The Newsletter

of the Society

of Actuaries

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The Actuary

A gathering of scientists

NAFTA project is topic of Society's 1st AAAS session

by Michael Sze and
Jacqueline Bitowt,
SOA Public Relations Specialist

$$_nq_x(t+k)=(g_x)^k\,_nq_x(t)$$

Each year, one six-day annual event in the United States attracts 5,000 scientists as well as other individuals with a strong interest in science. The Society of Actuaries was formally represented this year for the first time at the event, the annual meeting of the American Association for the Advancement of Science (AAAS), held Feb. 12-17 in Philadelphia.

An eminent panel discussed the 1997-98 SOA research project, "Impact of Mortality Improvement on Social Security: Canada, Mexico, and the United States," in a session on Feb. 17. The SOA's session was entitled "Social Security in the NAFTA Countries: What if People Stop Dying?" Results and an overview of the project were presented by:

- José Gómez de León, national coordinator, Program for Education, Health, and Nutrition, Mexico
- Stephen Goss, deputy chief actuary, U.S. Social Security Administration
- Sam Preston, dean, School of Arts and Sciences, University of Pennsylvania
- Anna M. Rappaport, president, Society of Actuaries, and principal, William M. Mercer Incorporated
- Michael Sze, faculty member, University of Michigan, and president, Sze Associates, Ltd.
- Irwin Vanderhoof, clinical professor, Stern School of Business, New York University

Canadian, U.S. results

The SOA project sought to determine the impact that mortality improvement could have on the social security programs of the NAFTA countries. (See "Social security 'summit,'" *The Actuary*, January 1998, and "NAFTA countries support study on social security mortality," *The Actuary*, November 1997.) Phase 1 of the three-phase project was a literature review and summary of the existing knowledge of mortality forecasting and an analysis of the historical mortality improvement trend in each NAFTA country. Phase 2 was the convening of an invitation-only seminar of experts and a survey of those attending. The survey included questions about expected mortality improvements, and the results served as a basis for Phase 3, a test of the impact of alternative mortality improvement rates on social security financing.

A mortality improvement range of 0-2% was given as plausible by nearly 40 experts who provided numerical responses to the survey. The social security offices of each NAFTA country considered that range, and those of Canada and the United States tested alternative mortality improvement rates, based on the range given by the experts, on the impact of social security financing. The results of those tests,

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The Actuary

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Sue Collins
Editor responsible for this issue

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EDITORIAL

The future is now

by Sue A. Collins

Over the past 20 years, the roles and responsibilities of actuaries have expanded dramatically. Although we still provide advice in our traditional practice areas (i.e., pricing, product development, and valuation) to our traditional clients (i.e., insurance organizations), we are increasingly broadening both the areas in which we work and the clients whom we serve. We have extended the use of our core skills, namely the ability to model and manage financial risk, to new practice areas, such as asset/liability management and capital management. At the same time, we have broadened our client base to include most types of financial services organizations, many of which are operating in a global environment. Unlike the past, we are no longer limited to insurance companies operating primarily in North America.

As the role of the actuary grows, I suggest that we need to view ourselves as part of a global profession that serves the financial services industry. This view is entirely consistent with the SOA's mission statement. It says, in part, "The SOA's mission is to advance actuarial knowledge and to enhance the ability to provide expert advice and relevant solutions for financial, business, and societal problems involving uncertain future events."

What does this mean for current and future generations of actuaries? I suggest the following:

- Actuaries in North America will need to broaden their knowledge base by learning about the actuarial practices and the research and development efforts of actuarial bodies in other geographic regions.
- Actuaries in North America will need to enhance their skills by keeping abreast of new tools and techniques to measure and value risk.
- Actuaries will likely play a leading role in modeling and assessing risk for many different types of financial services institutions, not just insurance companies.
- Lastly, actuaries will be an accepted, integral part of senior management in many of these institutions.

How will we secure this future? Some of the articles in this issue point the way.

Howard Bolnick, SOA president-elect, writes on the challenges confronting the SOA and his plans to address them. Mark Turner offers some insight into Australian bancassurance activities, providing a knowledge base from which North American actuaries can learn.

Two special SOA research efforts are reported. Anna Rappaport and Zain Mohey-Deen report on last December's risk measurement conference. The conference included speakers and attendees from academia and all types of financial services companies. Mike Sze highlights the results of a recent research and development project sponsored by the SOA, "Impact of Mortality Improvement on Social Security: Canada, Mexico, and the United States." This was truly a multinational and multidisciplinary project, with success depending not only on SOA members but also on demographers, economists, and local support from the countries involved.

Lastly, an article discussing the results of a chief actuary survey conducted by Tillinghast-Towers Perrin supports the notion that senior actuaries are proactive in influencing the strategic direction and decision-making processes in their companies.

The possibilities and opportunities for the actuarial profession in the global financial services industry are very exciting. I hope these articles help to heighten this awareness among SOA members. I also hope we will be encouraged to expand our use of materials developed by others, whether it be other actuarial bodies or other professions. We need to prepare ourselves for the future — and we need to do it now.

Bancassurers no more

Australian banks' mindset offers clues for years ahead

by Mark Turner

Banks in Australia have been extraordinarily successful in selling investment products, both insurance-based and mutual funds, over the last 10 years. During that time, the big four retail banks have gone from a 2% share of new insurance premiums to around 22%.

Despite this success, talk to any bancassurance executive and you will only hear stories of as-yet untapped potential and radical plans to realize that potential. You also might be told that bancassurance is no longer the right term to use.

The bancassurance scene in Australia has been one of experiment and change, with a variety of different models being tested and discarded, as the big players seek the optimal strategy. The big four banks — ANZ, Commonwealth, NAB, and Westpac — now control their own life insurance and mutual fund companies. ANZ started its insurance operations with the acquisition of a life company, while the other three grew their life companies from the ground up.

Discussions of strategy in bancassurance tend to center on a limited number of key areas of debate, which I canvas below. Many of these issues are inter-linked, and bancassurers strive for a coherent and consistent approach.

Two distribution models

Bancassurers in Australia have considered two main generic models: the product model and the advice model. While this is an enormous simplification, it's a helpful way to understand alternate strategies.

The "product model" is based on simple, low-cost products that sell themselves. Under this model, the product "sits on the shelf" alongside other bank products and, suitably supported by advertising, etc., is bought by the willing public. Often, insurance products are packaged with standard bank products to improve sales. Banks are very comfortable with this model as it tends to fit well with their established mode of operation in respect to product positioning, marketing, and distribution.

The "advice model" generally takes the form of leads generated through bank branches being passed to specialist advisers. Products are more complex and should support higher margins.

In Australia, the advice model has been the favored approach for the big four banks, although both approaches have been used. However, the banks' success has been greatest in the area of simple, single premium products. It may be that the advice model is partly a legacy of the perceived wisdom on how life insurance must be sold. Certainly there are sales compliance issues that can drive companies to the advice model. However, I would speculate that the product model may gain in importance in the future.

Developments continue to arise in distribution. Two examples are direct mail campaigns and, more recently, telemarketing. Both have had notable successes.

Client management issues

Several issues can be broadly classified under the heading "client management."

In general, banks do not have integrated systems that would allow them to identify all relationships they may have with a customer. Australian banks have long recognized that improved customer databases are a major opportunity for them. Improvements in technology are at last likely to see these opportunities realized. There are some issues related to privacy legislation, but it would seem possible to develop and implement a sensible commercial product with appropriate privacy protection.

Investment products need to compete for the attention of the distribution with a wide range of other bank products. They may even be seen as a threat, simply cannibalizing the deposit base of the bank.

Banks are wrestling with the problem of developing consistent pricing approaches across all products, which will to some extent help them manage the cannibalization risk. The preferred models are based on discounted shareholder profits, taking into account the cost of capital — models very familiar to those from an insurance background. As might be expected, there are major practical issues in carrying through this approach, relating to cost allocation, capital allocation, and product persistency studies.

The holy grail for banks in client management remains a good understanding of the lifetime value of a customer. Shareholder value added, by product, for each sale is a critical building block towards this goal. This, together with appropriate customer segmentation studies, should lead to substantially improved performance over time.

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A gathering of scientists (continued from page 1)

which found that financing needs based on the alternative rates did not differ significantly from current projections, were announced at the SOA's session at the annual meeting of the AAAS (called "triple-a-s").

In general, the results indicated that social security financing in the United States and Canada is relatively immune from even the highest rate of mortality improvement predicted by the experts. However, while the experts said life span will continue to lengthen and there will be larger populations of the elderly, there is much variability in the predicted rate of mortality improvement. The SOA project's organizers believe this wide variability shows an uncertainty that can and should be accounted for in mortality projections on which social security financing is based.

"Developments in genetic technology and other areas could ease the impact of many diseases and extend human life," said Anna Rappaport. "Also, this project adds to the body of research that indicates more attention must be directed to the support of larger populations of the elderly."

Said Irwin Vanderhoof, one of the project organizers and the SOA's liaison with AAAS, "With the rapid advances in medicine and public health, it's necessary for us to learn to make mortality projections more accurately than we have in the past."

Canadian officials created new mortality projections based on the experts' 95th percentile of highest and lowest projections and starting from the mortality figures for 1997. The new projected financial picture of the Canada Pension Plan (CPP) was very similar to that of existing projections. Officials then looked at the impact on the CPP tax rate under four mortality improvement scenarios: current assumptions and the experts' median, highest, and lowest suggested rates. Less than 1% difference in the required tax rate was projected. The results were:

- current assumptions, a stable CPP tax rate of 9.9%;
- experts' median, 10.1%
- experts' highest rate (experts' median plus 2 standard deviations, corresponding to the experts' 95th percentile), 10.6%;
- experts' lowest rate (zero improvement), 9.7%.

Officials of the U.S. Social Security Administration (SSA) also presented mortality projections for four mortality improvement scenarios. The necessary tax rate for the next 75 years under each scenario was:

- mortality rate under the SSA's current intermediate (rather than highest or lowest) assumption, 14.6%
- experts' median, 14.7%
- experts' median plus 2 standard deviations, 15.3%
- experts' lowest rate (zero improvement), 14.2%.

"These results support the current range of mortality assumptions used by the Social Security Administration," said Steve Goss, SSA deputy chief actuary.

"This offers strong evidence that both the U.S. and Canadian social security plans are relatively immune to mortality fluctuations," noted Mike Sze.

Education, mortality, and biological limits

Sam Preston, in his presentation, echoed the views of about one-third of the experts who responded to the Phase 2 survey's questions on the biological limits to human life. Preston reported evidence that, he said, "casts doubt on the proposition that we are approaching the biological limits to mortality."

In fact, said Preston, based on several mortality improvement studies, "my guess is that mortality will decline faster than the U.S. Social Security Administration projects, and that the deficit in the Social Security system will, as a result, be larger than projected. Whatever adaptation we make is going to be painful."

Preston supported his position by discussing several studies, beginning with those focusing on regional mortality.

- A study of individual U.S. states showed that mortality declined at similar rates in both low- and high-mortality states from 1980 to 1993. "If the states that had the lowest mortality were close to the biological limits, we should see smaller gains there," Preston said.
- To study a longer timeline, Preston examined the experience of Minnesota, a low-mortality state, from 1940 to 1993. "There's no evidence of contraction. If anything, Minnesota has stretched its lead," Preston said.
- Preston observed Sweden's and Japan's experience, two developed countries that have for some time outpaced the United States in mortality improvement. "Just for the most recent years when we might expect to see a slow down, we do not," Preston noted.

Moving from regional to social factors, Preston focused on education. Studies have long shown that better-educated people live longer; "the question is whether their lead has diminished or stretched." Preston cited three recent papers showing that the mortality of better-educated people has improved. A fourth study comparing mortality improvement by educational level for several industrial nations indicated "the lowest-mortality countries — Norway and Sweden — do not show diminishing returns to advances in education."

Preston believes the U.S. and other nations will have to adapt to larger populations of the elderly. "The most straightforward adaptation is to raise the eligibility age for social security payments," he said. "It should be somewhat easier for people to work longer because the workforce will be better educated, a higher fraction will have desk jobs, and people in their 60s and 70s will be healthier if present trends continue."

Mexico's situation

In July 1997, Mexico implemented a major pension reform as part of a large reform effort in Social Security. The costs of transition to the new system and the impact of mortality improvement were the subjects of José Gómez de León's presentation.

Mortality improvement, rather than fertility or immigration increases, is expected to result in dramatic growth in the country's elderly population. Gómez de León said the dependency ratio — individuals aged 65 and older to those aged 18-64 — is predicted to rise from the 1986 level of 7.5% to 41.6% in 2050.

This was one of the main factors that led to last summer's reform. "The new pension system moves away from a pay-as-you-go system to a funded system," Gómez de León said. "Pension contributions will be deposited to the individual worker's account, and the accounts will be managed by organizations known as Retirement Fund Administrators (AFORE)." Each beneficiary chooses an AFORE and can switch administrators annually.

At the AAAS session (L-R): Mike Sze, Anna Rappaport, Sam Preston, Irwin Vanderhoof, José Gómez de León, and Steve Goss.

The fiscal costs of the transition to the new system will be borne by Mexico's federal government, Gómez de León explained. They include the costs of pensions of current retirees as well as costs due to current workers who choose to retire under the old system's rules. This second cost arises, he said, because the new pension system allows current workers (those who were working at the time of reform) to choose at the time of retirement between the pension based on their accumulated savings and the pension they would have received under the rules of the old pay-as-you-go system.

To project the fiscal costs of transition, two very conservative mortality assumptions were used, Gómez de León said. Under both the Mexican Social Security system's constant mortality rates and an alternate set of declining mortality rates, the transition costs rise from 0.2% of gross domestic product this year to a peak of about 1.5% or 1.6% in 2040, when they decline sharply. Gómez de León said the cost was unlikely to rise past 1.6% "given the conservativeness of both the actuarial and the demographic assumptions." Also, he said, "mortality assumptions may be an important determinant of these fiscal costs in the medium run [after 2020]. This is an area of research which has been previously unexplored, and it should be taken into account in the future."

Uncertainty ahead

Mike Sze, chair of the project's oversight group, noted that the results of the Phase 2 survey of experts indicated a high degree of uncertainty about the rate of mortality improvement.

"The experts definitely agreed that mortality improvement would continue. However, there are great discrepancies among their predictions for the magnitude of improvement," Sze said. "Also, we need to consider the inflow to the population base of each NAFTA country caused by immigration and the fertility rate. All of this could add up to much larger populations of the elderly. In addition, there are speculations that recent genetic breakthroughs could lead to dramatic extensions of human life. If such speculations were to materialize, they would add to the uncertainties that seem to grow every day.

"So it is increasingly important for retirement planners to face these uncertainties. Fortunately, mathematical processes exist that actuaries can use to identify, quantify, and manage such risks and uncertainties."

VIPs in science, public policy

Scientists and those concerned with the intersection of science and public policy convene at each year's AAAS annual meeting. This year, U.S. President Bill Clinton gave the keynote address, but he was far from alone among the luminaries, including Supreme Court Justice Stephen Breyer, Nobel prize-winning physicist Murray Gell-Mann, former U.S. Surgeon General C. Everett Koop, and bioethicist Arthur L. Caplan.

The 700 presenters participating in the event's 180 sessions represented most major universities and a wide range of government agencies, private companies, and nonprofit institutions.

This is the 150th anniversary year of the AAAS. The organization celebrated with a one-hour "birthday party" on Feb. 16 and a special historic display. The latter included videotaped greetings from several organizations' leaders; the SOA was represented by President Rappaport.

The SOA and the AAAS

"Being there helped reinforce the presence of actuaries in a much larger scientific community, and that is very exciting," Sze said. "At the AAAS meeting, we could hear others' ideas and share ours as we looked for new techniques for our profession and new avenues in which to lend our expertise."

Rappaport, SOA president, considered the SOA session in the context of the AAAS meeting. "We presented a very good, very solid piece of research," she said. "In return, the AAAS gave us some visibility and perhaps more credibility with audiences beyond the world of actuaries."

Michael Sze is chair, project oversight group, for the SOA study, "Impact of Mortality Improvement on Social Security: Canada, Mexico, and the United States." Jacqueline Bitowt is staff editor of *The Actuary*. Their respective e-mail addresses are *sze@math.umich.lsa.edu* and *jbitowt@soa.org*.

CEOs, actuaries in step

Survey ranks distribution as top concern in U.S. and Canada

Two recent Tillinghast-Towers Perrin studies found actuaries to be in broad agreement with CEOs of life insurance companies on the key strategic issues facing the industry.

Both chief executive officers and corporate/chief actuaries at life insurers in the United States and Canada identified distribution channel productivity — how best to acquire and develop customers — as the top strategic issue facing the industry over the next five years. According to Tillinghast-Towers Perrin's "1997 Life Insurance Industry CEO Survey" and the firm's "1997 Life Insurance Industry Corporate and Chief Actuary Survey," 81% of the CEOs and 74% of chief actuaries responding considered distribution productivity as one of the industry's most pressing concerns.

The CEO survey polled the chief executives of more than 300 of the largest life insurers in the United States and Canada; 90 responded. The corporate and chief actuary survey was sent to 250 U.S. actuaries. Findings are based on responses from 109 actuaries.

The productivity issue has grown steadily in importance and visibility over the past several years. Both actuaries and chief executives increasingly recognize the significance of the distribution challenges they face and the critical role that meeting the challenges will play in determining future competitiveness. In Tillinghast's 1993 CEO survey, this issue ranked third, selected by 52% of the respondents. In the 1995 CEO survey, it rose to the number-one spot, chosen by 67% of the CEOs.

Increased competition was ranked as the number-two issue facing life insurers, with roughly 60% of respondents in both surveys naming it one of the top strategic issues. "The competitive environment has clearly intensified, and it shows no sign of abating." said Douglas Doll, principal, Tillinghast-Towers Perrin. "In fact, the entry of nontraditional competitors may raise the bar on what is needed to satisfy customers and compete effectively."

After the top two issues, the views of CEOs and chief actuaries diverged somewhat:

- CEOs ranked changing market demands as the industry's third top issue, followed by sales practices and financial management.
- Actuaries were somewhat more concerned about sales practices and expense management than the CEOs, ranking them third and fourth respectively.

Ranking of Top Strategic Issues in 1997 CEO Survey and 1997 Corporate/Chief Actuaries Survey by Tillinghast-Towers Perrin

Strategic Issue	CEOs' rank	Actuaries' rank
Distribution channel productivity	1	1
Increased competition	2	2
Changing market/customer demands	3	5
Sales practices/compliance/market conduct	4	3
Financial/capital management	5	6
Expense management	6	4

The corporate and chief actuary survey results indicate that actuaries are acutely aware of the challenges facing the industry. The results show that actuaries are looking beyond financial risk considerations to recognize the more fundamental market and competitive issues that will determine their companies' success.

Although the actuaries generally agreed with the CEOs on the key issues facing the industry, they seemed less optimistic about their companies' preparedness to address these issues. For instance, just over one-third of the CEOs said their companies are well prepared to make the changes necessary to respond to the issue of distribution channel productivity. However, only 16% of the actuaries said their companies are well prepared. Similarly, nearly 40% of chief executives responded that their companies are well prepared to meet changing market and customer demands, compared to only 16% of the actuaries. "Differences in response rates between actuaries and CEOs may reflect differing degrees of direct control over these issues or differing degrees of conservatism between the actuaries and CEOs," said Doll. The sales practices issue was the exception: 50% of the actuaries said their companies are well prepared, compared to just over 25% of the CEOs.

More from the survey of corporate and chief actuaries

The survey of actuaries reported several other concerns.

Opportunities exist to improve the measurement and management of financial performance within the life insurance industry. Most actuaries surveyed were only moderately satisfied with their ability to measure the economic contribution of their lines of business. In fact, nearly 25% were dissatisfied — especially small and midsized companies. In addition, 70% of the respondents said their companies do not annually determine the value of new business. Finally, most said their companies rely on fairly traditional methods — GAAP or statutory profits — to measure and manage performance; few use economic value-added measurement tools.

Evaluation and management of risk continues to be an important role for actuaries. Actuaries state that they spend a substantial amount of time measuring and managing risk and providing input to senior management. This is an area in which senior management believes actuaries add value. Although actuaries said they are still using more traditional tools to measure and control risk (e.g., cash flow testing and duration/convexity analysis), they reported that their companies will increasingly turn to such methods as dynamic solvency testing, value at risk, and efficient frontier analysis in the future. Interestingly, the actuaries ranked general risk factors — such as increased competition, expenses, and new regulations — above traditional actuarial risk factors (i.e., mortality) as potential sources of future problems.

The actuaries see significant opportunities to improve company performance through distribution-related strategies. When asked to evaluate opportunities for improving company performance, actuaries gave the highest ratings to opportunities related to their key strategic issues. The top-rated opportunities were: developing alternate distribution channels, retooling the current distribution approach, developing new products, entering new markets, and reducing home office costs.

Actuaries will need to be an important part of the solution going forward. Actuaries said that they have a significant amount of influence in senior management decision-making. Further, the actuaries reported they are proactive in using that influence.

"As companies work to respond to the key strategic issues they are facing, corporate and chief actuaries will have a critical role to play," said Doll. "They will need to work closely with senior management to develop plans and communicate the potential risks of proposed actions to help ensure the company's future success."

SOA Web site clicks with its audience

The SOA Web site (*www.soa.org*) had a record 1 million hits in January 1998. That's three times the number of hits in December 1997. The number of users also doubled to more than 54,000 during that time.

"The SOA site is undoubtedly a 'happening' place," said Peggy Grillot, the SOA's online systems manager. "It's obviously providing value, and we'll continue to keep it fresh and growing."

Paper's author wins trip from 2 SOA divisions

The SOA's finance practice area and Investment Section have awarded an expense-paid trip to this year's International Congress of Actuaries to John Mange, managing director, Health Reinsurance Management Partnership, Salem, Mass. The congress will be held this June in Birmingham, England.

Mange received the prize, valued at $4,000, for his paper "On Measuring the Risk of Foreign Exchange." The paper was submitted in response to a 1996 call for papers on actuarial aspects of currency exchange risk sponsored by the finance practice area and the Investment Section.

SOA offers monetary awards

SOA calls for papers (CFPs) often offer prizes. Current CFPs with prizes attached are:

- "100-year Term Structure of Interest Rates," $3,000 each for a maximum of four papers, March 31, 1998, deadline, sponsored by the Investment Section
- "Retirement Needs Framework," up to four awards planned — $2,000 first prize and up to three $500 prizes for honorable mentions; abstracts due March 16, 1998, papers due November 1998 (see "How do needs change during retirement? A call for papers," *The Actuary*, February 1998)

The SOA now sponsors four periodic competitions in which monetary prizes are awarded. They are the Annual Prize, Triennial Prize, L. Ronald Hill Memorial Prize, and Edward A. Lew Award. Several others are sponsored by the Actuarial Education and Research Fund. Details are available in the *1998 SOA Yearbook*.

Information on calls for papers and annual SOA prizes are available from the Society office (phone: 847/706-3500; fax: 847/706-3599; e-mail: *djay@soa.org*).

What the times demand

SOA president-elect to examine organization, academic ties

by Howard J. Bolnick
1997-98 SOA President-Elect
Address at SOA Annual Meeting,
Oct. 28, 1997

Thank you for your support for me as president-elect. I'm honored to have this chance to repay the profession for the opportunities it has provided.

I want to offer my view of our profession and the direction I intend to lead. I believe that leadership makes a difference and that good leadership must clearly articulate a vision and direction.

We all share a personal satisfaction and pride in our profession and how it has enriched our lives. We are committed to sustaining a vital and relevant actuarial profession for ourselves and for future generations of actuaries.

To accomplish this, the Society of Actuaries must continue its commitment to provide opportunities for personal growth, expand intellectual capital, and enhance members' contributions to business, government, and the public.

If there were no challenges to accomplishing our goals, then leadership wouldn't matter. But this isn't the case. Ours is not a profession whose future is secure. If the Society's leadership falters, actuaries risk becoming a minor trade, losing credibility to others seeking to do actuarial work.

The Society of Actuaries is being challenged to develop and deliver the research, basic education, continuing education, and professionalism needed for the profession to thrive in a changing world. I see three interrelated challenges.

First, we're living in a rapidly changing business and social environment. Massive changes are under way in the financial services industry: financial institutions are consolidating and becoming multinational, and there is a blurring of the lines between insurance, banking, and securities. Health care is rapidly moving towards managed care. Also, there are serious concerns over the future of private and public financial security programs. We need to help shape and respond to these changes.

Howard J. Bolnick

Second, we're participating in the evolution of new analytical and intellectual tools. These tools often come from the business world, business schools, and new applications of mathematics and statistics. We need to help develop new tools and to incorporate them into our training and work.

Third, we're increasingly competing with non-actuaries for jobs. This challenge is driven by institutional changes, growth in intellectual capital, and our growing membership. We need to secure our claims to an expanding array of jobs.

These challenges cannot be adequately addressed or "solved" in a single presidential term. I'm pleased that the Society has been well served by past and current presidents, officers, boards, and volunteers who understood these challenges and who have led the profession to develop meaningful programs. It's vital to continue this momentum.

My contribution will be to concentrate on improving organizational effectiveness. Over the years, we've developed a variety of programs — some quite necessary and others perhaps now marginal. We're at a point where we need to de-emphasize marginal or unproductive activities, streamline our organizational structure, and respond to changes in our finances.

A more effective organization allows us to better use scarce financial and volunteer resources to accomplish the profession's most important business.

I also want to help shape our agenda. My priority is to explore ways to improve ties with academia. A viable profession needs strong ties to academic institutions, where scholarship and experimentation are central functions. Our ties are much looser than other professions, such as law, medicine, and architecture. While there are many complicated issues to consider, I'd like to move us towards an enhanced relationship with academia.

Even with clear plans, the Society's success is based on volunteers.

Leaders and their plans do matter. But leaders cannot accomplish much without enthusiastic, supportive volunteers. Your leaders do want your input, we do welcome your involvement, and we do listen. I encourage you to tell me what's on your mind and to get involved in responding to our professional challenges.

Together we can assure our future as a vital and relevant profession.

Comments can be directed to Howard Bolnick at *hbolnick@nwu.edu.*

Applications available now for 2 AERF awards

The Actuarial Education and Research Fund (AERF) has announced deadlines for two of its award programs — the 1998 Wooddy Scholarships for 1998-99 college seniors and the Tenth Annual Practitioners Award for research conducted by experienced actuaries.

Wooddy scholarships

Applications are due June 30, 1998, for four scholarships of $2,000 each to be awarded for the 1998-99 academic year. Recipients will be notified by Aug. 31, 1998.

To be eligible, students must rank in the top quartile of their classes, must have successfully completed one actuarial examination, and must be scheduled for senior standing in the 1998-99 academic year. Each student must be recommended by a professor, and a brief essay is required. Only one application per school is allowed. Awards will not be made on the basis of need.

The scholarships are funded by the estate of John Culver Wooddy, an eminent actuary who was active in several actuarial fields. He established the scholarships to help worthy actuarial students complete their education.

Practitioners Award

Submissions are due June 1, 1998, for the Practitioners Award, which recognizes the considerable research done by actuaries in non-academic work. This award was established by AERF to encourage publication of research done while pursuing normal job duties.

The winner will be awarded $1,000. Two second prizes may be chosen, depending on the merits of the submissions. Winners will be notified by Aug. 31, 1998. Winning entries will be published in the *Actuarial Research Clearing House*.

The work submitted need not be exhaustive but should be practical and innovative. The work need not be presented in a formal paper as long as it is described clearly and understandably. Judges look for:

- Research done as part of the author's normal job duties rather than research performed specifically for publication or for this competition
- Research that has practical applications
- Applications of actuarial techniques to problems outside the areas in which actuaries traditionally work
- Unusual approaches in analyzing economic trends with conclusions that can prove useful to actuaries in making long-term forecasts
- Innovative shortcuts in handling formulas to make calculations easier or more efficient

There are several eligibility requirements for the Practitioners Award:

- Authors must be members of at least one of the seven sponsoring organizations of AERF: American Academy of Actuaries; American Society of Pension Actuaries; Canadian Institute of Actuaries; Casualty Actuarial Society; Colegio Nacional de Actuarios; Conference of Consulting Actuaries; Society of Actuaries.
- Authors must not be substantially employed by an academic institution. This means that their main employment must be for an insurance company, consulting firm, government, or other non-academic employer.
- The work must be actuarial in nature; computer programming, for example, would not qualify.
- The work must be submitted to verified peer review by a member of one of the sponsoring organizations. A letter from the peer reviewer must accompany the submission.
- The work cannot have been previously published or be in the process of publication elsewhere in books, journals, newsletters, company publications, or any other type of publication that is widely disseminated.

To apply

Applications for the Wooddy scholarship are available from Paulette Haberstroh at the AERF office (phone: 847/706-3584; fax: 847/706-3599; e-mail: *phaberstroh@soa.org*).

Questions about the Practitioners Award should be directed to Curtis E. Huntington, AERF executive director (phone: 734/763-0293; fax: 734/763-0937; e-mail: *chunt@math.lsa.umich.edu*). Submissions should be mailed to: Actuarial Education and Research Fund, 475 N. Martingale Road, Suite 800, Schaumburg, IL 60173-2226.

33rd ARC to be held at Georgia State; paper titles due June 1

The 33rd annual Actuarial Research Conference (ARC) is set for Aug. 6-8 at Georgia State University, Atlanta.

ARC provides an opportunity for academics and practitioners interested in actuarial science to meet and discuss actuarial problems and potential solutions.

Presentations on all topics of interest to actuaries are welcome. To accommodate scheduling, paper titles are due by June 1; final abstracts are due by July 1. Presentations will be published in the conference proceedings in volume 1999.1 of *Actuarial Research Clearing House*.

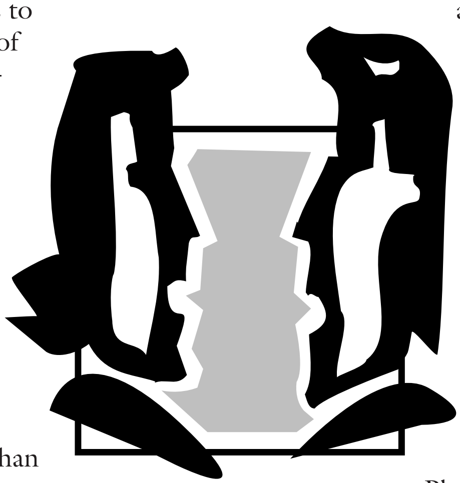
For additional information, contact Hal Pedersen, Department of Risk Management and Insurance, Georgia State University, P.O. Box 4036, Atlanta, GA 30302-4036 (phone: 404/651-0962; fax: 404/651-4219: e-mail: *inshwp@panther.gsu.edu*). Information about the conference is also available on the Web (*www.rmi.gsu.edu/arc/arc1.htm*).

Dialogue on risk
Toward a greater role in the financial services industry

by Anna M. Rappaport
and Zain Mohey-Deen

The work of actuaries is changing with the rapidly occurring developments in the financial services industry. Key changes include new approaches to handling and managing risk on both the asset and liability sides of the balance sheet. The business of financial institutions is increasingly overlapping. The traditional disciplines of actuaries and other financial managers are coming together to build new ideas and develop new tools so all can do a better job.

An outstanding SOA conference late last year was important in helping the profession advance the work of risk measurement. The conference, "Integrated Approaches to Risk Measurement in the Financial Services Industry," brought together a diverse group of 84 professionals, including actuaries and others working in risk measurement and management. (See "Integrated approaches to measuring risk is topic of December SOA conference," *The Actuary*, September 1997.)



All of us gained by having a dialogue with a multidisciplinary group of experts.

- The exchange of information enhanced the visibility of actuaries within the financial community. Fewer than 20% of the attendees were academics; the rest represented insurance companies, investment houses, and other financial services organizations. Several of the participants were from overseas.
- A number of speakers and attendees at the conference are involved in research on different aspects of risk measurement. The ideas and contacts available to actuaries at the conference could be very helpful.
- Future SOA meeting sessions could focus on some of the conference topics, and one or more conference speakers might be recruited for those sessions.
- The conference papers in the aggregate are a substantial addition to our knowledge base.

This conference was truly a team effort. First, it was sponsored jointly by the SOA's finance practice area and Investment Section. Second, the program arose from a discussion of gap analysis by the 1996-97 Strategic Planning Committee. In developing ways to make the SOA mission and vision statement a reality — the committee's goal — the committee discussed the growing actuarial opportunities in the finance and investment area. This led to a discussion of the measurement known as value at risk (see "Value at risk: New tool focuses the hunt for built-in risk," *The Actuary*, September 1997). As Strategic Planning Committee members Cindy Forbes and Irwin Vanderhoof sought ways to close the gap between the SOA's current activity in the finance practice area and what the SOA should be doing, the idea of a call for papers and the conference emerged.

Following are some highlights of the ideas presented at the conference.

Value at risk (VaR) measures as applied in banks are essentially one-day or 10-day measures; they are not long-term measures. VaR focuses on the largest amount that can be lost, in all but a very low probability, over a given time period in a portfolio, and one of its uses is to help set minimum capital requirements.

When VaR timelines are lengthened, VaR can be a successful tool for insurance companies to use to manage risk. VaR offers another way to look at risk theory. Several conference papers investigated issues involved in applying VaR to life and casualty insurance.

Beyond VaR

VaR and a range of other ideas provide some different ways to look at portfolios and to integrate the asset and liability sides of insurance. The ideas also provide a way to look at insurance and other financial products in a unified way.

There are several different methodologies for doing calculations; none are perfect. Ongoing work focuses on practical methodologies, the theory supporting the calculations, and the difficulties inherent in developing models, collecting data, and implementing models. The papers spanned all of these issues.

William H. Panning, executive vice president, Advanced Risk Management Services, Willis Corroon, demonstrated pitfalls when risk measures are used blindly. He also gave a practical demonstration of how VaR can be applied to casualty risks.

Liam Mason and Peter Zangari of J.P. Morgan provided an overview of value at risk and the theoretical approaches which can be used for calculations. They also provided insight into how these ideas are used today on a short-term basis.

Models were discussed often. Two presentations stood out. Teri Geske, vice president, product development, Capital Management Services, focused on considerations for selecting models and on the risks inherent in building models and constructing assumptions. Colin McKee, financial analyst, Bank for International Settlements, focused on stress testing of models.

Several of the papers and tapes of conference sessions are available for purchase. (See column at right.) Selected papers in edited form will appear in a special issue of the *North American Actuarial Journal.*

Anna Rappaport, 1997-98 SOA president, is principal, William M. Mercer Incorporated, Chicago. Zain Mohey-Deen is a research actuary in the SOA's Research Department. They can be reached by e-mail at, respectively, *anna_rappaport@mercer.com* and *zmoheydeen@soa.org*.

New service: 'Job Link' lets employers list openings on SOA Web site

The SOA Web site's new "Job Link" service can help link employers to actuarial students and actuaries seeking new job opportunities.

An employer can post a job opening and a link to its Web site for 60 days on the SOA Web site (*www.soa.org*) for a fee of $200. That's less than the cost of one advertisement in most suburban newspapers. The SOA Web site boasted more than 1 million hits in January and has visitors from around the world.

Guidelines for participating employers are designed to encourage appropriate job seekers to apply.

- Each job title must have a separate listing (although a posting asking for several individuals for the same title constitutes one posting).
- Companies must identify themselves and list the position's title and the city where it is located.
- Nonprincipals — including recruiters, search firms, employment consultants, and placement services — must identify themselves as such.

Details are available from Debbie Jay, SOA online development coordinator (phone: 847/706-3539; fax: 847/706-3599; e-mail: *djay@soa.org*).

Ball State University announces faculty opening

The Department of Mathematical Sciences at Ball State University announces a search for a professor or associate professor of actuarial science, effective fall 1998. If credentials permit, the appointment will be as the Lincoln National Corporation Distinguished Professor.

Minimum qualifications for this position are either Fellowship in the Society of Actuaries or similar organization and a master's degree in a mathematical science or Associateship in the SOA or similar organization and a doctorate in a mathematical science.

A full announcement is posted at *www.cs.bsu.edu/~math/actsci.html.* For a printed copy, contact: Dale Umbach, Chair, Actuarial Science Search Committee, Ball State University, Muncie, IN 47306-0490 (phone: 765/285-8640; e-mail: *dumbach@wp.bsu.edu*).

In the know about the conference

The conference "Integrated Approaches to Risk Measurement in the Financial Services Industry" was held Dec. 8-9, 1997, near the Georgia State University campus in Atlanta.

Several papers, handouts, and tapes are available. A dozen papers and several handouts may be obtained for $20 from the SOA Books Department. For information, contact Beverly Haynes (phone: 847/706-3526; fax: 847/706-3599; e-mail: *bhaynes@soa.org*). Tapes of all conference sessions are available from Teach'Em; cost and other information is available from the company at 800/225-3775.

Project oversight group

The conference and call for papers were developed over several months by an SOA project oversight group. Members were:

- **Cindy L. Forbes,** chair; vice president, Risk Management, Manufacturers Life Insurance Co., Toronto
- **John Aquino,** representing the Casualty Actuarial Society; senior vice president, Aon Re Services Inc., Chicago
- **Harry H. Panjer,** professor, Department of Statistics and Actuarial Science, University of Waterloo, Ontario
- **William Panning,** executive vice president, Advanced Risk Management Services, Willis Corroon, Nashville, Tenn.
- **James Tolliver,** vice president and associate actuary, Prudential Insurance Company of America, Newark, N.J.
- **Irwin Vanderhoof,** clinical professor, Stern School of Business, New York University

THE COMPLETE ACTUARY

The balanced scorecard: measuring what matters

by James Trefz

In today's increasingly competitive environment, one key to success is understanding, measuring, and managing the factors that drive one's business. Most traditional financial measures, such as net income or return on equity, are myopic lag indicators that tell us where we have been while saying little about where we are headed. How do we know whether our current actions are creating future value?

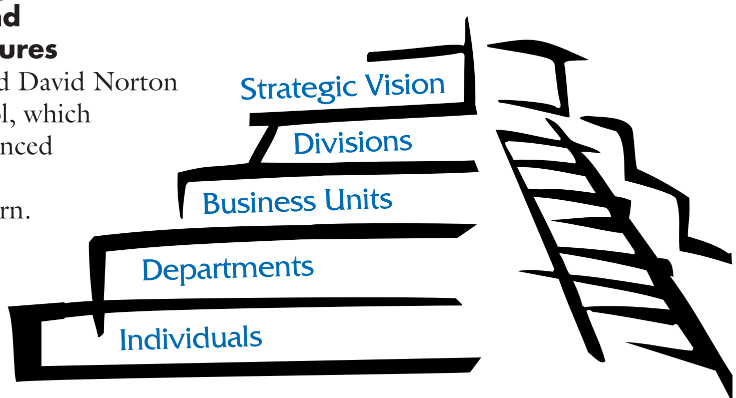
Looking beyond financial measures

Robert Kaplan and David Norton have created a tool, which they call "the balanced scorecard," to address this concern. The balanced scorecard seeks to identify and measure key business drivers by supplementing financial data with measurements from three additional perspectives: customer, internal business processes, and learning and growth.

Following is a brief overview of Kaplan's and Norton's approach. Details are available from their book, *The Balanced Scorecard* (Harvard Business School Press, 1996), and four papers: "The Balanced Scorecard — Measures That Drive Performance," *Harvard Business Review*, January-February 1992; "Putting the Balanced Scorecard to Work," *Harvard Business Review*, September-October 1993; "Using the Balanced Scorecard as a Strategic Management System," *Harvard Business Review*, January-February 1996; and "Aligning Strategy and Performance with the Balanced Scorecard: An Interview with David P. Norton, Ph.D.," *ACA Journal*, autumn 1997.

3 new perspectives

The customer perspective deals with how a firm is perceived by its customers. It seeks to identify what is important to the customer and how the company is performing. An example of a measure that is commonly found within this perspective is "customer retention." Customers can be internal as well as external.



The internal business process perspective addresses how a firm must respond in order to meet customer expectations and accomplish its strategy. An example might be "product development cycle time."

The learning and growth perspective concerns employee competencies, productivity, and job satisfaction. Measures of productivity are often found under this rubric.

These three measures supplement the more traditional financial markers. Together, they indicate not just where the firm has been, say Kaplan and Norton, but where it is going. When a company has invested time in identifying what truly drives results, the balanced scorecard becomes a powerful management tool for tracking performance and predicting success.

Creating the power of alignment

Companies that have implemented the balanced scorecard approach have found that its real potency lies in its ability to force the alignment of behavior at all levels of the organization, say Kaplan and Norton.

One can think of a balanced scorecard as a pyramid. At the top is the strategic vision. Each subsequent level contains measures for divisions, business units, departments, and individuals. Every measure is derived from and supports the levels above it. All four perspectives (e.g., financial, customer, internal business process, and learning and growth) can be represented at each level.

Thus, a well-constructed balanced scorecard is firmly tied to the firm's strategic vision. All measures support that vision, linking long-term strategy to short-term action. Clearly defined measures, designed to reach into all levels of the organization, give guidance to individuals as they make daily decisions.

The exercise of creating a balanced scorecard also forces companies to align their budgeting processes with their strategic planning. Investment decisions are more easily evaluated: if they support the lower-level measures, they also support the longer-term corporate objectives because the lower-level measures feed into the strategic vision.

The balanced scorecard fosters cause-and-effect learning by providing feedback on whether success or failure on a particular set of measures has the predicted result on one or more of the other measures. This forces a firm to consistently review its business model, clarify its strategy and objectives, and refine its understanding of key drivers.

The final and most difficult step in aligning goals and performance is tying incentive compensation and employee appraisals to balanced scorecard results. Great care needs to be taken in designing such programs to ensure they link the proper incentives to the right balanced scorecard factors. When a program is well designed, such a linking can provide a powerful alignment of individual and corporate motivations.

Scoring the scorecard

A growing number of companies — such as FMC Corporation, Mobil Oil, Sears, The Principal Financial Group, and Nationwide Financial Services — have implemented various aspects of the balanced scorecard. Kaplan and Norton say that as companies broadened their perspectives beyond the merely financial and strived to measure key business drivers, they clarified their strategic vision and have more closely aligned divisional, departmental, and individual performance with that vision. Implementing the balanced scorecard is an evolutionary process, which will take its own path within each company. To do it well, a company should plan on a significant investment of time and resources. The payoff may be worth it.

James Trefz is a member of the SOA Committee on Management and Personal Development. He is managing actuary, AEGON USA Inc., Cedar Rapids, Iowa. His e-mail address is *jtrefz@aegonusa.com.*

Bancassurers no more (continued from page 3)

Integrate or specialize?

Historically, Australian banks' insurance operations have grown up as individual, specialized divisions of a bank. Over the years, there have been a number of pushes to integrate bank and insurance operations. The potential advantages of such integration could be great. Most notably, integration is seen as a way to overcome perceived cultural differences that may have a material impact on sales. Integration is seen as particularly attractive on the distribution and marketing side. Commonwealth Bank recently implemented sweeping organizational changes aimed at integrating the various areas of the bank.

Full integration may have a downside. In particular, a product can become lost in a large bank without a champion to support it. Further, specialized skills related to insurance and investment products need to be maintained. ANZ Bank is known to believe in the importance of maintaining a separate team focused on insurance and investment products.

Consistent scorekeeping

The issues related to pricing approaches are clear. Less obvious are those related to risk management and capital allocation, which also impact pricing and scorekeeping. Multiservice providers are only just beginning to address these issues in Australia. The traditional approaches to risk management in banks, fund managers, and insurance companies are very different, reflecting the range of risks faced. This was never much of an issue before the rise of the multiservice providers, but now it has become critical to be able to assess risks of varying nature on an even-handed basis.

Without being underpinned by a coherent approach to risk management and capital allocation, attempts to price consistently and operate consistent scorekeeping may not be successful.

It is plain that many executives from a banking background find insurance risks, such as AIDS and sales compliance risks, hard to assess and rather unnerving. Insurance executives might find similar discomfort with banking risks if they aimed to run a banking operation.

Is 'bancassurance' the right term?

The debates set out above all seem to be heading toward a different sort of institution than might be characterized as a bancassurer. Australian companies now regard themselves as financial services providers rather than banks, insurance companies, mutual funds, or, indeed, bancassurers.

With this mindset in place, it may be clearer to see how the above debates might be settled. Here are some speculations on possible resolutions.

In regard to the product model and the adviser model, a true financial services provider may be driven towards the product model. The critical deciding factor may be the need to develop a consistent value proposition to put to the customer. It is difficult to sustain a position where product pricing is inconsistent among products which may be seen as substitutes for each other. The future focus may be on customer needs rather than products.

On the issue of customer management, it seems inevitable that the present trends will lead to a single coordinated marketing effort focused on the customer rather than on product segments.

On the issue of integration, I believe that further integration will occur, but the need for product champions and experts will remain. Financial services providers are likely to operate a variety of distributions supported by an integrated marketing approach.

On the issue of the consistent scorecard, I see the development of common risk management and capital allocation standards as being one of the critical areas yet to be faced — and one that will be faced now that the financial services mentality prevails.

As a final thought, I should warn those in the United States who look to Australia for interesting bancassurance models that they are looking at a moving target. The industry is reinventing itself rapidly at this very moment. Exciting times are ahead.

Mark Turner is managing principal of Tillinghast-Towers Perrin's financial services practice in Australia and Asia. This SOA member also is a Fellow of the Institute of Actuaries of Australia and the Institute of Actuaries. He can be reached by e-mail at *turnerm@towers.com.*

on the lighter side

Lights! Camera! Actuary!!

by Kelly Mayo
SOA Public Relations Intern

Acting and the actuarial profession are an unusual combination. But not for Susan Pantely, associate actuary for Milliman & Robertson in New York.

After a full day of risk assessments, Pantely can be found running to an audition on one of New York City's many movie sets or to studios for work as an extra. "I have always wanted to act," says Pantely, "but it wasn't until about a year ago that I decided to pursue roles."

Susan has snagged several parts since she began taking her hobby seriously. She appeared in the movies *Cottonwood Club* and *Childhood's End* and was also the object of Ben Stiller's fantasy in the film *Flirting with Disaster*. She was featured in a commercial for the New York State Lottery, and she is pursuing print advertisement work as well.

Pantely's most recent success is a lead in a staged reading of a script called "Garbage." "A staged reading is a play that someone wants to make into a movie," she explains. "The idea is to present the reading with the hope of obtaining supporters for the movie version." If "Garbage" is made into a movie, Pantely's experience will be a plus when the cast is chosen.

Pantely says that some parts are more enjoyable than others. She played an extra in the movie *I'm Not Rappaport* starring Walter Matthau and Amy Irving. She especially liked the wardrobe for her scene, a flashback set in late-19th-century America. "We had to wear these costumes that were made up of long wool skirts and wigs. It was neat to wear something out of that era, but not for a 14-hour day in July!" Pantely recalls.

"Being 'on the set' isn't as glamorous as it sounds," Pantely says. "In addition to the sometimes strange hours, a lot of time is spent setting up scenes, changing lighting, and shooting the stars' lines one at a time.

Susan Pantely shows her versatility.

I learned very quickly to take along a book." Lately, Pantely has been thankful for the breaks in the action. "I've been bringing my FSA study guides. This 'down time' gives me time to study for my exams."

Will Pantely ever quit the actuarial profession for acting? "It's doubtful," she says. "This is just a hobby. The odds are pretty slim on getting a lead in a major film." As an actuary, she ought to know.

Kelly Mayo can be reached by e-mail at *kmayo@soa.org*.

Upcoming SOA meetings and seminars

April 30-May 1	Actuarial Appraisals in a Sizzling Merger and Acquisition Heatwave	Omni Chicago, Chicago
May 4-5	Managed Care in a Time of Transition	The Marquette, Minneapolis
May 4-5	Corporate and Chief Actuaries Open Forum	Four Seasons Hotel, Philadelphia
May 28-29	Advanced Equity Index	Marriott Westshore, Tampa
June 15-17	Spring Meeting/Maui 1 (Financial Reporting, Product Development, Reinsurance, Nontraditional Marketing)	Grand Wailea Resort, Maui
June 19	Strategic Planning for Insurance Companies	Grand Wailea Resort, Maui
June 22-24	Spring Meeting/Maui 2 (Health, Pension)	Grand Wailea Resort, Maui

For updates on all seminars, watch future SOA mailings. Seminar information will also be posted on the SOA Web site (*www.soa.org*) under Continuing Education.

SOA board acts on Research Effectiveness Task Force report

The SOA Board of Governors has approved several steps relating to the report of the Research Effectiveness Task Force. The task force began work in January 1997 to evaluate SOA research projects in light of the SOA's strategic objectives and financial resources and the impact of research activity on members' professional activities. (See "Research corner," *The Actuary*, March, May, and September 1997.)

At the Jan. 30 Board of Governors meeting, the board directed the Committee on Research Coordination and its Research Project Oversight and Experience Studies Oversight Subcommittees to begin implementing the recommendations in the task force's report and to prepare any additional specific recommendations necessary to address the issues raised by the report.

Norman Crowder, SOA vice president – research, identified the following tasks to begin the implementation process.

- Develop a communications plan to enhance member awareness and use of SOA research.
- Re-think the selection and priority-setting process for new research projects.
- Develop specific criteria for the selection of research projects.
- Review the entire process for conducting and completing research projects to make this work more timely and effective.
- Redefine the role of the three committees, as needed, to insert a more active management oversight into the conduct of all research activities.
- Consider ways to outsource more of our research activities
- Establish policy and procedures to encourage research undertaken on a joint or shared basis with other actuarial or professional bodies.
- Attempt to develop specific measures of success with respect to SOA research broadly and to individual projects.

Copies of the task force's report are available free of charge from Mary Rocuskie at the SOA office (phone: 847/706-3502; fax: 847/706-3599; e-mail: *mrocuskie@soa.org).*

Mail alert

The First Ballots for the 1998 SOA elections will be mailed to all Fellows on March 10. To be valid, ballots must be received by the Society office no later than April 10. Fellows who do not receive a First Ballot by March 20 should call Lois Chinnock at the SOA office (847/706-3524).

Exam prep seminars in New York

The College of Insurance has announced intensive review seminars in New York for actuarial students.

Seminars are scheduled for: Course 100, April 24-26; Course 110, April 24-26; Course 120, May 2-3; Course 150, April 17-19; Course 200, April 16-19; Course 230, April 4-5; Course V-480, April 25-26; and Course F-580, May 2-3.

More information is available from the college at 212/815-9210.

IN MEMORIAM

Roy R. Anderson
FSA 1950, MAAA 1965

Knut Arne Eide
FSA 1967, MAAA 1965, FCAS 1959

Francis H. Escott
FSA 1965, MAAA 1965

William Gould
FSA 1936, MAAA 1965

Vincent Grainger
ASA 1947

Charles R. Haskins
FSA 1977, MAAA 1978

Ethel C. Rubin
ASA 1959, MAAA 1966, EA 1976

Walter Tyler
ASA 1950, FIA 1939