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The Newsletter of the Society of Actuaries
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THE Actuary

The demutualization of The Equitable

by Gary Corbett

The conversion of The Equitable Life Assurance Society (ELAS) from a mutual life insurance company to a stockholder-owned holding company, The Equitable Companies Incorporated, was completed on July 22, 1992. EquitCos (EQ) became a 100% owner of ELAS, which continues to hold interests in many other stock financial service companies, including Equitable Variable Life Insurance Company (EVLICO), the same as before conversion.

This conversion, although not the first, was the largest and most complex. It was the first to take place under a modern demutualization statute — Section 7312 of the New York Insurance Law, enacted in 1988.

The New York statute reflects many of the concepts contained in the July 1987 "Report of the Society's Task Force on Mutual Life Insurance Company Conversion." I served on this task force chaired by Harry Garber of The Equitable. The influence of the task force report is not surprising, given the significance of actuarial elements in any demutualization.

This article explains the process, with a brief description of the actuarial areas of interest.

Feasibility study

In July 1990, The Equitable's board of directors approved an investigation into the feasibility of demutualization, with the understanding we would proceed to demutualize if practical. We already had decided that demutualization would be a two-step process:

- Obtaining an initial pre-demutualization investment or commitment

Continued on page 3 column 2

Message to the members

Ask an actuary

by Walter S. Rugland
1992-93 President
Address at SOA Annual Meeting
October 27, 1992

I want you to know I take great pride in being an actuary. It is an honorable and respected profession. Let me tell you why I think so.

First of all, we have the public trust and stand accountable for the quality of our work. And, we are a profession because of the way we apply our research in practice, because we practice in a way that the people who use our work can rely on our results, because we attest that we are qualified to do the work we do, and because we are able to discipline ourselves.

I am proud to have grown up the son of an actuary. I know I share this with only a few of you. It is a privilege, and to this, I attribute my sense of heritage and tradition. Anticipating this day made my Dad very proud.

Walter S. Rugland

So, I am proud of our profession's unique history, recorded so well in Jack Moorhead's book, *Our Yesterdays*, and in our shelves of literature. I stand in awe visiting the home of the

Continued on page 6 column 1

In this issue:

THE
Actuary

The Newsletter of the Society of Actuaries
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Editor responsible for this issue
Robin Leckie

Correspondence should be addressed
The Actuary
P.O. Box 105006
Atlanta, GA 30348-5006

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Walter S. Rugland, President
Diane Wallace, Vice President
James F. Reiskytl, VP and Treasurer
Fran Lemery, Director of Publications
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Editorial

Winners and losers

by Robin B. Leckie

For the past three years, I have had the privilege to be an associate editor of *The Actuary*. It is one of the most plum volunteer jobs available. I thank you for the opportunity to be involved.

Typically, the articles in an issue of *The Actuary* are expected to be completed at least a month and a half before the issue month. This editorial and all the articles in this issue therefore were written in early November.

Four significant, but unrelated, events have occurred in the last two weeks, each with more than passing interest to most of us. The events were:

- The U.S. election
- The Canadian constitutional referendum
- A World Series (where now the term "world" has some significance)
- The Society of Actuary's election

In each case, there were winners and losers — terms considered to be as opposite as black and white, high and low. In every case, however, the losers are in fact winners; they just happened to lose this time. The caliber and contributions of the two candidates who did not win the Society presidency (as well as the candidates included in the first ballot) place them among the top 1% of actuarial professionals. They are hardly losers. And, surely a player with the Atlanta Braves can feel proud of his accomplishments this year. And, how many individuals can we name whose service exceeds that of President Bush?

What is the message? It is to be involved. To serve. To run in elections and to be willing to lose. The real losers are those who do not get involved, who do not take chances, who do not innovate, who sit and wait and hope, hoping they will go down in history as neither a winner nor loser. Surely, it is better to be a worthy loser.

The actuarial profession needs winners and losers. We are in a world of rapid change where momentum is no longer the driving force, where our genius is needed if our organizations are to be among the surviving winners. And for them, losing is not an option. The Society of Actuaries has done wonders in the past few years in setting new directions for research and education needed for the profession to support our individual efforts. I am glad to have had the opportunity to observe this progress during these past three years. The Society continues to need volunteers in its various endeavors. How about becoming involved?

I would have preferred to title this editorial, "Winners, losers, and compromisers," but because of the risk of being misunderstood, I compromised. Compromise has a much more negative connotation than is justified, primarily because we associate compromise as the acceptance of a less than optimum solution or as a disregard for essential principles. On the other hand, leaders must obtain input and views from a broad cross section of those they serve to define the best solution to meet the situation.

A good leader will never compromise principles but may compromise some of the components to recognize the differing needs of the affected constituents. Occasionally, however, even this does not work. The revised

Canadian Constitution put to the electorate in October was a compromise to meet the needs of many of the competing interests of Canadians. It had the support of the three major federal parties, the support of all 10 provinces, of labor and business, and of aborigines. Yet, in this case, the Canadian electorate believed there was too much compromise and voted it down.

I believe actuaries are considered among the most principled of all professionals. Our integrity and adherence to the principles of our profession make us stand out and raise us to high esteem in the view of those we serve. This is what enables us to be proud and happy to be members of the profession. We should never compromise those principles. At times, however, is compromise necessary and desirable? Consider these three instances:

- Without compromising our principles in any way, can we find ways to broaden our input into the businesses in which we work? Although we have so much to offer, too often our contribution fails to be passed on in language that can be understood, too often the implications of alternatives are glossed over, and too often we don't understand other interests necessary to an optimum result.
- One of the characteristics of the current political scene is the influence of special interests at the expense of the common good. Let us in our professional endeavors be cognizant of broad principles before we stress a special interest, or worse, a personal interest.
- An important principle of the Society is the integrity and standards of the FSA. Does it then follow that universities cannot play a more significant part in our basic education? I think not. Were we right in turning down an expanded role for long-term Associates? I think not. In my opinion, in neither case would we have been compromising basic principles.

Never in my career have I ever doubted the wisdom of becoming an actuary. To be a member of this profession is to be a winner.

The Equitable cont'd

- Actual demutualization and Initial Public Offering (IPO)

The project would take two years, culminating with the IPO and formal demutualization on July 22, 1992.

Determining a method

One of our first tasks was to determine the method we would use to demutualize. The New York statute permits four methods:

1) Distribute stock to policyholders but raise no outside capital
2) Distribute stock equal to policyholder equity (a calculated amount described later) and sell enough stock to the public so the total market value of the company is equal to policyholder equity plus the amount contributed by new shareholders
3) Distribute statutory surplus to policy owners (permitted only for small companies)
4) Any other method approved by the superintendent

Method 2 was designed by the Society's task force for companies that wanted to raise capital as part of the demutualization process. Unfortunately, in practice, it has two flaws:

- The difficulty of determining how much stock to issue to ensure that the new shareholders' market value would approximate the amount they have paid for the stock
- The assumption that the market value of the company, before introducing outside capital, is at least equal to policyholders' equity

In early 1991 we determined that our policyholder equity exceeded, by a fair margin, the company's probable market value. Therefore, the only option available to the company was Method 4, because capital could not be raised under the terms of Method 1.

Our estimate of market value was based on an early 1991 actuarial appraisal (basically, adjusted net worth plus present value of future profits), plus ongoing discussions with prospective investors and their bankers.

Obtaining an investor

Negotiations with potential investors took up most of the first six months of 1991. These negotiations were very complex, because investors needed to understand all the implications on future earnings of such structures as the "closed block," described later in this article. Every week we understood a little more about the implications of the closed block, first on statutory surplus and profit and later on GAAP book value and earnings.

A third party to these negotiations was the New York Insurance Department (NYID), including their investment and actuarial advisors.

Finally, on July 18, 1991, we struck a deal with the French insurance company, Axa, with which the NYID concurred. Axa put $1 billion into The Equitable, $250 million represented by a surplus note and $750 million represented by a secured note, both of which would convert to capital upon demutualization.

Now, all we had to do was demutualize and float an IPO. The IPO was required not only to raise additional capital, but also to meet a condition in the Axa investment agreement. In the agreement, the conversion of the Axa investment to capital was dependent on an IPO that produced at least $300 million of net proceeds.

Developing the plan

Following the Axa investment, we all turned our attention to developing the demutualization plan. Twenty task forces were formed to deal with different aspects of the project. More than 100 Equitable employees devoted much of their time to the effort. Our staff was supported by outside actuarial, legal, and investment firms, as well as by advisors retained by Axa. We have identified about $150 million in total costs, not counting compensation and related expenses for our own employees. By any measure, it was a huge effort.

We met weekly, or even more often, with the NYID and their actuarial, investment, and legal advisors. The actuaries were most involved with three areas:

- Policyholder equity
- The closed block
- Special provisions for par policies not in the closed block

Policyholder equity

Although Method 4 does not mention how shares should be allocated to policyholders in exchange for their membership rights in the mutual company, we calculated policyholder equity as described in Method 2. Because our market value would not support the entire policyholder equity, policyholders would receive less than 100% of their calculated equity. This percentage depended on the market

continued on page 11 column 1

Health actuaries organize for a more effective public policy role

by Howard J. Bolnick

Health financing issues — health care reform, Medigap standards, long-term care — have been highly visible in the public policy domain. As experts in many important aspects of these subjects, we have been asked, "Are health actuaries playing a role in these public policy debates?" The answer is "yes," but clearly we can do even more.

Overcoming barriers

Playing a larger role in this debate is not easy. In practice, two organizational barriers must be surmounted. First, we need to find ways to meld the education and research strengths of the Society of Actuaries (SOA) with the public outreach mandate of the American Academy of Actuaries (AAA). Without coordination, AAA's interface with our publics sometimes lacks thoughtful analysis that could be provided by SOA's research and policy development. Second, we need to find ways to focus combined SOA/AAA resources on carefully selected health care issues. Our professional organizations and health actuaries are developing organizational structures that will support a more constructive and visible role.

Evolution of practice areas

Formed in 1981, the Health Section Council (HSC) has become the focal point for health actuaries' activities in the SOA. The HSC has helped health actuaries have a strong voice in meeting our basic and continuing education and research needs. The value of a "practice-oriented" organization recently was reaffirmed by the restructure of SOA leadership and staff. In the future, an SOA Vice-President and supporting staff in the health practice area will work with the HSC.

As the AAA grew and explored new ways to fulfill its role, it also evolved into a practice-oriented organization. Four Practice Councils — Health, Life, Pension, Casualty — were formed in 1988, which have been given increasing responsibilities for organizing and conducting AAA work. A fifth Practice Council, Professionalism, recently was formed to coordinate many internal responsibilities, such as qualifications and standards. The box on this page describes the scope of responsibilities assigned to the Practice Councils by the AAA Board. The HSC Chairperson and the new SOA Vice-President for Health will be members of the AAA Health Practice Council (HPC).

Work of the HPC

As in other Practice Councils, the HPC has had its share of successes, failures, and frustrations. Under the leadership of AAA Vice-Presidents Harper Garrett and Bob Dobson, the HPC has come a long way toward meeting its responsibilities. It has been visible in Washington, D.C., on a wide range of health care financing issues. As the third HPC chairperson, I believe, with careful planning and support from our colleagues, we can help health actuaries play an even more important role in furthering our professional interests and influencing public health care policy.

To progress further, the HPC must address two major issues:

- We need to develop a strategic plan that carefully defines an effective approach to influence health policy, laws, and regulations of interest to our members and society.
- We need to increase available resources to fulfill our strategic plans and to refine how we work to maximize the value of our limited resources.

We recognize that, as a small profession operating in a large arena, we always will have limited abilities. What special skills and perspectives do we bring to the table? Answering that basic question will help us choose specific issues to work on from among the many health care issues on the public agenda. It also will better shape our work product to increase our influence while reducing the resources needed to accomplish our goals.

Other questions arise related to our resources:

- Is the HPC volunteer structure organized as well as it could be?
- Can we increase our effectiveness by adding full-time dedicated staff or finding new ways to use our members? For example, should we develop an actuary-in-residence program to allow interested practitioners time to work on a specific project with Congress?
- Should we make funds available to contract with actuaries or other health care professionals to prepare well-researched positions?
- How can we better access and coordinate efforts with other actuarial organizations, especially the SOA?

SOA/AAA coordination and cooperation

The Joint Task Force on SOA/AAA Relationships is addressing this last

continued on page 7 column 3

American Academy of Actuaries Governance and Administration

Practice And Professionalism Councils

(Area vice presidents, selected board members in subject areas, appropriate committee chairpersons and selected liaison representatives from the ABCD, ASB, Joint Committee on the Code of Professional Conduct; and the ASPA, CAS, CCA and SOA boards, sections or committees.)

- Develop strategic plans, set priorities, and establish committee assignments or task forces (as needed).
- Communicate and coordinate Academy activities relating to the area of practice or to professionalism within the Academy, particularly with the ASB and the ABCD, the Joint Committee on the Code of Professional Conduct, and with the other actuarial organizations.
- Provide advice to Academy and profession-wide (Forecast 2000) PR efforts regarding issues concerning the subject area.

What happens if the solvency measures don't work?

by Greg Jacobs

Much has been written and many discussions have been undertaken on the subject of insurance company solvency. As a result of the most active period of insurance company insolvencies since the 1930s, the actuarial profession and insurance regulators have put their energies into developing several solvency measures. Among these measures are the new valuation law and the asset adequacy analysis, risk-based capital, and stricter reinsurance regulations.

Actuarial meetings repeatedly have focused on solvency — improved capital management techniques, a renewed emphasis on proper product pricing, expense control measures, and monitoring and improving investment performance.

Insurance commissioners, through the National Association of Insurance Commissioners (NAIC) or on their own, have worked on risk-based capital standards and stricter reinsurance regulations. They also have taken a hard look at the financial examination process. Insurance department budgets have increased substantially over the past five years. The accreditation process has, to some extent, spurred this increased interest in solvency issues.

Much high quality work and thought have gone into these measures.

What if a company becomes insolvent?

If an insurance company ends up in the hands of a department's insolvency office, the insurance industry is faced with rehabilitation or liquidation. The United States has a state guaranty fund network for life and health insurers and for property and casualty insurers. Many, however, have expressed concern about the U.S. guaranty fund network. Never has it been so tested as in the past three to four years.

In Canada, a federally incorporated private company administers a protection plan, established in 1988. The plan replaced a network similar to the one now in place in the United States. Preliminary indications from Canada are that the new plan is well received and is working effectively.

Background on U.S. state guaranty fund network

Each state now has a guaranty association. The association is a nonprofit entity empowered by the NAIC Life and Health Insurance Guaranty Association Model Act. The original model act, adopted in 1970, has been revised many times. Individual states have altered the terms of the model act, so there is a lack of uniformity across state lines.

Never has (the U.S. guaranty fund network) been so tested as in the past three to four years.

Usually, all insurers licensed in a state are members of that state's guaranty association. The association, a legal entity, can exercise its rights to enter into contracts, make personnel decisions, sue or be sued, and borrow money. It is directed by the insurance commissioner and a board made up of senior management of its member companies. The association's primary function when faced with an insolvency is to provide coverage to the policyholders, up to the maximums defined in the law. Coverage is provided from a combination of assets owned by the failed company and assessments made against on-going solvent carriers in that state.

Normally, a guaranty association's coverage extends to residents only. However, many states cover all policyholders if the failed company was domiciled in its state. The maximum amount covered varies by state and by line of business. The typical coverage limit is $100,000 in cash values or $300,000 for all benefits. The association can assess its members some percentage of premium written in that state. The percentages vary, from as low as 1% to as high as 4%. The amount assessed usually can be used as a premium tax offset.

It is interesting that the model act includes a prohibition against advertising that such coverage exists.

The guaranty association of the state of domicile takes the lead in the rehabilitation or dissolution of the failed company. To help coordinate the efforts of the lead association and all participating associations, the National Organization of Life and Health Guaranty Associations (NOLHGA) was formed in 1983. Through its Disposition Committee, NOLHGA streamlines the process of covering the policyholder liabilities and settling the transfer of assets between the various participating associations.

CompCorp

Formed in 1988 and operating in early 1990, the Canadian Life and Health Insurance Compensation Corporation (CompCorp) protects Canadian policyholders of member companies against loss of benefits. CompCorp is a federally incorporated, nonprofit company. Membership in CompCorp is voluntary (at least initially) and is open to all life and health carriers in Canada that meet certain financial requirements. It is expected that the federal and provincial governments will require membership before a company can conduct business in a province.

If a member company fails, CompCorp will either cash out the policyholder's contract or find replacement coverage, both with certain limits. The three limits are:

- Class A — Life Policies and Accumulation Products
  $200,000 in life protection
  $ 60,000 in cash withdrawals
- Class B — On-Benefit Annuities and

Continued on page 8 column 1

Ask an actuary cont'd

Institute of Actuaries at Staple Inn in London, which to me represents our strong tradition that now has moved throughout the world. I recommend that you put a visit to Staple Inn on your itinerary.

I am also proud to be able to serve our profession. Twenty years ago, I was asked to join the Academy of Actuaries' board as Secretary. I've seen where we were and, as I said last year when I assumed the role as President-Elect, "I am proud of the coming of age of the Society of Actuaries and our profession."

I believe much is implied with a profession's "coming of age." It must include new responsibilities and a new way of doing things. And it certainly means new horizons and new opportunities.

But it's not enough to just talk about the opportunities that a coming of age brings. I believe it also is a signal for a profession to move forward with deliberate action and to focus on what we can do, rather than to reflect on what we have done or what we do now. We are poised today to write new chapters in our history book. We all can contribute to that history as we move forward with an expanded vision for our profession. I call on you to join me.

Earlier, President Don Sondergeld talked about the need for constructive change, and I agree with that. How? We can't change if we restrict ourselves to patterns that have their roots in yesterday. Let me give you some examples. As early as the mid '80s, the Actuary of the Future Task Force and the Society's Planning Committee noted some trends that they believed could lead to diminished value of the work of actuaries. They warned us of several trends:

1) Intrusion and pre-emption by regulators and other appointed observers into the realm of the professional judgment of actuaries
2) Actuarial functions in large insurers being decentralized by business lines and reduced in overall scope. The chief actuary would be hard to find.
3) Defined benefit retirement plans disappearing as self-styled non-risk experts influence employer benefit plan decisions
4) Nonactuaries with computers performing many technical actuarial functions, not knowing the basis of their work
5) Asset management strategies overshadowing the old risks of mortality and morbidity

But the most serious observed trend of all was that of the profession itself. We appeared, more and more, to be looking inward and allowing others to define our future. I'm sure you can think of your own examples.

Today, the fallout of some of these trends is here in full force: vast defined benefit pension plan terminations, insolvencies of insurers, a lack of public confidence in the traditional constituencies we serve and, for the first time, more actuaries than there are jobs.

But, this is not new news.

The profession in North America recognized early aspects of these trends and took giant strides to bolster our position. Now, it is time to enhance the scope of our professional work. We've built a strong base. Actuaries today are ready to serve at the heart of strengthening North America's financial systems.

Let's note recent accomplishments. We have:

- Legal sanction for the integrity of our employee benefit plan assumptions
- Standards of practice through the Actuarial Standards Board (ASB) and the Canadian Institute of Actuaries (CIA)
- Discipline processes through the Actuarial Board for Counseling and Discipline (ABCD) and the CIA
- Qualification processes promulgated by the American Academy of Actuaries (AAA) and the CIA
- A meaningful insurer valuation role as an "appointed actuary" and recognition of the actuarial role in analysis of an insurer's investment risk and economic health

These major developments, all within the last half decade, enable us, with our unique set of skills, to open doors and forcefully say: "Ask us! Ask actuaries to be a part of your problem analysis and solution." Twenty-first century actuaries will have to apply these skills more broadly.

Remember, there's no such job as "actuary," but being an actuary gives us many unique skills and enables us to do a lot of problem solving.

We also need to take the lead to market actuaries, convincing current and potential clients and employers that Society members have the skills to solve problems of the future.

One of the things the Task Force on the Actuary of the Future did in 1988 was a "vision matrix." In this matrix, potential actuarial functions and skills were assessed against potential users of our services. This helped identify and strengthen roles where we were uniquely qualified and to seek new areas where we would bring something special to the table. This vision has become clearer as the task force has continued its work.

Much groundwork has been laid in the past four years. The field has been plowed, nutrients are being added to the soil, and we can start the seeding. It's time to pick up tools and get on with the work.

So how do we get started? One way is by joining the new Actuary of the Future Section. The Section's purpose is to identify and develop future roles and opportunities for actuaries. Join it and help sow the seeds of a new field. Remember, it's not your skills that are being challenged; it is the usefulness of those skills.

Three things make a profession great:

- Men and women with a spirit of adventure
- Men and women who know their duty
- Men and women who strive to meet a standard

I am proud that the actuarial profession is such a profession.

The leaders of the profession and the Society not only lead and listen, we also listen and lead. During the past few years, my listening has convinced me that many of you wish the Society could do more for practicing actuaries. For example, do our members get the support they need in their practice areas? Is the Society's heavy emphasis and commitment to basic education and examination, experience analysis, and traditional meetings delaying other activities and thrusts practicing actuaries need?

I have become convinced that the Society of Actuaries should be more. I believe that our work must truly embrace all members' practice needs, as well as qualify new members, while also enlarging our profession's scope.

The Board of Governors has approved a modified governance structure for the Society that will move us in the direction of better meeting member practice needs. By clarifying functions and examining major policy and committee agendas from both a practice and corporate point of view, I believe that we will be able to more quickly understand, anticipate, and respond to our changing environment. This is a change which will enable us to have appropriate focus.

Now I want to disclose a motivator in my seeking this presidency. The Society of Actuaries' current motto is "The work of science is to substitute facts for appearances and demonstrations for impressions." This statement, chosen in Victorian times, comes from Ruskin in the "Roman Renaissance" chapter in *The Stones of Venice* and is taken entirely out of context. I have to question in this day of fuzzy sets, chaos theory, and model building whether it is relevant to our profession. It perpetuates a thought process that doesn't fit; it doesn't project us into the future. In fact, it limits our opportunities. I believe the time has come to consider a new motto for the 21st century, and I have asked the staff to structure a contest to find a new one. So get your entries ready.

As I've said, I'm very proud to be an actuary, but that pride is not without its frustrations. As I move about our constituent clientele and look at the research on our profession's image, one characteristic is much too prevalent, and it hurts us. It causes our clients and employers to question our value.

We come across as being "above the fray" — too good to wrestle with the real issue; quick to criticize; too busy to help. Our best friends tell us we are cynical. Yet they respect us. They really want us to get into the solution and help.

Present company may be individually excluded; but this is a corporate, historical image. We all share the fallout, and I, for one, have never liked it.

We in the Society need to work together to break out of this adverse image and to convince people to look beyond the stereotypes and consider our skills and the value we can contribute.

We must let our employers and clients know that we are scientists, managers, and/or consultants with a strong quantitative base of knowledge and problem solving skills, ready to be used in many ways; that we as actuaries can provide expert, relevant solutions to financial and business issues, especially those requiring analysis of uncertain future events. An actuary is uniquely qualified to measure, model, and communicate the implications of future contingent events. We've changed our mission statement to articulate this, and I like it.

Enhancing our image is not a job that your leaders can do alone. It's a mindset issue. We, the entire membership, must do it together. It won't be easy, and it won't be quick. But it is a movement we can start now. We all have to believe two things: one, that our profession will be of more value to people tomorrow than it is today, and two, that every one of us has a personal responsibility to make it so in how we work and how we act.

Tonight, there will be students bent over books and study notes, giving up time with family and friends to become actuaries. Let it be our cause to give them a chance to join a strong, meaningful, and secure profession. It is our common duty to initiate change now to ensure their future in this profession and allow it to also continue to reward us.

This means first we must become a part of solutions that allow us to apply our skills, and then we must see universality in the application of our expertise.

I want to share my vision. I see the day in the 21st century that whenever a business or government decision maker has a question about risk, her or his first thought will be, "Ask an actuary."

"Ask an actuary!" Share that vision by joining me in wearing this button, "Ask an actuary." Take a few, wear them home, on the street, and to your work meetings. Get your family and friends to wear them. These buttons are guaranteed to give you the opportunity to explain that you can be part of a solution process.

To wear this badge of office of the President of the Society of Actuaries is a distinct privilege. I take it with great honor. As we move into the new program year, I thank you in advance for your confidence, your enthusiasm, and your support.

Now, get set for a great ride.

Buttons available

If you would like to participate in President Rugland's program to increase awareness of actuaries as business people capable of participating in solutions to any financial problem involving risk, you may request a supply of "Ask an Actuary" buttons. Just contact Connie Tegeler, Communications, Society of Actuaries, 475 N. Martingale Road, Suite 800, Schaumburg, IL 60173-2226; phone, 708-706-3500; fax, 708-706-3599. Please specify quantity needed and intended use.

Health actuaries cont'd

issue. I believe that for actuaries to be effective, the AAA needs to be able to tap into the SOA's education and research resources in ways that appear to the outside as if we were a "seamless" organization. In return, the AAA helps enhance our profession's image and, indirectly, helps increase actuarial job opportunities.

What we are capable of doing and how we get it done are the fundamental issues to focus on to enable us to do more as a profession in influencing health care policy. If we can solve these organizational problems, health actuaries will be more visible. "Yes, we are involved" will become the answer to a question that won't even need to be asked.

If you have any ideas or comments or would like to volunteer to work on policy issues, please write me at my address listed in the *Directory of Actuarial Memberships*. Your input is always important.

Howard J. Bolnick is president of Celtic Life Insurance Company, a former member of SOA's Board of Governors and an AAA Director, and currently is an AAA vice president and chairperson of the AAA Health Practice Council.

Solvency measures cont'd

Disability Income
$2,000 monthly income

- Class C — Health Benefits other than Disability
$ 60,000 in total payments

Some benefits are not covered at all.

Post-funding assessments are made against the members' average annual premium from covered policies in Canada, with the maximum being 0.5% per year. Assessments can be made for as long as needed to cover an insolvency.

Finally, member companies can advertise that CompCorp coverage exists.

Criticisms of the U.S. system

The U.S. state guaranty association system has had much criticism levied against it. Some of the concerns expressed are:

- Lack of uniformity of coverage
- Lack of coverage for some lines of business
- Inefficiencies in handling large, multi-state, multi-line insolvencies
- Potential capacity problems
- Non-risk-based assessments
- Lack of pre-funding

These criticisms have spawned many alternative proposals. Some have come from industry trade groups (an ACLI Study Group report, October 1991); some have come from the federal government (Senator Metzenbaum's Insurance Protection Act of 1991); others have come from the life and health industry.

View of best system

These concerns have caused the insurance industry and the actuarial profession to ask what would make a better guaranty fund system. My view of the "best system" includes six characteristics:

1) The cost of insolvencies should be borne by those presenting the most risk.

One of the guiding fundamentals of insurance pricing is risk classification. Individuals with higher expected mortality or morbidity should pay higher premiums than those with lower expected mortality or morbidity. The same should hold true for insolvency costs. Assessments for insolvencies could be based on a percentage of a company's risk-based capital. This idea could lead to some form of prefunding to get some assessments while the carrier is taking the risks, as opposed to only assessing the surviving carriers.

The only acceptable form of prefunding would include an experience refund provision to return unused and unneeded assessments.

2) The coverage granted in an insolvency should be consistent with the coverage that is lost.

An insured that loses his or her protection (life insurance, disability insurance, health insurance, guaranteed insurability, benefit payments) should be restored with similar replacement coverage, with some limits. These limits should apply only in situations where the insured was receiving protection beyond what would reasonably be provided given the premium dollars paid for such coverage. This would require a reduction in benefits in situations where the insolvent carrier underpriced the coverage. This implies that a "reasonable price for benefits" could be established.

If an insured loses his or her investment (accumulation annuity, GIC), a guarantee similar to the FDIC or SIPC should be put in place. This will place insurance investment products on a level playing field with other investment alternatives. Limits also should be placed on these coverages in situations where higher than reasonable interest rates were either illustrated or guaranteed.

The limits in both the loss of protection and the loss of investment cases are premised on establishing reasonable prices or interest rates. These could be set at the mean or median price or interest rate of insurers with an adequate market share in the particular line of business, or they could be set by the board of the national association.

3) Both the assessment function and the providing of coverage should be directed at the national level, consistent across state lines.

The NAIC or NOLHGA or some future national (member-owned, not-for-profit) entity should direct each of the existing state guaranty associations to provide the manpower in an insolvency.

4) Membership in the national association would be by application, not automatic.

Certain financial measures and an acceptable business plan would be required to become a member of the national association. Publicizing membership in the association would be permitted and encouraged.

5) Federal income taxes should apply only to net assessments (assessments less refunds).

Assessments made into the system would be tax deductible, while refunds received would be included in taxable income. Assuming there would be some insolvencies, the net assessments would create an overall federal tax deduction.

6) Assessments made would not be offset by premium tax reductions.

The net cost of the assessments would be a "cost of doing business" and would be passed on to the policyholder.

The cost of insolvencies should be borne by those presenting the most risk.

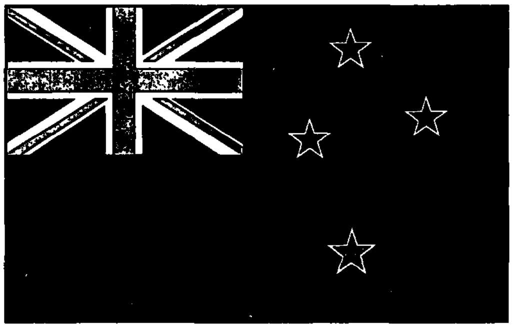
This is only one view, expressed to challenge the U.S. actuarial profession to think about alternatives to the current guaranty system. Although I chair a special Society task force researching this issue, the ideas in this article are mine and not those of the task force.

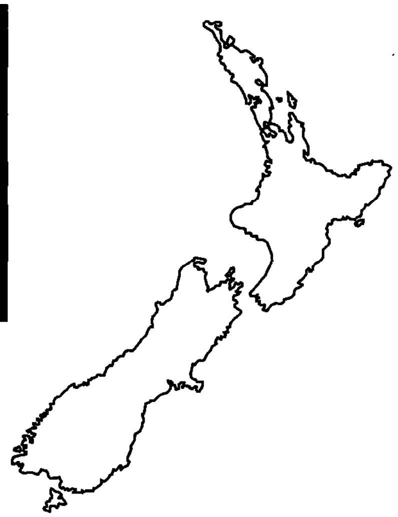
The mission of the Society's Task Force for Research on U.S. Life Insurance Insolvency Guarantees is to "suggest ideas for improvement to the current life insurance insolvency guarantee system in the United States and to offer practical suggestions for implementation of any new program." I invite interested individuals in the profession to agree or disagree, modify or revise, or otherwise contribute to the discussion on this important topic. We are looking for individuals to help the task force in its charge. Please let me know if you can help.

Gregory D. Jacobs is the Chairperson of the Society's Task Force for Research on U.S. Life Insurance Insolvency Guarantees. He is a consulting actuary with Milliman & Robertson, Inc.

New Zealand actuaries welcome North American perspective

by Curtis E. Huntington





In October, I attended the biennial meeting of the New Zealand Society of Actuaries (NZSOA) in Christchurch, New Zealand. This was a three-day meeting attended by 91 actuaries — 71 from New Zealand and 19 from Australia. I was the only actuary attending from North America.

Most of my immediate family have lived in New Zealand for several years, and I have become a frequent traveler to that country. Because of my interest in international actuarial activities, I became a member of the NZSOA several years ago. This was the second meeting I have attended.

Membership

The NZSOA Members *Handbook* lists 100 individuals as Fellows. Most live in New Zealand, but 13 list overseas addresses, including several in Canada. Most of the Canadians, for example, once lived in New Zealand and have returned to Canada. For many years, about 10% of the Fellows have been individuals who qualified in North America and emigrated from Canada. The handbook also lists 16 individuals as Ordinary Members, mostly from Australia. I am an Ordinary Member.

Reflecting long-term ties to the United Kingdom, membership is available to any member of the Faculty of Actuaries in Scotland and the Institute of Actuaries in the United Kingdom. NZSOA also recognizes membership in the Institute of Actuaries of Australia, the Canadian Institute of Actuaries and the SOA. Generally, Fellows of these five bodies who usually reside in New Zealand or who are "familiar with New Zealand conditions" are admitted as Fellows of the NZSOA (FNZSA). All other members are Ordinary Members. A student membership category also exists.

Meeting content

The general meeting included reports by the president, treasurer, and several subcommittees. Subscription levels (dues) were discussed thoroughly and then voted on. A report from the Diploma in Financial Mathematics program at Victoria University of Wellington that is partly funded by the financial sector was presented. Officers were elected.

The following gave reports:

- The life insurance subcommittee on realistic reporting, the appointed actuary movement, and a code of business practices
- The human rights subcommittee on developing a response to a request from the Justice Department and on the justification for gender discrimination in life insurance and superannuation (pensions)
- The professional conduct subcommittee on the implementation of a code of professional conduct

Though NZSOA meetings are similar to SOA meetings, they also are significantly different. Eighteen papers were prepared before the meeting. (The 13-hour non-stop flight from Los Angeles provided me ample opportunity to read the papers before arrival.) While some papers covered topics that are unique to New Zealand ("Life Insurance Act 1908 — Still with Us?"), others covered a breadth of subjects that will sound quite familiar to North American actuaries (appointed actuaries, continuing professional education, realistic reporting of earnings, investments and the actuary, long-term care and health reform, taxation, and superannuation arrangements).

I was impressed with the large number of papers produced by the members (given the size of the organization) and their high quality. Discussions of the papers were conducted with a friendly vigor not frequently seen at North American meetings.

Typically, authors would present summary remarks about their papers. Audience members then would either comment on the contents of the paper or give additional information or background. At the end of each session, a summary of the remarks made from the audience would be given, usually by the author. This provided an opportunity to clarify or rebut comments that had been made from the floor, which resulted in extensive discussions on papers. Audience input added to the material's effectiveness.

The keynote address was by Barry Urquhart, a well-known Australian author on quality customer service. The first day ended with a "trade fair," similar to the exhibit hall at recent SOA annual meetings.

Concurrent sessions on the second day covered life and pension topics. The second day concluded with a black tie dinner, with a special address by a member of the New Zealand Parliament.

Ample time was allowed for relaxation and social events. In addition to golf and tennis, some of the attendees went skiing. A late winter in southern New Zealand left nearby ski fields with plenty of late winter snow.

Overseas societies welcome the attendance and participation of North American actuaries, who add a welcome dimension to the meetings. For example, I presented a discussion on the development of the U.S. valuation actuary and on continuing education requirements in North America at the New Zealand meeting. I gained new

Continued on page 13 column 3

SECTION CORNER

This column will report on newsletters and activities of all special interest Sections on a rotating basis. This month, Financial Reporting, International, and Education and Research are featured.

Memberships in 11 Sections now total almost 24,000, with 78% of all SOA members belonging to an average of two Sections. Two new Sections — Smaller Insurance Company Section and Actuary of the Future Section — are soliciting memberships.

If activities of a Section interest you, you can join that Section and automatically receive its newsletter. To join, either fill in that Section's circle on your dues notice and add its dues to your total or send a note and check to the Society of Actuaries, P.O. Box 95668, Chicago, IL 60694.

The 1993 Section dues are:

- $5 for Education and Research
- $7 for Futurism
- $10 for Actuary of the Future, Computer Science, Product Development, International, Investment, Financial Reporting, Nontraditional Marketing, and Smaller Insurance Company
- $15 for Health and Pension
- $20 for Reinsurance

Financial Reporting Section

Issue 17 of *The Financial Reporter* was published in September 1992. Editor is Ken McFarquhar and chairperson is Doug Doll. The lead article, by Richard D. Crago and Randi E. Woods, discusses "FAS 97 — Discontinuities in DAC Caused by Partial Unlocking." Three articles by Marilyn Brown report on sessions from the Anaheim spring meeting. Two other articles are "Change in Status of FASB Project on Market-Value-Based Accounting," by Barbara L. Snyder and "LHATF Report on Life Insurance and Annuity Projects," by Esther H. Milnes.

This Section is sponsoring a research project with the American Academy of Actuaries (AAA) on state-by-state variations in the valuation law. It also is sponsoring a June seminar on the valuation actuary.

International Section

The first newsletter of this new Section was published in October 1992. The editor is Keith Gubbay. It includes an article by Chairperson Robert L. Collett and an "International Section Membership Survey." Notices call for new study notes authors and for participants in a possible study mission with the People-to People International exchange program. The lead article, by Camilo J. Salazar, is "Latin America 1992 — The Second Discovery." The newsletter also includes "The Insurance Market in Argentina" by Viviane G. Levy and a discussion of "The Actuarial Profession in Mexico" by Pablo Noriega and Luis Miguel Rodriguez. An article by Stephen T. Clinton explores "Mortality in a National Context."

Among this Section's activities are participation in a research project on international currency risk and plans for sessions at spring meetings.

Education and Research Section

This Section's third newsletter (December 1992) announces the winning entry in a "name the newsletter" contest: *Expanding Horizons*, submitted by Jack Paddon. Bruce Jones is editor. Edward W. (Jed) Frees reports on "Section Directions," and that Don Jones has replaced him as chairperson. Other articles are "Actuarial Science at the University of Iowa" by James D. Broffitt and "Research Papers for Fellowship Credit" by Roy Goldman. Sarah Christiansen presents a "Report from the SOA Program Committee." Robert V. Hogg, University of Iowa, is interviewed in "A Q&A about Q," about Total Quality Management (TQM) in education.

The next Actuarial Research Conference, August 19-21, 1993, will be in honor of retiring Professor Jim Hickman at the University of Wisconsin-Madison. Papers will be solicited in Hickman's areas of interest.

Task force issues interim report

by Bart L. Munson

The Task Force on Valuation Methods for Long-Term Care Insurance was created in fall 1991 to "develop recommendations for the valuation of long-term care insurance products, incorporating, as appropriate, an interim method, available data, the valuation actuary concept, and methodologies suitable for the type of product being valued and its underwriting characteristics."

The actuarial profession and the regulators are the two primary stakeholders in the work of the task force. Accordingly, the task force believed it important to give them an update on progress. It presented its Interim Report to the SOA Board of Governors on October 17, 1992. The Board authorized the task force to continue and to express opinions as necessary in 1993. The task force then presented essentially that same report to the National Association of Insurance Commissioners (NAIC) Life and Health Actuarial Task Force on December 4.

The report primarily is an outline of the issues being addressed. In some cases, a tentative position is described. In others, the large amount of work remaining is identified.

Long-term care (LTC) products addressed include stand-alone, riders on life insurance products, options on annuity products, and insurability guarantees attached to other products.

As the Task Force moves into 1993, it welcomes your input and suggestions. You may request a copy of the Interim Report (Revised) from Joanne Temperly at the SOA office, 708-706-3500, Ext. 4582. If you'd like to help the task force's work with comments or if you have questions, please contact me at my *Directory* address.

Bart L. Munson is Chairperson of the Task Force on Valuation Methods for Long-Term Care Insurance and principal in the Milwaukee office of William M. Mercer, Inc.

The Equitable cont'd

value of the shares issued to policyholders.

Although we paid cash or policy credits in lieu of shares to some policyholders, all calculations assumed everyone received shares. We simply converted the value of shares to cash or policy credits as a last step for the affected policyholders.

The number of shares allocated to all eligible policyholders was about 30 million. All eligible policyholders (nonpar as well as par) received a fixed component of 3 shares. This fixed component totaled about 6.5 million shares. Subtracting 6.5 from 30 million leaves 23.5 million shares. The remaining shares, called the "variable amount," were then allocated to par policyholders in the proportion of their policies' past and expected future contributions, called the "actuarial contribution," to The Equitable's surplus.

The calculation of actuarial contribution for each in-force policy was a huge job. We collected historical data back to 1910. We built models to capture the most significant profit-generating features of each type of policy. Obviously, we had to make many approximations, especially for the distant past.

For each of 10 major product lines, we calculated the line's actuarial contribution as the sum of the actuarial contributions for the policies in-force in that line. For those lines with a negative actuarial contribution in total, such as GICs and individual medical, we set the actuarial contribution for that line and for all policies in the line to zero.

For those lines with positive actuarial contributions in total, we first spread any negatives proportionately over policies with positive actuarial contributions. As a result, the sum of the individual policy actuarial contributions for the line became equal to the actuarial contribution for the line in total. For example, if the sum of positives was $1 billion and the total for the line was $900 million, then the adjusted actuarial contribution for each positive policy was 90% of its calculated actuarial contribution and zero for negative actuarial contributions. (We could not actually charge negative actuarial contributions to policyholders.)

We then added up the adjusted positive actuarial contributions for the entire company and calculated each policy's share as a percentage of the total company adjusted actuarial contribution. Each policy then received this percentage of the total variable amount of shares distributed to policyholders.

The result was to pay approximately 46% of the variable amount to individual life policyholders and lesser percentages to other product lines.

The closed block

Issues relating to the closed block consumed most of my time in the last half of 1991. Almost every aspect had to be negotiated with the NYID, which played both advocate and judge roles, limiting our negotiating powers.

As with policyholder equity, Method 4 does not require setting up a closed block, required under methods 1 and 2. However, there was never any question that we would set up a closed block to protect par policyholders. Our use of Method 4 permitted us to exclude non-dividend paying par policies from the closed block, which we could not have done under Method 2.

The closed block is composed of all The Equitable's dividend-paying individual policies. It is labeled "closed," because no new policies will be added to the block after the effective date. Thus, over time, the number of policies in the closed block will decrease, and the closed block itself will disappear when the last closed block policyholder dies or surrenders his or her policy.

The purpose of the closed block is to assure policyholders' reasonable dividend expectations when the former mutual becomes a stock company and is operated primarily for the benefit of its shareholders, rather than its policyholders. The closed block operates to assure closed block policyholders that dividends post-demutualization will be determined on a basis consistent with the way they were determined before demutualization.

All premiums paid by closed block policyholders are credited to the closed block, and all benefits (death or termination) and policyholder dividends are paid out of the closed block. Premium and income taxes also are paid out of the closed block. However, normal expenses and commissions are not charged to the closed block and are not funded for in the closed block.

Certain assets, primarily bonds and mortgages, in the investment

Continued on page 13 column 1

E & E CORNER

The proposal to merge two Associateship examinations, Course 160 (Survival Models, a required course) and Course 162 (Construction of Tables, an elective) into a single required course was approved and will be effective with the November 1993 examination session. The rationale for the merger is that the existing courses overlap and can be combined with no real loss of coverage.

* * *

The new Health Policy elective (G-527, Health Policy) is very popular with candidates, and 492 registered for the exam in November.

* * *

Case studies were introduced on exams I445, Individual Health Insurance and G-522, Continuing Care Retirement Communities and Long-Term Care Insurance for the November 1992 session.

* * *

Grades for the November 1992 exam session were expected to be mailed on December 23 for Exams 100 and 110, January 8 for the remaining Associateship exams, and January 15 for the Fellowship exams. Candidates may call the interactive voice response (IVR) system after these dates for their pass/fail results. The IVR number is 708-706-3579.

* * *

The Society of Actuaries will have a Finance Track operational beginning with the fall 1993 session. The Finance Track offers broad training in financial reporting, valuation, finance, and solvency management.

The track will consist of existing and newly developed courses. Existing courses that will be required in the Finance Track are I-442C, Advanced Topics in Valuation and Financial Reporting-Canada, or I-443U, Advanced Topics in Valuation and Financial Reporting-U.S. and V-580, Corporate Finance. The new courses under development will cover Financial Management, Advanced Financial Management and Taxation (Canada or U.S.), and Corporate Strategy and Solvency Management. Full descriptions will appear in the 1993 Fall Fellowship Catalog.

Continued on page 14 column 1

Refugees master universal language

by Judy Bluder

Refugees Anna Mitina and Serge Kuznetsov still may be polishing up their English, but they speak the universal language of numbers with ease.

When the married couple arrived from the former Soviet Union in the United States last March, they didn't know actuarial science existed. Just weeks later, Anna signed up to take her first actuarial exams in May, and she passed them with flying colors.

Insurance doesn't even exist in the former U.S.S.R., Serge explained, let alone actuarial science. Anna said they have something called "insurance," but it only covers a small part of the cost of loss.

After hearing about actuarial science through Russian friends in New York who moved to the United States about five years ago, Anna was eager to get started on the exams. "We believe we'll only gain, not lose, by taking the exams."

Though they understand mathematics well, the couple is still learning how to speak English. They have a solid working knowledge of the language. They've taken English courses, and the research they completed for their doctorate degrees was in English. Anna received her Ph.D. in mathematics from Kharkov State University in the Ukraine and Serge got his Ph.D. in mathematics from Moscow State University.

Serge Kuznetsov (left) and Anna Mitina research the true meaning of actuarial science in the Society of Actuaries library.

Seeking a better life

The couple decided almost three years ago to move to the United States to build a better life for themselves and their four-year-old daughter. Anna's oldest daughter is a student at the University of Illinois at Chicago.

Both had prestigious jobs in the U.S.S.R. Anna was associate professor in the Civil Engineering Institute at Kharkov State, and Serge was senior research associate at Kharkov State. After the fall of the Soviet government, Anna said the economy turned so bad that she and her husband, who were considered well paid, couldn't live on their salaries. The job situation there cannot be compared to the United States, Serge said. "The economy is completely broken."

Religious discrimination also made living difficult, especially when religion mixed with government. "This is the first problem of the former Soviet Republic," Serge says. Their Jewish faith created obstacles for them, because certain groups would outwardly ban Jews from participating in their programs.

Establishing careers in America

With help from the Jewish Vocational Service in Chicago, Anna and Serge are trying to make ends meet and to find jobs in the mathematical field. Serge would like to find a job as a mathematician but is still considering taking actuarial exams.

Anna took two more actuarial exams in November, and she has been knocking on doors in search of a job.

Although she hasn't had much luck yet, she remains optimistic. "The exams and studying give me some moral support," Anna said. "I like to study and pass exams, but I have to make a living."

The couple found jobs tutoring students from the University of Illinois at Chicago and Northwestern University. Serge tutors math students, a business administration student, and students studying for actuarial exams. Anna tutors two Russian students in mathematics in the couple's home. Both hope to tutor more actuarial students.

Serge is optimistic about an offer from a Chicago college for a possible part-time teaching position in September 1993.

Helping family members

Members of their families still live in what is now the Commonwealth of Independent States, but Anna expects her parents to move to the United States this year. They find it difficult to send anything to their family without cutting through yards of red tape. Food is scarce, and the food they send to their parents is often stolen when it arrives. "Our parents try to tell us the situation isn't as bad as it really is, but we know better," Anna says.

Anna's father is looking forward to teaching in the United States. Her family members are involved in some area of mathematics or physics education. Her mother was an associate professor in mathematics at Kharkov State, where her father is a full professor in physics and mathematics, and her brother has a Ph.D. in physics and mathematics.

Anna speaks admiringly of her father, Gregory Lyubarsky, who is well regarded in educational circles in this country. He wrote a textbook, *The Application of Group Theory in Physics*, that was translated into six languages and is still used at many universities.

Starting a new life

The couple now has refugee status, but they hope to receive their green cards this year. They say everyone they've met here has been very helpful, and they look forward to finding jobs and possibly settling in Chicago. "We have made many friends here," Anna says.

The Equitable cont'd

segment backing the policies going into the closed block were selected for the closed block. The amount of closed block assets was determined as the amount, together with anticipated earnings from these assets and revenue from closed block policies, that was reasonably expected to be sufficient to pay guaranteed benefits and taxes and to maintain the 1991 dividend scales if the experience (of 1990) underlying such scales continues. The closed block assets will decrease to zero when the last policy leaves the closed block. Under no circumstances can the assets allocated to the closed block nor the revenue from them revert to the benefit of stockholders.

Individual policies not in the closed block

For the non-dividend paying individual par policies excluded from the closed block, the NYID required that we protect these policies similar to the closed block policies. We designed a process to prevent the stock company from making more profit from these policies than had been assumed in the calculation of their actuarial contributions.

Distributing actual excess profits would have presented many of the closed block problems again, such as allocation of expenses and valuing of asset cash flows. Therefore, we concentrated on the most significant component of profits for a product (for example, interest spread for annuities and claims ratio for health insurance). We then established a process where experience in these components that proved better than we had assumed in allocating policyholder consideration would be distributed over time to policyholders in each class.

The actuarial negotiations with the NYID were largely completed in time to finalize the plan adopted by our board in November 1991. Work related to the non-dividend paying policies not in the closed block continued into early 1992.

Regulatory obstacles

Many other regulatory hurdles had to be jumped, most at the federal level. We had to negotiate with the Department of Labor for ERISA rulings and with the IRS for corporate and personal tax rulings. The biggest obstacle was the Securities and Exchange Commission (SEC) in the preparation of our prospectus or S-1. Space does not permit even a list of all the issues with which we had to deal. To give you some idea of the complexity, at one of the many drafting meetings with attorneys representing us, Axa, and the underwriters, one of our people asked the underwriter's attorney (who spends 100% of his time on S-1s and related issues), "On a scale of one to ten, compared to other issues you've worked on, how complicated is this one?" The answer was, "Thirteen."

Two issues we faced warrant mentioning. The first was related to whether we could continue to GAAP-account for our traditional life insurance business as we had in the past. Although we were a mutual company, we had been producing statements basically in accord with stock GAAP, attested to by our auditors. For traditional life insurance, we had not been using FAS 60, but a modification of FAS 97 called "Source of Earnings." Everyone, including the major accounting firms and the FASB staff, agreed that FAS 60 gross premiums are not a good representation of revenue for the par business of a mutual company. However, we were still required to follow the dictates of FAS 97, which prescribes FAS 60 as the accounting model for traditional life products, including participating. Therefore, as part of the conversion, we had to revise all our GAAP factors for the affected business.

The second issue was how the results of the closed block should be presented in our GAAP financial statements. We believed the most meaningful presentation would be to show the line-by-line closed block results in a separate column and then consolidate them with the open block. The SEC insisted on a one-line entry on the profit and loss statement, reflecting the net earnings of the closed block. This results in our P&L not being comparable to other companies, because closed block premiums are excluded from revenue, but the expense related to closed block policies (which are not charged to the closed block) are in the open block. Therefore, we'll have a meaningless high ratio of expenses to revenue.

Meeting the deadline

I never believed we could complete everything on schedule — an acceptable plan for adoption by the board on November 27, 1991, and the IPO by mid-July 1992. That we met those ambitious deadlines is a credit to many people, both within the company and outside it. In particular, the regulators (the NYID and the SEC) spent countless hours on this project. We didn't always agree with them, but we could not fault their effort and cooperation.

No more complex transaction in the insurance industry exists than converting a mutual insurance company. Even with all the complexities, many companies are exploring demutualization to gain access to outside capital and to enhance the flexibility of the company to react to changes in the financial services marketplace.

Gary Corbett is an independent consultant and the former senior vice president and chief actuary of The Equitable insurance companies. He is a past President of the Society of Actuaries.

New Zealand cont'd

insights as I discussed these issues with my New Zealand colleagues.

Many SOA members travel abroad, on business and for pleasure. The newsletter of the new International Section will try to list upcoming foreign meetings. If SOA members can tailor their travel plans to include attendance at some of these meetings, they will find it, as I have, to be a rewarding opportunity.

Curtis Huntington, Chairperson of the Committee on International Relations and a Council member of the International Section, is corporate actuary at The New England Mutual Life Insurance Company.

1993 Seminar Calendar

January 19	Cash Balance Plans	Atlanta
February 2-5	Asset/Liability	Wharton, Philadelphia
February 11	FAS 106 (Basic)	Baltimore
February 25	401(a)4 Teleconference	Various locations
April 13	Credit Risk Seminar	San Diego
April 13	Health Care Reform	San Diego
April 14-16	Spring Meeting (Pension, Health)	San Diego
May	Chief Actuaries Open Forum	Date & location TBA
May 3-4	Spring Meeting (Product Development, Financial Reporting	Boston
May 5	Credit Risk Seminar	Boston
May 5	Annuity Seminar	Boston
June	Postmortem on 1992 Reserve Adequacy Analysis - Where Do We Go From Here?	Date & location TBA
June 3	FAS 106 (Advanced)	Baltimore
June 14-15	Spring Meeting (Financial Reporting)	Quebec City
June 16	Credit Risk Seminar	Quebec City
September	Immunization Theory	Boston
September	Duration Analysis	Boston
September 20-21	Valuation Actuary Symposium	West Coast location TBA
October 17-20	Annual Meeting	New York
December	Critical Issues in Underwriting	Date & location TBA

This is a partial listing of SOA seminars and meetings for 1993. Watch for additions published in *The Actuary* throughout the year. For more information, please call Continuing Education, 708-706-3545.

E&E corner cont'd

Candidates who want to focus their elective credits on investment and finance topics can take the following electives:
1) V-480, Advanced Asset/Liability Management
2) V-485, Advanced Portfolio Management
3) I-550, Reinsurance Topics
4) P-363, Pension Funding Vehicles

* * *

To strengthen the foundation in investment topics required of all Fellowship candidates, the structure of the core requirements has been changed effective November 1993. Property and casualty material has been removed from Courses 200 and 210. Canadian candidates and other candidates who want to have some familiarity with property and casualty topics are encouraged to write any of the CAS examinations that earn elective Fellowship credit. (See Section III. 22 of the 1993 Spring Fellowship Catalog.)
1) Course 200 will become a 30-credit course to be offered for the first time in spring 1994.
2) Course 210 will become a 25-credit course.
3) Course 220 will be unchanged.
4) Course V-380 will be modified to become Course 230, a required core course with 15 credits to be offered for the first time in spring 1994.

* * *

Preliminary actuarial exam books containing two sample exams each for Exams 100 and 110 now are available at the Society office.

Help for exams

Georgia State University will sponsor examination preparation seminars in the spring on the following courses: 110, 120, 130, 135, 140, 150, 151, 160, 162, 165, 200, EA1-A, and EA1-B. For more information, call Robert W. Batten at 404-651-2736.

* * *

Study manuals and textbooks for the May 1993 SOA exams are available from Actuarial Study Materials. For a complete list, write to A.S.M., P.O. Box 522, Merrick, NY 11566, or call 516-868-2083.

Dear Editor:

Full mail boxes prompt letters

The September 1992 issue had many worthwhile articles. Even so, the small note on the recent constitutional amendment balloting did not escape my attention. I recall a recent special supplement devoted to this amendment. The vote against was so overwhelming one cannot help but wonder why the issue was even brought to vote, considering balloting is not an inexpensive process. Sampling or survey techniques could have given our Board an indication of the membership's feeling on this issue, and we could have avoided the additional expenses involved with the full ballot.

Also, on the subject of expenses, as a member of several Sections, I receive separate mailings for newsletters and election materials from each Section. It seems that some of these mailings could be coordinated and result in significant savings.

Jeffrey G. Stevenson

* * *

It has been 60 years since I finished high school, 50 since I passed Part I, and 12 years since I retired. These are the significant work-related events in my life.

Although I do not pay dues, I get a lot of mail from the Society. I would be happy with much less, and I am sure I have company. The Society could increase revenue and reduce waste by dividing retirees into four groups, based on the amount of dues chosen. These groups are:
1) No dues. No mailings. Name in *Directory* until death.
2) Nominal dues. *Directory* and *The Actuary* are the only mailings.
3) Moderate dues. Mailings I get now.
4) Higher yet. All mailings.

Note that Groups 1 and 2 would not vote.

The retiree problem is bound to grow in the future. This would be a good time to do something.

Robert E. Larson

Reply from Executive Director John O'Connor

The authors of these letters make some very good points. Many members, retired as well as those actively practicing, may believe they receive more mailings from the Society than are necessary.

The difficulty lies in determining each member's highly individual wants and needs, coordinating timing of mailings, and consolidating mailings in small groups for cost-effective distribution.

While the SOA is a 501(c)3 organization, thus qualifying for drastically reduced postal rates (11.1¢ vs. 29¢), we must continue to explore ways of reducing mailing costs. Apparent savings, however, may not in fact materialize. For example in December, five Sections produced newsletters, with as many as 14,000 members overlapping into one or more Sections. We explored the possibility of consolidating the mailings and discovered it would require 30 different configurations. The increased cost of 30 different setups, plus the added weight per envelope, not to mention the increased probability of clerical errors, made consolidation impractical.

While we "piggyback" mailings where possible, we do appreciate these ideas from the membership for possible further savings. Personally, however, I would hope that these savings efforts would not evolve to the point of disenfranchising our retired members from voting, as their knowledge base is essential to our profession's future growth.

More on proof that 2=1

In the March 1992 issue of *The Actuary*, Edward Scher presented one more proof that 2 = 1. He further stated that the proof did not involve division by zero. However, the proof does involve a "hidden" division by zero. The last two lines of his proof are:

$$2n = 1 + 1 + \ldots + 1 = n$$
$$2 = 1$$

But, we also have:

$$2n = n$$
$$2n - n = 0$$
$$(2 - 1)n = 0$$

Therefore $n = 0$.

Keith E. McGaffin

* * *

We would like to comment on Scher's "proof" of 1=2 (March 1992) and the incorrect explanations given by David H. Berne and Peijian Sun in the June 1992 *Actuary*.

The fallacy in the logic of the proof and the two explanations is that the differentiation has been performed on the expression $(n+\ldots+n)$ in violation of one of the laws of differentiability. A differentiable function has to be continuous (see *Principles of Mathematical Analysis* by W. Rudin, p. 104, Thm 5.2). But no continuous function can be represented in the form

$$x^2 = x + \ldots + x \ (x \text{ times}).$$

For example:

$$1.21 = 1.1 + \ldots + 1.1 \ (1.1 \text{ times})$$

does not have a mathematical meaning. This is true only in the case of positive integers (not all real numbers). Hence differentiating the right-hand side is not justifiable. To keep the discussion of this problem going, we wish to submit a new "proof" of equality of any two real numbers. For any two real numbers x and y

$$x^2 - y^2 = (x-y)(x+y)$$
$$x^2 - x(x+y) = y^2 - y(x+y)$$
$$x^2 - 2 \cdot x \cdot \frac{x+y}{2} + \left(\frac{x+y}{2}\right)^2 = y^2 - 2 \cdot y \cdot \frac{x+y}{2} + \left(\frac{x+y}{2}\right)^2$$
$$\left(x - \frac{x+y}{2}\right)^2 = \left(y - \frac{x+y}{2}\right)^2$$
$$x - \frac{x+y}{2} = y - \frac{x+y}{2}$$

Hence $x = y$.

Hint: The flaw is in going from the second to the last equality to the last equality.

R.K. Barnwal
S.B. Provost

* * *

Recall that, since taking the derivative of a function at a point involves a limiting process, the function must be defined on some open set about the point in question.

On the other hand, the function:

$$f: n \to \sum_{i=1}^{n} n,$$

used in Scher's proof, is definable as such only on the set [0,1,2...]. (For instance, what does

$$\sum_{i=1}^{\sqrt{2}} \sqrt{2} \quad \text{mean?})$$

Thus the derivative of f at any point cannot be considered and is therefore nonexistent. Scher's taking the derivative of f is invalid. The moral of this story is: a function is a function only when its domain is clearly specified.

Shane Forbes

* * *

Speaking of invalid proofs, I'd like to share my favorite.

Theorem: the tangent of every angle is equal to the square root of negative one.

Proof: Let $f(x) = \int (\sin x)(\cos x)\, dx$

Integrate by change of variable: $u = \sin x$, $du = (\cos x)\, dx$, so $f(x) = \int u\, du = u^2/2 = (\sin x)^2/2$

Or, integrate by change of variable: $v = \cos x$, $dv = -(\sin x)\, dx$, so $f(x) = \int -v\, dv = -v^2/2 = -(\cos x)^2/2$

Therefore $(\sin x)^2/2 = -(\cos x)^2/2$, so $[(\sin x)/(\cos x)]^2 = -1$

But $[(\sin x)/(\cos x)] = \tan x$, so $(\tan x)^2 = -1$ and $\tan x = i$ Q.E.D.

I used to tell this one to my calculus classes when I was a math professor. Of course, the moral of the story is that you shouldn't forget the constant of integration.

Ellen Torrance

Summary of OASDI and Medicare programs

Robert J. Myers, former chief actuary of the Social Security Administration, has completed a revision of his *Summary of the OASDI and Medicare Programs*. This 48-page document describes the program as of January 1993. Copies may be obtained by writing to him at 9610 Wire Avenue, Silver Spring, MD 20901, and enclosing five 29¢ stamps (and, if possible, a self-addressed mailing label).

In memoriam

Eugene W. Bates	FSA 1950, MAAA 1965
O. David Green III	FSA 1976, MAAA 1969
Richard Conrad Murphy	FSA 1960, MAAA 1965
David E. Watts	FSA 1954, FCIA 1965

Obituaries detailing the careers of all deceased members are prepared by the Committee on Memorials and printed in The Transactions. *Members with waivers of dues who do not receive* The Transactions *may request copies of obituaries on any deceased member by contacting E.J. Moorhead, Chairperson, at his* Directory *address.*

ACTUCROSTIC

by Nick Franceschine

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

Solution for October Actucrostic: What really galls is a pattern of fuzzy thinking supported by numerically fallacious arguments. The study of left-handedness and longevity provides a recent example. Why are people so susceptible to pop science? It springs from a perverse kind of innumeracy, as well as a penchant for uncritical thinking. It's scary. — Erich Parker, "(Numerobabble: Muddling Through Life with) Pretend Science" (in *Contingencies*, July-August 1991)