. Simple rules will encourage employers to adopt employee benefit programs with the important benefit to the country of adequate health insurance and adequate pension benefits to supplement Social Security. We need to save more as a nation. How better to do it than through employee benefit programs?

A Proposal

Many experts in the field of employee benefits agree that the tax code can be simplified while preventing abuses without the excessive number of rules, regulations and reporting requirements that have blossomed ever more frequently in recent years. The White House should convene a small group of leading practitioners in each of the professions involved in the employee benefits field and give them a twelve-month period in which to develop a simpler employee benefits tax code. It is important that this panel be selected only for its competence and that it work out of the limelight of publicity. Its members should pledge that they will seek no commercial advantage from their respective roles. Their work will help to preserve the very best features of the employee benefit programs now in operation while preventing individuals from unfairly using the provisions of the tax code solely for their benefit and not for the benefit of those they employ.

There invariably exists a simple solution. However, it takes someone familiar with the field to seek out and find the solution.

Presidential Editorial

Major Issues Facing the Society

by Gary Corbett

As I embark on my year as President of the Society, we face a number of issues. Most of them reach back to Harold Ingraham's term and even before. In an organization like the Society, it is virtually impossible to complete an initiative within a President's one-year term. Thus, to move the Society ahead, successive Presidents must share consistent goals and objectives. This consistency is aided by the policy that the President-Elect chair the Society's Committee on Planning which, in reality, is a committee on issues. In this role he or she can lay the groundwork for issues to be pursued during his or her Presidential term.

The major issues I see facing the Society are: education and examinations, research, actuarial principles, strengthening the profession, the future of the actuary/the actuary of the future, and employee benefits.

Education and Examinations

At the October 1987 annual meeting, the Board of Governors voted to proceed with all the Flexible Education Method proposals outlined in the White Paper distributed to members earlier in 1987. However, when it came to college credit, the Board decided to establish an experimental program, limited to the former Part 3 subjects, starting with the 1990 academic year. The entire college credit proposal will be evaluated in light of the experience with intensive seminars and the college credit experiment. It was tempting to defer completely the decision on granting credit for university courses. However, a deferral would have accomplished nothing. We would know no more five years from now concerning the advantages and disadvantages of college credit if we did nothing in the interim. Many members feel there are significant advantages to be gained by alternative education and credit-granting methods; others feel just as strongly that the proposal would weaken the value of the Associateship and Fellowship designations. We will never know who is right until the concept is tested. For this reason, the experimental program received the unanimous approval of the Board.

The Education Policy Committee will evaluate a far-reaching concept to reduce significantly the number of subjects in which the Society educates and examines. The subjects would be restricted to those that are absolutely necessary for an actuary and unique to the actuarial profession. Over and above this limited number of courses, education, generally at the university level, would be required in other subjects such as accounting and economics. This concept, known as the Swift Proposal, both because it

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Presidential Editorial Cont'd.

would speed progress through the examinations and because it was modestly labeled "A Modest Proposal" by its originator, is at this stage only a concept. It will require considerable investigation and discussion before becoming an actual proposal.

Research

Anna Maria Rappaport is chairing a Task Force to Review and Revitalize Society of Actuaries Research. The Task Force presented a preliminary report to the Board in October 1987 and is on schedule to produce a final report for October 1988. The Task Force is likely to recommend a considerable expansion in the Society's research activities and significant modifications to how such research is initiated and managed. The Society, at least in recent years, has been far more active and successful in its education than in its research role.

Actuarial Principles

In 1986, the Board of Governors determined that the Society should articulate actuarial principles that would serve as a basis for standards of practice developed by the Actuarial Standards Board and the Canadian Institute of Actuaries. To date, the only principles working their way through the articulation process are those for life insurance company valuations. We are setting up a Task Force to further define actuarial principles and to determine the areas where those principles need to be articulated and how to develop such principles for membership exposure.

Strengthening the Profession

The six North American actuarial bodies (AAA, ASPA, CAPP, CAS, CIA, and SOA) have established a Task Force to "explore how to strengthen the actuarial profession and to consider whether restructuring the organization of the profession would be helpful in achieving this goal." The Task Force, which reports to the Council of Presidents, is composed of two representatives from each of the six bodies plus two at-large members. It is hoped that a consensus will develop amongst the boards of the six organizations in time for a meeting of the combined boards in connection with the 1989 Centennial Meeting.

Our members should be aware of my position regarding any possible restructuring of the actuarial profession in North America. As I said in my acceptance speeches in both 1986 and 1987, I am committed to the international role of the Society. Because of my two-country background, I may see the benefits of the Society's multinational structure more clearly than do others. Nevertheless, I am convinced that any restructuring that does not provide for the continuation of a joint Canada/U.S. education and research organization would constitute a severe loss to our members on both sides of the border.

The Future of the Actuary/ The Actuary of the Future

The Society's leadership, primarily in the Committee on Planning, has been discussing for a number of years how we can better prepare our members to function in this changing world, concentrating on how we could make the FSA designation and all that it entails more valuable.

This year we widened the focus from what had been primarily an inward look at the actuary of today to an outward look of the actuary of tomorrow, the actuary of the 21st century—a century in which our current members will collectively spend most of their careers. You've seen a number of articles on this subject, including one by me in the November 1987 issue of *The Actuary.* Additionally, we are scheduling discussions of this subject at all Society meetings in 1988. We started with a well-attended open forum at the Montreal annual meeting in October 1987. We have established a Task Force, chaired by Jim Murphy, to undertake an in-depth study and report recommendations to the Board a year from now. In addition, I have assigned Vice President Allan Affleck the responsibility of assuring that all areas of the Society (E&E, Services to Members, Research, Publications) appropriately recognize the changing role of the actuary in all of their policy decisions.

Employee Benefits

In recent years, the Society has striven to make the FSA designation of greater value to employee benefits actuaries. We are engaged in a major upgrading of study notes in the Group and Pension areas; the Pension Section is active; we have solid pension content in our programs—for instance, the Society meeting in Anaheim in April 1988 will be devoted to employee benefits; and we are planning a Fall 1988 symposium on the funding of post-retirement benefits. Vice President Rob Dowsett will be ensuring that all areas of the Society continue to devote sufficient attention to the needs of employee benefits actuaries.

Committee on Planning

The Committee on Planning, chaired by President-Elect Ian Rolland, will be considering additional issues such as governance, the role of universities in actuarial education and research, and the Society's planning process. Ian will undoubtedly assign other issues to be developed in preparation for his taking office next October.

The responsibilities of the Executive Committee members for next year are:

- President Gary Corbett—writing editorials for *The Actuary* and other Presidential duties
- President-Elect Ian Rolland —Committee on Planning
- Vice President Mike McGuinness —Education and Examination
- Vice President John Montgomery —Services to Members
- Vice President Steve Radcliffe —Principles, Valuation, Career Development and Public Relations
- Vice President Irwin Vanderhoof —Research and Studies
- Vice President Allan Affleck —Oversight responsibility for The Future of the Actuary/The Actuary of the Future
- Vice President Rob Dowsett —Oversight responsibility for Employee Benefits
- Secretary Tony Spano—Secretary, including Publications
- Treasurer Mike Cowell—Treasurer, including Administration and Finance
- Immediate Past President Harold Ingraham, Jr.—Sections and Guides to Professional Conduct

On behalf of all the officers and governors, we thank you for the confidence you've expressed by electing us to conduct the affairs of your Society for the coming year. If you have any questions or comments in our respective areas of responsibility, please let us know. We do promise you our best efforts to advance the interests of the actuarial profession, the Society and its members.

In Memoriam

John A. Bradford A.S.A. 1969
J. Louis Constantin A.S.A. 1961
David C. Wetter F.S.A. 1977
John C. Woody F.S.A. 1954

Pension Cost Projections

by Frederic T. Lhamon

In management circles, one of the most sought-after commodities is quality information—information which is timely, complete and accurate enough to allow for sound business decisions.

And yet in a rapidly changing environment, management frequently finds itself forced into making far-reaching corporate decisions with less than complete knowledge of the consequences or possible outcomes.

This has never been truer than in today's pension arena, where chief financial officers and corporate benefit managers are asked to analyze the future effect of plan changes and legislative proposals or to forecast the impact of a merger or change in investment strategy.

Such dynamic problems require a sophisticated modeling system capable of analyzing the relative impact of the variables and providing management with information which may act upon.

Actuarial Valuations

The standard actuarial valuation involves an analysis of a pension plan at a particular point in time. This static evaluation begins with a snapshot of three items:

- Current employees and retirees.
- Current pension plan provisions.
- Current assets.

From this snapshot, the valuation produces a forecast of the payment of benefits to these "known" individuals and translates these benefit payments to a current pension liability and associated annual cost. This process is generally repeated each year.

Over time, fluctuations in one or more of the three parameters—population, plan provisions and assets—will be reflected in the valuation report in the year following the change.

Projection Valuation

Viewed in its simplest form, a projection valuation represents a series of annual valuations performed at a single point in time, but applied to successive points along a plan's time horizon.

By introducing known or expected changes and trends, a pension manager is able to predict the status of a plan at any point along the continuum.

Just as real experience fluctuates over time, it is important to introduce scenarios of known or expected future changes in population, plan provisions and asset performance to achieve an understanding of the dynamics of the variables.

In doing so, the pension manager is able to quantify the impact of actions such as:

- Changing actuarial assumptions
- Impact of investment strategies
- Variable funding policies
- Forecasting human resources expenditures
- Pension plan—An asset or liability
- Business expansion or contraction
- Trustee liability
- Stockholders' equity
- Unions and employee concerns
- Regulatory agency requirements

Case Study Results

Perhaps to better understand the value of such dynamic modeling tools we should take a look at three case studies:

Case A

Company A has sponsored many plans in the U.S. and Canada and has experienced a decrease in its annual pension contributions expressed as a percentage of payroll during the preceding few years.

Management had become interested in the hypothesis that an investment portfolio weighted toward dedicated and immunized high-quality bonds would result in zero or minimal contributions for the next several years. While management acknowledged that an equity portfolio might have produced greater long-term gains, stability of the fund was a preferred position.

By developing the variables of the investment strategy, management learned that it could indeed manage the annual cost of the pension plan over the next 10 years. In particular, pension expense would decrease markedly in the first year, then rise gradually to expected levels during the next 10 years. Book liability would gradually decrease over the same period of time.

Case B

Corporate executives had become concerned about the appropriateness of the funding level of their state's employee pension system. While the funding requirements were contained in the state regulations, there had been considerable legislative pressure to divert current pension contributions to pay for other state program needs. The study clearly demonstrated that, while failure to meet the current funding levels may provide immediate availability of dollars for other programs, the result could cause a crisis in the years when the cost rose sharply.

Case C

Trustees of a multi-employer fund were concerned about the long-term relationship between current cost and future benefits. More precisely, with the expectations of a declining population, what level of benefits could be supported and what would be the threshold of the contributions and investment performance?

The study illustrated the relative progression and the level of the Unfunded Vested Benefit Liability, both where there was no increase in contributions and benefits and with variable annual increases.

Managers must utilize tools that allow them to make responsible decisions today and for the future managers who follow them. The analysis is cyclical, progressing from planning through refinement and conclusion stages—finally reaching the point where the executive has the knowledge to ask the deeper, more complex questions which lead to effective management.

Frederic T. Lhamon is a Consulting Actuary at Milliman & Robertson. He has served on the SOA Pension Committee and is actively involved in pension projections for his firm.

TSA Paper Accepted

The most recent paper accepted for publication in the *Transactions* is "Relationships Between Statutory and Generally Accepted Accounting Principles" by Louis J. Lombardi. This will appear in Volume 40.

Preparing for Retirement

by Robert Jud

The whole notion of Retirement Planning and Pre-Retirement Counseling has a most contemporary ring. If it were merely a matter of attending to today's media-passion, of course, there would be little reason for professional business people to take the issue seriously. The truth is, however, that an increasingly aging population presents an array of serious and compelling problems and concerns. In several important ways these have an effect on the business community and require a business response.

Social Impact

The basic issues are never described by numbers because they defy quantification. They are essentially psychological and social in nature. For example:

• Elderly people are caught in a collision of cultural values. On the one hand, the elderly are as bedeviled as the rest of us by the so-called "Work Ethic"—the idea that what counts is productive effort coupled with self-discipline and thrift. On the other hand, we have a strongly held value that people should fulfill themselves, that they should live fully in time, rather than searching for ways to fill it. It is little wonder that old people occasionally feel that they are useless.

• One of the things that distinguishes mankind from other species is the matter of goal-direction. We are happiest when our activities have a purpose. All of us know the letdown that occurs after we have accomplished one objective and before we turn toward a new one. If there is no new goal, letdown may become despair. Playing checkers or shuffleboard in the Florida sun is fun only when it is an interlude; it becomes miserable when it is the whole point. To relax is not a self-sustaining human goal.

• Most adults alive today have grown up under the myth that the first two decades of life are filled with myriad phases and stages but that, when one becomes an "adult," one is an adult forever. The truth is that adult life, like any other life-segment, comes in all sorts of stages, and that the skills required for one stage are often not at all necessary or useful for another. The phenomenon of the "Mid-life Crisis" is an excellent example of the confusion that results when an adult is faced with whole new sets of options and difficulties, with few norms or practiced behaviors to deal with them. The coming of old age is just such a crisis.

• Whether retirement years are happy or not depends, of course, on the care we take to prepare for them. Yet as individuals and as a society, we approach retirement planning with about as much enthusiasm and passion as we consort with burial plot salesmen. The reason for both is the same: we tend to avoid the issue of our own mortality. It's a tough psychological hurdle to overcome, yet overcome it we must because the stakes are high. Will our final years be a period of joy and satisfaction or will they be years of sadness, hardship and hopelessness? The difference will be measured by the degree of intelligence, imagination and initiative we apply to the problem.

Retirement education, rather than offending employees, tends to reassure them. This is especially true of the middle-aged. By assuring them that the company is interested in their well-being, the employer expects to reduce their worries and anxiety and to promote feelings of security and loyalty. Such feelings help to maintain self-confidence and the desire to contribute and achieve.

Program Recommendations

The hallmarks of a well-conceived retirement counseling program should consist of at least the following:

1. Development of the program should take lots of time. Retirement programs are never conceived or executed in a flash. Most counseling programs commence at least five years before retirement, and with early retirement, it is not uncommon for such counseling to begin at age 55.

2. The program should be voluntary. No one should be forced into a lock-step company ritual. Counseling programs ought to be available; they should never be mandatory.

3. Within the first two constraints, the program should be made available to all employees, not merely certain groups of them. Programs which are restricted to clerical or factory level people carry the implicit connotation that lower level employees cannot handle their own affairs properly. The plain truth is that preparing for old age is part of the human condition, and that hierarchic status does nothing to alter that fact. Being a vice president no more prepares one for retirement than does any other kind of work.

4. The program should be as individualized as possible. While all retiring people face some problems in common, there is no canned prescription that will suit everyone. People vary as widely from one another after retirement as they do under any other set of life circumstances. A good counseling program recognizes individual differences and uses them to help enrich individual lives.

5. Because the issues of such a program are so multifaceted, it is wise to avoid launching a full-blown system. Companies, like people, should have a chance to learn as they grow. Perhaps a low-key retirement awareness campaign is all that is needed initially. Later, a firm can add one aspect of this effort after another, using experience to dictate what works, until a well-tuned and well-coordinated program finally emerges.

6. Finally—and obviously—any good retirement counseling program should be marked throughout by two traits: dignity and sensitivity.

Robert A. Jud, not a member of the Society, is President of Robert A. Jud & Associates, Inc., a management consulting firm. He was previously with William M. Mercer-Meidinger-Hansen, Inc., specializing in management development, retirement education, and life/career planning.

What Medicine Will Look Like in the Year 2000

by Harry M. Oliver, Jr.

What American medicine will look like in the year 2000 will depend on the tradeoffs made between quality and availability on the one hand, and cost on the other hand. Two extremes can be envisioned. Both have important implications for business and industry, employers and employees, and others. Ultimately, the degree to which medicine moves towards either extreme will be determined by the wants and needs of the people.

One Extreme

One extreme would involve a preoccupation with the cost of delivering care with an attendant need for its rationing. Some older patients could be denied high-cost procedures such as open heart surgery and kidney dialysis, as is presently done in some European nations. Decisions would be based on the quality of life as well as age.

The cost of medical and health services would be strictly controlled, and bottom lines would be predictable. Public and private insurers would set precise annual maximums on spending for beneficiaries and policyholders. Patients would pay larger deductibles and copayments when care is received. When coverage maximums are reached, no additional services would be provided unless patients pay out-of-pocket; but the total amount of care available would be largely controlled by private and public insurance mechanisms.

Every diagnostic procedure and payment would be approved in advance by insurers. Reimbursement of hospitalized patients also would be stipulated, as well as the length of patient stay. Everything would be based on norms for severity of illness. The theory would be that cost would "average out"; i.e., earlier recovery of healthier patients would make up for those less healthy. The system would be as much statistical as medical, with predictable illness and death rates. Wealthier patients would be able to pay for whatever care they need. Poor patients and those without insurance coverage would seek welfare or charity care.

Insurers would no longer help subsidize medical research, medical education and development of new technology. In some areas, patients would be on waiting lists to see one of the dwindling number of doctors available. There would be fewer hospitals. The pace of medical advances would slow down; with fewer discoveries, there would be fewer new techniques and medications. Technological innovation would be reduced. The quality of patient care would remain basically the same.

The Other Extreme

The other extreme would make the best kind of care available to those who need it, but it would be provided in more cost-effective ways through pluralistic financing and delivery systems.

Physicians and other providers would continue to diversify into more efficient, economical and convenient forms of practice. This would include the single practitioner's office, hospital-based or sponsored ambulatory care and ambulatory surgery centers, free-standing surgery centers, shopping mall and residential area urgent and routine care centers, and other, not-yet-developed forms of "custom medical care" to meet the needs of patients within necessary financial constraints.

There also would be a continuation of combined financing and delivery systems, such as health maintenance organizations and preferred provider organizations, all of them aimed at greater efficiency and the containment of cost—containing the real cost of providing care, not just the price or the payment for it.

Beneficiaries of both private and government insurance programs would assume more responsibility for the cost of care through premium sharing, deductibles and copayments for actual care. Those with little or no resources would be cared for through government programs and private health insurance risk pools.

All payers would contribute a fair share of the cost of medical education, medical and scientific research and technology development so that the quality of care—and its beneficial results—would continue to rise to meet the needs of the people.

Very probably, medicine in the year 2000 will fall somewhere between the two extremes, with a continued emphasis on quality and availability. The American people have become accustomed to the best of care and are not likely to abandon that for dollars and cents.

Progress/Problems

Medical progress has been of immense benefit to the health and life expectancy of the American people. Average life expectancy in this country is now about 75 years, up from 47 years at the turn of the century. And the number of Americans aged 65 and older now surpasses the entire population of Canada. Between 1970 and 1984, the number of people aged 85 and over jumped more than 90%, from 1.4 million to 2.7 million. But progress has a habit of creating its own problems.

Medical cost problems are bound to increase with the disproportionate growth of the elderly segment of the population. Medicare and Medicaid patients already account for more than 43% of total hospital admissions.

A National Center for Health Statistics report predicts average life expectancy in this country will reach age 80 just after the turn of the century. The same report estimates the number of people with chronic health problems will increase to 46 million. The number of doctor visits per year will jump by 318 million to a total of 1.4 billion; hospitalization will increase 48% to an annual total of 407 million days; and the number of nursing home residents will more than double, as will costs for their care. During this same approximate period, the number of Americans over age 75 will more than double, and the number over age 85 will more than triple.

Medicare is basically a payment transfer system, with the payroll taxes of four workers funding services for each Medicare recipient. This will shrink to just two workers. One recent government report predicts the Medicare program will be bankrupt by the year 2002 unless additional funding is provided.

Even so, given the social, political and medical philosophies of the United States, it is likely that the quality and availability of needed care will continue to take precedence over its cost.

Harry M. Oliver, Jr., not a member of the Society, is President, Gesner, Inc., specializing in association insurance plans.

Differences in Actuarial Assumptions

by Barnet N. Berin

The question of appropriate actuarial assumptions in a pension valuation occurs often enough to make it a subject of interest. In many of these discussions, the significance of actuarial assumptions is overlooked. This is best illustrated by considering a hypothetical situation.

Actuary A has performed annual actuarial valuations of a pension plan for many years, monitoring the experience and making periodic changes in actuarial assumptions whenever such changes have seemed warranted. The Pension Committee, responsible within the company for the operation of the plan, invites Actuary B to perform an independent actuarial study including a valuation of the plan.

Given a specific set of plan provisions, a participating group and pension fund assets, pension costs are determined once the funding method, amortization period and actuarial assumptions are chosen. In this situation, the only difference is the choice of actuarial assumptions.

After Actuary B has completed the valuation, using actuarial assumptions which in the aggregate are more liberal than those used by Actuary A, the range of contributions developed by Actuary B turns out to be lower than those of Actuary A. (Alternatively, the second actuary's choice of assumptions might be more conservative, leading to a higher range.)

Both actuaries are asked to make presentations about their choice of actuarial assumptions. After explanations of the reasons for the difference in funding requirements, the Pension Committee members are puzzled and consider seeking another opinion. In most cases, this should not be necessary. What is missing is an appreciation of what actuarial assumptions are, how they are monitored and subsequently changed.

Assessing Assumptions

Neither actuary is automatically "right" or "wrong," since neither one can know precisely, in advance, the eventual costs of funding the plan. Costs are long-term, known only in retrospect, and are a function of the future experience of the plan. Such costs can be determined, but only after the cessation of the plan, once the last payment is made. However, a reasoned choice of an actuarial basis can be made: one set of actuarial assumptions might be viewed as more appropriate.

Funding a pension plan involves the gradual accumulation of assets, as company contributions are deposited into the pension fund over relatively long periods of time. The selection of actuarial assumptions has to be viewed as appropriate to measure costs over this time interval. Assumptions have to be tested regularly over this long term and relate sensibly to each other. As a further complication, the benefit formula itself will change over time.

The actuary must not only prepare the valuation but also monitor the results and suggest changes in actuarial assumptions from time to time. By measuring and analyzing the actuarial gains and losses, the actuary should be able to gauge the appropriateness of actuarial assumptions and make suitable and timely adjustments to these assumptions.

The actuarial valuation of a pension plan represents an orderly, systematic financing process. Over the years, the excess of actual benefits paid plus actual expenses over investment earnings and any employee contributions must be met by company contributions. Actuarial assumptions affect the incidence of these company contributions.

If the actuary is too optimistic in choosing assumptions, the resulting contributions to the plan will be deficient and produce actuarial losses requiring contributions larger than would otherwise emerge in later years. If the actuary is too conservative in choosing assumptions, favorable experience will produce actuarial gains resulting in smaller contributions than would otherwise emerge in the future.

Sharp swings in investment returns might be regarded as diminishing the significance of such analyses, but there are important elements in the valuation which dampen the effect on costs of such market movements. These include the use of asset valuation methods which smooth out market fluctuations and the amortization of actuarial gains and losses as well as the unfunded liability.

To decide whether Actuary A or Actuary B is more likely to achieve an acceptable pattern of emerging pension costs, the Pension Committee must consider how the actuaries arrived at their choice of actuarial assumptions and question each actuary to obtain a broad understanding of the processes of monitoring and change. If both actuaries are following the same procedures and making periodic changes in actuarial assumptions based on actual experience, but starting from different bases, costs will be drawn together over time.

Key Questions

The key questions are: How was the present set of actuarial assumptions determined? How have they fared in terms of plan experience? Is the set of assumptions internally consistent? What do the assumptions tell us about the future? What is the expected pattern of costs over the short-term and the long-term? What is the procedure for monitoring the actuarial assumptions and for making changes?

The issue is not the current realism of actuarial assumptions, but rather the appropriateness of actuarial assumptions as to future events.

There are a number of early warning signs which would suggest a change in actuarial assumptions. Successive periods of actuarial gains or losses, attributable to the normal operations of the plan, should be regarded as a warning sign signaling the need for corrective action.

There are other events which produce immediate cost changes, essentially cost dislocations, so that the level after the change occurs is permanently altered. Examples are benefit improvements, a change in investment policy leading to a substantial difference in the way assets are to be invested, a significant change in compensation policy, or a plant shutdown. These immediately indicate that the future will be different from the past and require a review of the continued appropriateness of the assumptions.

An examination of both actuarial bases and use of these considerations could establish the Pension Committee's preference for one of the two approaches.

Barnet N. Berin is Managing Director/Chief Actuary at William M. Mercer-Meidinger-Hansen Inc. He is an Associate Editor of *The Actuary* and a member of the SOA Board of Governors.

Toward a Unified Profession

by Ardian C. Gill

In case no one noticed, there was no pension specialist elected to any open position in the Society's latest election. This was not a statistical fluctuation but evidence of a recurring problem which, fortunately, has a ready solution: If we reorganize the educational aspects of our profession along university lines, we can form a Pension College out of the CAPP, with its own board, president, etc. A Casualty College would emerge from the CAS, and at least one other college would be formed from the Society, e.g., Life/Health, although it is arguable that Health should be in the Casualty College or have its own college. (*En passant*, we can note that this proposal would solve another problem: there was no casualty actuary elected to the Board either!)

It is noteworthy that only the educational and related functions need be merged in this way, since the remaining aspects of our profession, such as certification to practice, standards setting, lobbying and discipline, are well handled by the two national bodies, the CIA and the AAA. (We cannot do without separate, national bodies for these functions, but there is no need for separate educations.)

This proposal was briefly outlined in a letter I wrote to *The Actuary* in the February 1987 issue. In letters appearing in subsequent issues, Peter Hutchings (*The Actuary*, June 1987) found the idea appealing, noting that pension actuaries would have their own "dean," and Oakley E. Van Slyke (*The Actuary*, May 1987) of the CAS thought "the greatest benefit would be to raise the level of the examination process for casualty actuaries."

So far, then, two cheers for the idea of reorganizing our profession using the university as a model. The proposal has prompted more than two questions, and it is my intention to answer these in three segments:

1. ORGANIZATION—Although one could use a corporate or military model with divisions and departments, those models do not fit an educational institution nearly as well as a university model with schools and colleges.

The heart of the university would be its colleges, which would be solely responsible for education in their fields. While their exact composition will take some sorting out, the Academy's standards committees are a starting point: Casualty, Health, Life, Pensions, and Specialty, although General would perhaps be better for the last.

Each college would have its own board with its own president (or dean), all elected by the professionals who choose to align themselves with that specialty. The board of the university would consist of the presidents and presidents-elect of the colleges and perhaps the research vice-president of each college, with the chairmanship rotating among the colleges.

Such a reorganization would leave our current organizations more or less intact: more for the CAPP, which would take over pension education, about the same for the CAS, and less for the Society, which would be subdivided.

2. FUNCTIONS—The actuarial university would be primarily a degree granting organization, with ancillary research functions and with responsibilities for symposia and other educational functions, much like the current meetings and seminars of the various organizations.

The university would not have any qualification or certification functions beyond certifying that an individual has satisfactorily completed certain courses offered by the university. Those functions would continue to lie with the AAA, the CIA and the Joint Board for the Enrollment of Actuaries. Those bodies would rely, of course, on the university to offer the courses needed and to examine proficiency in those subjects with appropriate rigor. Similarly, standards and discipline would remain with the national bodies, which have the right to expect that the underlying principles would emerge from the learned organization.

3. EDUCATION—The Actuarial University of North America would not have a physical form any more than the CAS or SOA educational programs now have a physical form. This paper university consists not only of those programs but also of all the physical universities in North America. With this thought construct, we would be more likely to accept other universities' courses for equivalent credit in ours.

Everyone matriculating in our university would be required to take certain core courses and would thereafter take major courses and electives. Life actuaries would no longer be graduated in ignorance of casualty subjects, and casualty actuaries would know something about pensions. We would feel free to borrow courses from business schools to broaden the type of actuary we are now graduating. In the fullness of time, we would be offering advance degrees in areas where the profession now fails to pull its weight, e.g., social programs and health systems. Part of earning these advanced degrees would be doing research in the chosen field, something that the Society seems generally unable to come to grips with.

As an epilogue, the key to this structure is recognizing the distinction between being certified as qualified to practice and acquiring the education that permits that qualification. (Law, accounting and medical schools provide educations and grant degrees but do not certify anyone to practice.) Most of the proposals that have appeared in *The Actuary* on the subject of unification of our profession have missed this point and have for that reason not led to a coherent solution to the unification dilemma nor to the problem of appropriate recognition of each discipline in our governance.

Ardian C. Gill is Chairman of Gill & Roeser, Inc. He is a former Vice President of the SOA.

Solution Manuals

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Let's Hear from You!

by David A. Jeggle

You may have noticed that we're in the midst of an informal campaign to encourage members to write papers and articles. One reason is purely selfish—those of us involved with the Society's publications want to be sure that every book and every newsletter that we publish are the best they can be. A second reason is that today's publications become tomorrow's reference sources, and we want to assure that the major events of the 1980s are well-chronicled in your libraries.

But perhaps the most important reason is that papers and articles advance the knowledge of the profession. Even though our firms compete with each other, we will all be much more effective in helping to solve the problems of the day if we share progress and challenges with each other. This doesn't mean giving away corporate secrets, but it does mean taking time to put down on paper the results of some research you've done, or the process you followed to solve a problem that some of your colleagues might be interested in.

There it is again—someone else asking for a piece of your busy schedule. And you're probably already thinking that your boss's 1988 objectives are going to require that you kick in the afterburners in order to stay in his good graces for another year. But think for a moment about all that you have learned since you first sat down to study for Part 1. You have benefited from what others have written, and to a great extent those authors have been busy people who volunteered their time to advance the knowledge of the profession.

Having just completed a quarter century of actuarial work, I have worked with several generations of actuaries. Without a doubt, actuaries as a group are much more effective communicators today than we were 25 years ago. Let's put that skill to use! Look again at the list of issues that Rick Kischuk mentioned in his editorial in *The Actuary* for December 1987, or think about some of the problems you've addressed recently. I bet most of you can come up with a topic on which you can make a significant contribution, whether it be a paper for the *Transactions* or a brief article for either *The Actuary* or a section newsletter. Let's hear from you!

David A. Jeggle is Vice President & Chief Actuary at The Midland Mutual Life Insurance Company. He is the SOA Director of Publications.

Book Review

Michael J. Boskin, *Too Many Promises: The Uncertain Future of Social Security*, pp. 196, Dow Jones-Irwin, Homewood, Illinois 60430.

Summary of Review by Steven F. McKay

(Ed. note: The opinions expressed herein are those of the reviewer and do not necessarily reflect those of the Social Security Administration. The complete review will be published in the TSA.*)*

Most books written about Social Security fall into one of two categories: either textbook-style or crisis-style. This book falls into the second category. Boskin writes as an economist, telling what he thinks is wrong with Social Security and what he believes should be done to correct the problems.

He says that Social Security is a big program that has grown in small increments without much thought given to the overall result. It affects the retirement planning and savings rates of most Americans. It distributes wealth in a sometimes haphazard way. The Social Security payroll tax affects the number of jobs, and the pay scales, in the U.S. economy in ways that were unforeseen at the beginning of the program.

Boskin presents a number of interesting points. I agree with much of what he has to say. He presents a generally clear argument for scaling back Social Security in favor of more self-sufficiency for retirees (with an expanded welfare program to act as a safety net). Unfortunately, he insists on seeing everything in economic terms. Yet, really all issues concerning Social Security have political, social, and other facets besides their economic implications; Boskin presents incomplete or one-sided arguments when he disregards these other factors.

Boskin views Social Security as basically an old-age retirement program; all his discussion of the issues focuses on that part of Social Security, although his cost estimates usually include survivors and disability insurance.

Boskin's bottom line is that Social Security is too big and unfair. His solution is to cut it back by eliminating dependents' benefits, and by providing a strictly contribution-related, nonweighted retirement benefit. He does not provide a completely specified proposal; he puts it in general terms, i.e., "tying Social Security benefits directly to contributions." He sketches out a plan to accumulate contributions at interest and pay out an "actuarially fair" benefit at retirement. He would provide survivors and disability benefits, but does not explain how or at what level. In the last chapter, he describes his proposal and provides cost estimates and a table of winners and losers for five general proposals (retirement age increased to 68 immediately, reduced benefits for high-wage earners, etc.). He describes problems with each of the five proposals. I was expecting (and hoping) to see similar cost estimates for his proposal, but they were not there! Thus a comparison of the costs of his proposal with the others listed, or with the present program, is not possible. My conclusion is that Boskin has an incomplete proposal which is too ill-defined to make cost estimates possible. After a few minute's reflection, I thought of a half-dozen serious problems with his proposal. Those problems could probably be overcome, but only by changing a seven-word proposal into one with many messy details which could not possibly provide the desired equity. In other words, it would be a lot more like what we have now.

Steven F. McKay is an Actuary at the Social Security Administration. He is a member of the Committee on Review of Literature.

Dear Editor:

Unification

In the October 1987 issue of *The Actuary*, two letters discussed unification of the current actuarial organizations. At least one of the writers seemed to lack a knowledge of how the different organizations were formed.

The Society of Actuaries was formed by a merger of the American Society of Actuaries and the American Institute of Actuaries. This was a natural merger, since the two organizations used the same examinations and criteria for membership. The difference between the two was geographical because of the transportation available at that time.

The differences between the current organizations are more pronounced, conditions which argue against unification except in the area of administration. I can see a merger of the SOA and the CAS and possibly CAPP. The SOA and the CAS are both educational and research organizations, with the difference being in the area of specialization. CAPP specializes in the areas pertinent to consulting actuaries and also requires SOA or CAS membership. The advent of sections in the SOA makes this type of merger possible. Each section, however, would need a specialized meeting each year so that a sufficient diversity of topics would be available to members practicing in a specialty. Similarly, we would need to assure that the *TSA* contained enough diverse papers to satisfy the members' needs.

Any merger would require that Associates be given the right to vote. Currently many students in consulting are content to attain Associateship and the EA designation. Many of these people are more qualified than most new Fellows to vote because of their experience and knowledge of candidates. One of the problems of the SOA is that consultants do not get proper representation on the Board of Governors because Associates cannot vote. Unless this is done, a merger of the CAPP and the SOA would just be temporary. A merger of the CAS and SOA would also cause this kind of a problem because the CAS probably would not get sufficient representation on the Board.

Finally, a merger of the SOA and AAA would cause difficulty and would result in the creation of a new organization to compete with the SOA. Today, the Academy is basically a lobbying organization. Several highly respected FSAs have resigned from the AAA over positions it has taken.

Since passing the exams and obtaining membership in the SOA recognizes a person's qualifications, the ASA or FSA designation is very important to a practicing actuary. The ASA and FSA designations are like college degrees which show that an individual has studied in the area in which he or she is practicing. To force these people to belong to a lobbying organization with which they do not agree is improper.

There is also the question of how to treat the entrance of current and future members of the AAA, who have not passed examinations, into any of the other organizations which require examinations for membership. These people need an organization where they can meet others to discuss common problems. To reduce their stature by giving a special designation would alienate them and cause the creation of another organization. The Academy tried special classes of membership but was forced to use a single classification.

There used to be a Joint Committee on Operational Economies, but I do not see this listed in the 1987 *Yearbook*. I know that this Committee had recommended and designed a single yearbook and had proposed other administrative economies, but I have not seen any of these put into operation. Since these economies were not put into effect, probably because of turf problems, what makes us think that we could get a single organization which would do away with these differences?

I believe that any unification would merely be temporary. The current organizations have significant differences which meet the needs of their members. Administrative unification, however, should be accomplished but would require much more oversight by the members than is currently given to the present staff offices. As a member, I receive little information on the operation of the offices.

James L. Cowen

The Actuarial Profession

I found Harold Ingraham's discussion of the actuarial profession in the October 1987 issue of *The Actuary* very succinct. I am hopeful that others will see his points clearly so that our Society can have a good discussion of the alternatives. I am writing because Mr. Ingraham's comment on the MBA being a "ticket at the pay window" hit home with me.

I am an ASA and MAAA with six years of experience in insurance. I started out on the P&C side and ended up on the life side. This fall, I left my employer to pursue an MBA degree at the University of Michigan.

My major reason for leaving was not to get a ticket at the pay window but because I felt unchallenged on the job. However, underneath that was the feeling that an FSA or FCAS was not the ticket to being a well-rounded insurance executive.

We, as actuaries, say we deal with risk and its financial impact on an organization. It seemed that there are many economists, financial people, risk managers and even accountants doing the same thing. In some cases, they seem to be doing it better.

The "Big 8" accounting firms are a good example of taking the basic role as an auditor and expanding it. Arthur Andersen makes more revenue per partner on consulting than auditing. That company is into tax management, financial planning, computer implementations and other things. I know an actuary could handle many of these things, but I don't think many other people know that.

On the positive side, I find my knowledge from exams 2-5 very helpful in my graduate studies. I also find that I know how to study for and take difficult examinations. But in many ways, I see an MBA as a better cap on my education.

Since I am now a student and my outflow of dollars is much greater than my inflow, I won't likely attend my first SOA meeting for a few years. I will keep up with FES and FEM. I wish the SOA the best in succeeding with it. But even if it doesn't go as planned now, the discussion and conflict will be worth it.

David A. Smith

Continued on page 14 column 1

Dear Editor Cont'd.

Health Reserve Standards

I read with geat interest the article in the November 1987 *Actuary* by Robert Shapland concerning the "Proposed Health Reserve Standards." This is but the latest in a long series of dissenting viewpoints from Bob.

Bob suggests "that the current proposal be amended to focus on prospective valuation with recognition of the impact of the wide range of rating principles and practices in use on this valuation."

As I try to focus on what actual wording an amendment embodying Bob's suggestion might conceivably contain, I conclude that the amendment would have to discard the entire document as now drafted and revised and in its place substitute a single sentence: "Each insurer shall maintain claim and policy reserves that value its liabilities in a manner appropriate to and consistent with its rating principles and practices, whatever those may be."

Early in his article, Bob says, "A wide diversity of rating principles and practices are used by health insurers today. Numerous approaches exist." Wording equivalent to the one-sentence "standard" stated above would therefore seem to be about as much as could practically be said, in order to resolve the conflict to which Bob refers.

There is indeed a wide spectrum of views on the subject. Bob Shapland and those who share his ideas represent the "radical left." For them, the valuation of health liabilities is a highly subjective and relative undertaking, wholly dependent on whatever rating principles and practices an insurer may follow from time to time. Other health actuaries occupy the "extreme right." To them, health valuation must be a wholly objective process, totally immune to changing realities and safe from any contamination by actuarial judgment.

The American Academy of Actuaries Subcommittee on Liaison with the NAIC Accident and Health (B) Committee, along with a good many other health actuaries, occupies the middle ground. We have long since realized that there is no resolution to be found that will combine or compromise the ideas of the radical left and the extreme right. To ideologues, there can be, of course, no compromise.

We believe that our middle ground proposal—retaining much that is traditional while also introducing into the Standards substantial room for actuarial judgment and flexibility—represents the only practical and reasonable resolution to the controversy, even though it obviously has no chance of satisfying either polar extreme.

E. Paul Barnhart

Something in the Water...Cont'd.

In his note to the Editor in the October 1987 *Actuary*, Mr. J. B. Germain has seriously underestimated the number of Fellows who were also members of the Class of '58 at Harvard. By adding my name to the list there would be at least five who share his coincidence.

Perhaps a more exciting thought is that there are 1,100 classmates who have succeeded without Fellowship.

David A. Daniels

Thank You to Supervisors

A special "Thank You" to all those members who, during 1987, very generously contributed so many hours to the continuing good health of the profession by supervising the examinations. We have seen increasing numbers of candidates writing the exams, and we are aware of the extra burden placed on the supervisor. Occasionally we hear from supervisors that they can no longer continue supervising. Although we miss those who have performed well in the past, we are fully confident that as we approach companies and persons who have not recently assisted us, we will find another generous group of members to support us in the task now vital to the selection of the next generation of actuaries.

Bernard A. Bartels and Martha M. Quattrocchi
Examinations Department

An Actuary and Picasso

Recently I became aware of a connection between a French actuary, Maurice Princet, and the noted artist, Pablo Picasso. The following are excerpts from correspondence between Professor Robert Rosenblum of the Department of Fine Arts at New York University and me.

Dear Professor Rosenblum:

While viewing the exhibit of "Je Suis Le Cahier: The Sketchbooks of Picasso" this weekend in the Phoenix Art Museum, I was curious about a business card which was part of the 1904 Sketchbook.

The business card was for Maurice Princet, who listed his occupation as Membre l'Institut des Actuaires francais. Since I am a member of the International Congress of Actuaries, I recognized Monsieur Princet as a French actuary who was a member of the French actuarial society, which is similar to those to which I belong in the U.S. and the U.K.

This naturally peaked my curiosity as to why Mr. Picasso would have contact with an actuary. Actuaries normally deal with the application of mathematics to business situations. Is it possible that the geometry of cubism was influenced by a mathematician such as Monsieur Princet?

Since there are very few actuaries in France and throughout the world, and actuaries are not normally associated with art, the presence of an actuary's business card seems unusual....

(Signed) Charles G. Bentzin

Dear Mr. Bentzin:

Fascinating that your path and Princet's cross. Princet, in fact, was very close to Picasso, c. 1904-12, and they even lived in the same slum building, as well as [smoked] hashish together. Picasso biographies have many references to him in the Paris pre-war years. There have been thoughts as well about the possible influence of his mathematics on the look of Cubism, but this is probably just a question of affinity rather than of actual influence. But this topic has often come up for speculation. Anyway, you can read more about him in the standard Picasso biographies.

(Signed) Robert Rosenblum

Charles G. Bentzin

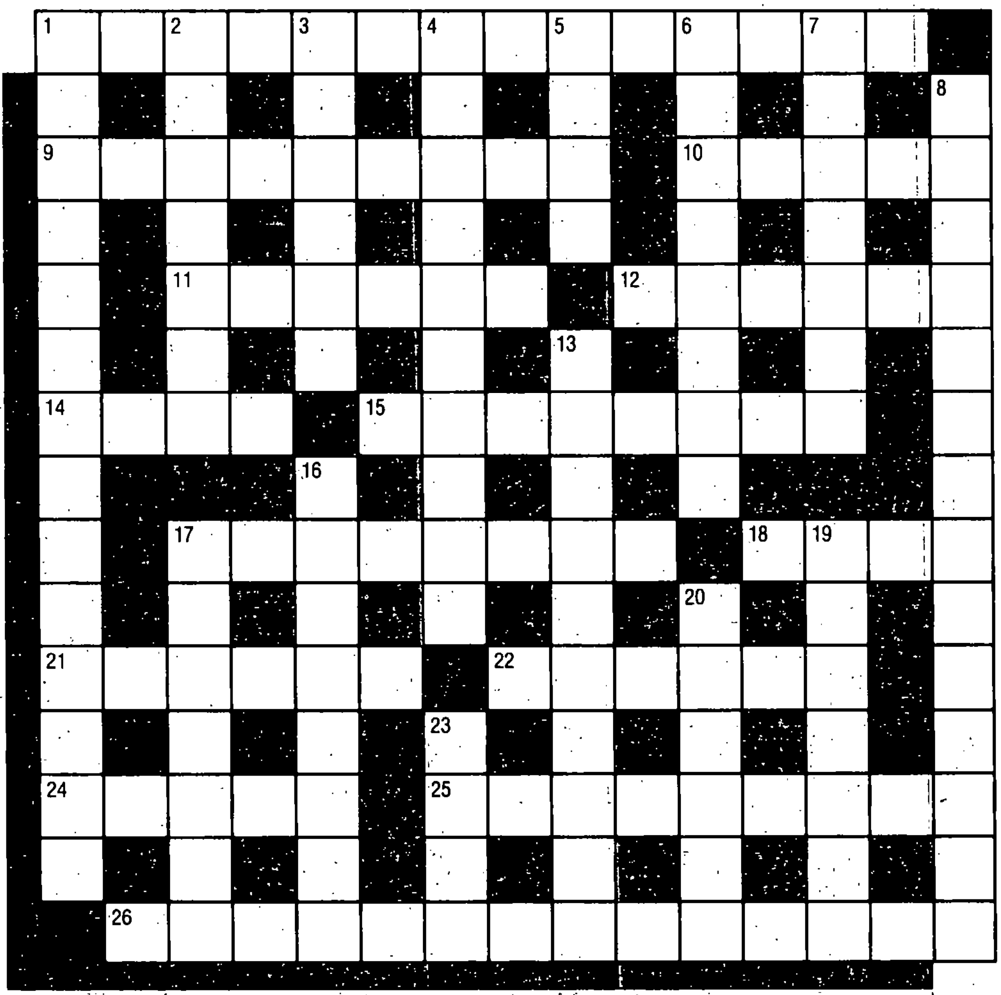
ACTUCROSSWORD

Across

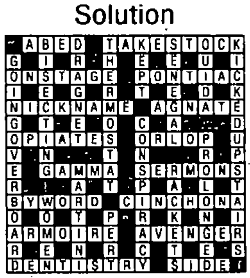
1. Strange gouging for satisfactory progress (5,5,4)
9. Roguish financial backer in Russia (9)
10. Canadian base of lingo Osetian (5)
11. Order he is in best position to obey (6)
12. A ring of low joints (6)
14. Try exercise for a change (4)
15. This insured a coin in Rome (8)
17. Apparatus once very much used in transfers (8)
18. Longing for something from Verdi, Tchaikovsky, etc. (4)
21. Usurper clearly not right. Follow? (6)
22. Acceptance but no publicity. Take your choice (6)
24. Sounds like a guy called Philadelphia many years ago (5)
25. Such changes could boil into a melange (9)
26. Academy for fraudulent deep sea fishers (6,2,6)

Down

1. Thousand dollar day plants for the ostentatious (10,4)
2. In America this small animal is a nightmare (7)
3. Diagrams of signs with no car (6)
4. Re-dig trees and have them recorded (10)
5. Possible retreat from a historic place of confinement (4)
6. Enormous soldier acting in a strange way (8)
7. Form of paste- one sold in various forms (7)
8. Relaxed foundation for rapid decisions (4,2,3,5)
13. Of zero standard strength but fit for top wear (10)
16. Implication of non-nudie character (8)
17. Cream mix with a little ice in a pot (7)
19. Better taste in Africa (7)
20. Sound of language of cultivation (6)
23. Two states construct a container vessel (4)



December's Solution



100% SOLVERS — ***October:*** J Braue, K Elder, E Goral, Hogan family, J Hux, R & J Koch, G D McDonald, B Packer, B Rickards, B Sherwood, & C Walker. ***November:*** W Allison, F. Alpert, A Amodeo, D Baillie, D Baldwin, J Beaton, J Braue, J Brownlee, J Carr, G Cherlin, C Conradi, J Darnton, F & M David, S Desiato & P Reaburn, C DeWeese, Mrs. C Edwards, J Farrell, R Fovargue, B Fortier, R Frasca, C Galloway, P Gollance, E Goral, J. Grantier, R Hohertz, HTI Hogs, A P Johnson, J Keller, S Keys, R & J Koch, D Leapman, J Mereu, W, R & R Lumsden, J Mair & R Reed, G Mazaitis, G D McDonald, H Migotti, R A Miller, B Mowrey, P Peyser, E Portnoy, J Raich, R Reese & L Neidle, B Roudebush, P Sarnoff, J Schwartz, N Shapiro, S Shaw, G Sherritt, L Subaru, M Vandesteeg, C Walker, A Whiton, & D S Williams.

Send solutions to: Competition Editor, 8620 N. Port Washington Rd (312), Milwaukee, WI 53217

ACTUCROSTIC

A. Cures. — 22 66 99 176 212

B. Assignee; designated one. — 1 175 45 182 18 224 85 63 107

C. Priority (helpful at corners). (hyph) — 53 92 20 186 225 150 8 70 112 39

D. Too careful, slow or suspicious. — 76 86 12 214 34 160 117 65 111 179 46 149

E. One who is indolent or slothful. — 26 147 123 100 140 166 156 193 50

F. Entries on the left. — 98 146 131 61 208 171

G. Away from the shore. — 40 137 152 90 203 165

H. Approaches. — 56 206 134 24 82

I. Endowment; scholarship. — 230 211 33 94 142

J. Device developed by Hans Geiger. (2 wds) — 49 128 60 155 187 30 228 105 16 172 93 141 2 200 216 77

K. Greatly in excess of. (3 wds) — 101 83 217 129 6 202 174 54 192 23 154 116 229 67

L. Jug; can; clink. — 31 124 227 74 195 17 97 143

M. Aid and protection for ground troops. (2 wds) — 55 122 110 234 36 151 218 183 10 78

N. Vacate (as an apartment). (2 wds) — 44 133 188 109 158 84 204

O. Debatable question. (2 wds) — 115 9 207 96 215 69 162 180 35

P. Deficiency; shortage. — 58 118 38 144 177 72 153 226 130

Q. Popular Christmas carol. (4 wds) — 51 191 178 231 28 167 5 103 184 213 199 88 73

R. Former; prior. — 232 125 13 189

S. Gambling device. (2 wds) — 7 43 89 164 198 81 113 235 57 168 27 136 219

T. Innate; native. — 114 159 194 222 48 104

U. Half-know; touch upon. (3 wds) — 108 42 145 15 190 64 119 4 209 163 95 236 132 29 173 79 223

V. Change of mind; indecision. (2 wds) — 41 220 11 120 106 135 91 201 25 233 157 75 181 59

W. Make little of; deprecate — 80 19 139 169 62 121 37 196 210

X. Short distance; stone's throw. — 138 71 170 126 205 52 21

Y. The best; cream of the crop. (4 wds) — 237 87 148 197 3 161 68 14 185 32 221 102 47 127

1 B	2 J	3 Y	4 U	5 Q	6 K	7 S		8 C	9 O	10 M	11 V	12 D		13 R	14 Y	15 U	16 J	17 L	18 B	19 W	20 C		21 X
22 A	23 K		24 H	25 V	26 E	27 S		28 Q	29 U		30 J	31 L	32 Y		33 I	34 D	35 O	36 M	37 W	38 P	39 C		40 G
41 V		42 U	43 S	44 N	45 B	46 D	47 Y	48 T	49 J	50 E		51 Q	52 X	53 C	54 K	55 M	56 H		57 S	58 P	59 V		60 J
61 F	62 W	63 B	64 U	65 D	66 A	67 K		68 Y	69 O	70 C	71 X	72 P	73 Q		74 L	75 V	76 D	77 J	78 M	79 U	80 W	81 S	82 H
	83 K	84 N	85 B		86 D	87 Y	88 Q	89 S	90 G	91 V	92 C	93 J	94 I	95 U		96 O	97 L	98 F	99 A	100 E		101 K	102 Y
103 Q		104 T	105 J	106 V	107 B		108 U	109 N	110 M	111 D	112 C	113 S	114 T	115 O		116 K	117 D	118 P		119 U	120 V	121 W	122 M
123 E	124 L	125 R	126 X		127 Y	128 J	129 K	130 P		131 F	132 U	133 N	134 H	135 V	136 S	137 G	138 X	139 W		140 E	141 J	142 I	
143 L	144 P	145 U	146 F		147 E	148 Y	149 D	150 C		151 M	152 G	153 P	154 K	155 J	156 E	157 V		158 N	159 T		160 D		161 Y
162 O	163 U	164 S	165 G		166 E	167 Q	168 S	169 W	170 X	171 F		172 J	173 U	174 K		175 B	176 A	177 P	178 O		179 D	180 O	
181 V	182 B	183 M		184 Q	185 Y		186 C	187 J	188 N	189 R		190 U	191 Q		192 K	193 E		194 T	195 L	196 W	197 Y	198 S	199 O
	200 J	201 V	202 K	203 G		204 N	205 X	206 H		207 O	208 F	209 U	210 W	211 I	212 A		213 Q	214 D		215 O	216 J	217 K	218 M
219 S	220 V		221 Y	222 T	223 U	224 B	225 C		226 P	227 L	228 J	229 K	230 I		231 Q	232 R		233 V	234 M	235 S		236 U	237 Y

LAST MONTH'S SOLUTION: (Abraham) Peled, The (Next) Computer Revolution: "And now computing appears to be entering a new passage. In this phase, . . ., computing will grow more powerful, (sophisticated) and flexible by an order of magnitude in the next decade. At the same time the technology will become an intellectual utility, widely available, ultimately as ubiquitous as the telephone. SCIENTIFIC AMERICAN, October, 1987.