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The Actuary

Centennial year calls for celebration, contemplation

by Ian M. Rolland

It is a distinct honor and unique opportunity for me to assume the presidency of the Society of Actuaries in the 100th anniversary year of the profession in North America. A centennial year presents a special occasion for a celebration of accomplishments as well as a careful examination of future challenges. In this article, I would like to start this process, which will reach its climax at our centennial meeting in Washington June 12 – 14, 1989.

Looking back, I feel a great deal of pride in the development of the actuarial profession. Over the years, I believe our principal accomplishment has been a strong education system based on rigorous qualification standards. That has produced professionals trusted by users of actuarial service to perform with competence and integrity. The great majority of our members are pursuing rewarding careers and, as illustrated by recent surveys, they view their personal situations with much satisfaction.

This education system, as well as many other professional activities, is driven primarily through the dedication of hundreds of volunteer members. I suspect such a volunteer endeavor is unique among professional groups, and we can take pride in the effort. This commitment by actuaries to put something back into the profession is a collective strength that has contributed much to our past successes and must be nurtured in the future.

Our meetings and seminars – which have become such an important part of our continuing education – could not be conducted without the unselfish participation of hundreds of our members. Dedicated actuaries also staff the many task forces and committees that explore issues of critical importance to our profession and the publics we serve.

These and other strengths bring our profession to its 100th anniversary with a history of excellence. We are justified in celebrating our heritage.

This anniversary, however, must be a time for preparing ourselves and the profession for the future. Many activities this year will be devoted to that end.

One of the most important issues facing each actuarial organization in 1989 will be the report of the Task Force on Strengthening the Profession. We owe a significant debt of gratitude to Allan Affleck and his task force members, who have produced a report that deserves our careful consideration and, ultimately, adoption by each actuarial organization. The report's recommendations will better rationalize the structure of our profession and enable us to meet our increasing responsibilities in the area of public interface.

The roles of the existing actuarial organizations can make some sense when they are viewed narrowly from the standpoint of each organization. The current structure creates inefficiencies and overlap among the various bodies, though, and it clearly causes major problems as we interact with our publics. These publics view us as a single profession rather than as separate specialties. As long as we remain fragmented, we will have serious problems with our external communications.

Our profession is little known. We have not achieved official recognition as have other professions, and we do not participate sufficiently in the debate on issues of legitimate interest to actuaries. These issues will be increasingly burdensome for us if we do not act soon. I expect the task force report will be accepted by the boards of each actuarial organization in the near future for distribution to the membership. I encourage all Society members to participate in the discussion.

Another important activity befitting our centennial year will be the consideration and implementation of the report from the Task Force on The Actuary of the Future/The Future of the Actuary. This report was considered by the Society Board at the October meeting, and its recommendations should have far-reaching implications. This activity was begun by Gary Corbett early in his presidency, and we are fortunate that he challenged our level of comfort with this study of our future.

The task force tells us the actuary of the future will need a broader perspective than in the past. There will be an increasing need for a high level of expertise in management and communication. This in no way diminishes the technical skills that have been our strength in the past; instead it recognizes that those technical skills can be enhanced through improved communications skills. The report also points out areas where our skills can be applied to new endeavors, thus offering new opportunities to existing and future actuaries. In any case, this report will likely bring about changes in our systems of recruitment; basic and continuing education; and examinations and research.

In 1988, Vice President Irwin Vanderhoof assumed responsibilities for Society research. Under his leadership, the Board made a tangible commitment of money and staff to the revitalization of research. As a result, the Research Policy Committee has been gathering a list of potential projects and has established a process for prioritizing them. This important activity will continue with vigor in 1989 so research can assume its rightful priority. Advancing knowledge through research is a fundamental responsibility of every profession. The record of the Society in this area has been mixed. We are now well on the way to changing that.

As if these three forward-looking agenda items for 1989 were not enough, many other issues will be considered by Society members and their leadership. One issue recently identified by the Planning Committee is the relationship of the profession with U.S. universities; a sub-issue involves the state of actuarial education at U.S. universities. It is increasingly clear that this has been a neglected area. Exemplary university education programs are a point of strength for the profession in Canada. Such is not the case in the United States, even though some excellent programs exist here. We will examine the way the Society can support, encourage and relate to actuarial education programs in U.S. universities.

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Finally, a challenge that seems especially appropriate to address in our centennial year is to make sure all our members – no matter what their field of activity or country of residence – feel represented in the leadership of the Society and that the Society is responsive to their needs. Our meetings and seminars have increasingly recognized the needs of pension and health actuaries. That has been a positive trend and must be continued. Now we need to find ways to make sure that non-company and non-life insurance actuaries have full and complete involvement on the Society Board and Executive Committee. The result will be better decisions and programs even more responsive to the needs of all members.

The year 1989 will be exciting for all actuaries. We will properly and enthusiastically honor our heritage while working on a diversity of issues that should make our future even brighter.

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New retirement history survey proposed for U.S.

Comments are welcome on a National Institute on Aging proposal for a periodic survey to obtain needed data on retirement, health, and economics among retirement-age persons (ranging from as young as 50 or 55 on up). This U.S.-government survey would revive and expand the Retirement History Survey, which was conducted every two years from 1969 to 1979. The planning is directed by Dr. Richard Suzman, Behavioral Science Research Office, National Institute on Aging, Building 31, Room 5C32, Bethesda, MD 20205.

At the September 9 meeting of the Council of Professional Associations on Federal Statistics (COPAFS), Dr. Suzman said that comments on the proposed survey would be considered if received by him within a few months. Some background information on the subject, received through COPAFS, may be obtained from Daniel F. Case at his *Yearbook* address or phone number.

Expert explains expert systems

Features Editor Deborah Poppel spoke with Stephen F. Siegel, Director of Knowledge Engineering at Applied Intelligence Systems, Inc. (AIS). AIS is a New York City-based vendor of expert systems, predominantly in Life Insurance Underwriting. Dr. Siegel has a Ph.D. in Experimental Psychology from Brown University.

Poppel: What is an expert system?
Siegel: An expert system is a computer program that processes information at a level equal to or near that of human experts. It consists of a set of rules, also called the knowledge base, and a computer program to process the rules, also called an inference engine.

Poppel: Are the terms "Expert Systems" and "Artificial Intelligence" (AI) interchangeable?
Siegel: No; expert systems are a susbset of AI, which is the study of how computers can simulate functions of the human mind. Other subsets are robotics, machine vision, machine learning, and natural language understanding. The piece of AI that's the most viable in business right now is expert system technology.

Poppel: Who builds expert systems?
Siegel: A knowledge engineer builds them. This differs from a programmer, who generally works from a well-defined set of specifications. For a knowledge engineer, the biggest challenge may actually be determining the specifications.

Poppel: How does someone become a knowledge engineer?
Siegel: You can't go to school for it, at least not yet. Knowledge engineers are often former programmers. However, as expert systems become more sophisticated, it's becoming more important for knowledge engineers to have an understanding of human cognition – how people think.

Poppel: How is an expert system different from a conventional system?
Siegel: Some people don't think they're different. For me, as a psychologist, the difference is that an expert system is trying to emulate a human problem-solving process. Some people's definition is that it's written in a particular AI language.

One key difference is that the expert system's rules live separately from the rest of the system. An advantage of designing a system this way is that instead of having a long period of defining specifications, you can build the system and change it later, more quickly and efficiently than you can change a conventional system.

Poppel: Can you give an example?
Siegel: Let's say you have a system for underwriting life insurance. It may have a rule that says, "If the proposed insured participates in a dangerous avocation, refer the case to an underwriter." That's a very simple, yes-no rule, which might be sufficient for a first-cut system. If you want to make the system smarter, you can build more choices into the yes answers – "If the avocation is skydiving, how many hours?" You can keep adding possible outcomes, or nodes, to the decision tree.

Poppel: Other differences?
Siegel: Another difference is that our systems are built primarily by the experts, rather than the knowledge engineers and programmers alone. Since the rules don't have to be explained to systems analysts, who in turn explain them to programmers, who then translate them into computer code, you avoid losing something in the translation, and the end product is more likely to do what you want it to.

Normally, you build computer systems to do things involving a lot of computation that people aren't very good at. These systems are algorithmic – they use an explicit set of instructions for calculating solutions. Expert systems are heuristic – they use rules of thumb, which means they will be right most of the time, but not necessarily all the time, sort of like human experts. You might say that in conventional systems, the computer is told how to solve the problem. In expert systems, the computer is told what the problem is, but not how to solve it.

Poppel: What's the hardest part of developing an expert system?
Siegel: The hardest part is coming up with the rules. In many cases they're