Centennial meeting a special celebration

by Robin B. Leckie
Centennial Program Chairperson

More than 1,200 actuaries traveled to Washington, D.C., last month for a landmark event, the Centennial Celebration of the Actuarial Profession in North America.

This historic meeting was memorable for the quality of the presentations, for the cooperative effort among the five sponsoring organizations, and for a pervading spirit of pride in our profession. Held June 12-14 at the Sheraton Washington Hotel, it was indeed a celebration. Planners pulled out all the stops.

As attendees filed into the Monday morning opening session, they knew to expect something special. Three large screens, nearly two stories high, formed the backdrop for a 100-foot-long decorated stage set: on each screen were splashed in technicolor the logos of the sponsoring organizations and the Centennial logo. As soon as a fife and drum corps began presentation of the U.S. and Canadian colors, video cameras focused on them and lit up the center screen with a 15-foot-high video image.

This high-tech treat, known as video enhancement, was used for all general sessions. The video cameras focused on speakers and panelists as they spoke, and the giant screen enabled even those at the back of the large ballroom to catch every nuance of expression.

Monday morning’s session offered another first for an actuarial meeting, an elaborate 12-projector audio-visual show using hundreds of slides at a rate of 90 a minute to picture our progress from 1889 to the present. The heavily animated show took us through our history decade by decade, interspersing photos of actuarial leaders, artifacts and events with scenes from the top news stories of the day. (By the way, videotapes of the slide show are available through the Society Library.)

Another celebratory highlight was the black-tie dinner Tuesday evening, which sparkled with actuaries and their spouses in tuxedos and chiffon. After dinner, the inspired music and antics of the world-renowned Canadian Brass had the audience laughing one minute and listening in awed silence during the next. The congenial Canadians earned a standing ovation.

These special touches helped us support Tom Bowles and the steering committee in reaching our number-one goal: Make this meeting a celebration. We hoped for a memorable, exciting, uplifting event, acknowledging the transition of a profession of which we are very proud.

Our second goal was to put together a program of eternal, rather than ephemeral, substance examining our intellectual foundations. Our speakers did not disappoint. Some standouts include Jim Anderson’s talk: the papers by Jim Tilley and Hans Buhlmann, the keynote speech by Willard Estey (article, page 5) and the close by Ken Clark.

Our 100th anniversary also offers a good time to take a look at other areas: our traditions, our achievements and our professional tools. The program was designed to pull those elements together and then examine as intellectually as possible the tools we will need to meet emerging opportunities. Because we still are in a transition from contingency scientists to actuarial professionals, we wanted to know what the public thinks of us. That’s why we scheduled a session examining “The Challenge from Without” (article, page 13).

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Celebration cont’d

Third, we wanted to encourage unity of the profession. To that end, all five sponsoring organizations contributed to the meeting, and all five logos were displayed on the slide screens throughout the meeting. A panel discussion featuring the five presidents Wednesday morning was a successful exercise in ecumenism (article, page 6).

We were very successful in our fourth goal—encouraging international participation. More than 100 overseas guests—from Europe, the Far East, Australia and points between and beyond—came to share in our celebration. Many brought exquisite gifts (article, page 15).

As a Canadian, I want to mention the large Canadian influence on the Centennial celebration. Both the opening and the closing speakers were Canadian, and the major entertainment was provided by a Canadian group. We are truly a North American actuarial community.

This special edition of The Actuary is being published as a remembrance for those who attended the celebration. For those who missed this historic occasion, we hope that it conveys the spirit of a meeting that made all actuaries there feel good about themselves as members of our profession.

Robin B. Leckie, a former President of the Society and of the Canadian Institute of Actuaries, heads R. B. Leckie & Associates. He is an Associate Editor of The Actuary.
Speakers examine actuarial foundations

Speakers Hans Buhlmann, Ernest J. Moorhead and James A. Tilley examined the foundation of ideas and concepts that make up actuarial science during the general session. "The Challenge from Within," moderated by James C. Hickman, at the Centennial Celebration June 12. Buhlmann is President of the Federal Institute of Technology in Zurich. He also is the Honorary President of the Swiss Association of Actuaries and editor of the ASTIN Bulletin.


The following are edited excerpts from each speaker's presentation:

Buhlmann on risk and uncertainty
"If you want to control risk, you have to do the underwriting properly. If you want to control, also, uncertainty, you have to come out with additional tools, and the tools they designed...are called experience rating and...credibility theory. And may I say it here, credibility theory is really the most prominent contribution American actuarial science has given to the whole world of actuarial science."

Moorhead on history
"By way of contrasting the economic constancy of olden days with the dizzying times that actuaries now cope with, our founding fathers, in 1889, established annual dues of $10 with zero meeting registration fees. Sixty years later, when the Actuarial Society's affairs were wound up, the annual dues were still $10, and there was still no registration fee for meetings. One wonders, though, whether the interests of the profession might have been better served by a somewhat higher dues scale. Particularly after the inflation of World War I, I certainly think that a student nowadays can see ways in which that money could have been wisely spent to the benefit of the profession of the day and of the future."

"As the 20th century dawned, thoughtful actuaries already knew that the extravagances and related misdeeds of, in particular, three leading New York life companies, would arouse public retribution. The Armstrong Investigation in 1905 gave the young Actuarial Society its first big opportunity to exert its influence outside the circle of its own members. They made excellent use of it. Twenty-six members meeting unofficially—the Society had bound itself constitutionally to entertain no resolutions expressive of opinion—found themselves like-minded in their objections to several proposed legislative remedies and were successful in heading off all but one of these. They had, moreover, the great advantage that the Investigating Committee's consulting actuary, 43-year-old Miles Menander Dawson, who had qualified by examination as a Society Member only two years previously, was one of the wisest and most open-minded of that or any other generation of actuaries."

"Between 1909 and 1916, the operative word was 'proliferation.' The American Institute of Actuaries in Chicago, the Casualty Actuarial and Statistical Society in New York, and the Fraternal Actuarial Association in Cleveland destroyed the professional unity that we have since struggled vainly to retrieve. The leaders of the Actuarial Society were not entirely to blame for this—the American Institute was formed by actuaries of companies either quite recently organized or converted from the assessment to the level premium system, and laws in many states prevented life companies from writing casualty insurance. The actuaries of fraternal societies might have been brought under the umbrella of the American Institute but there is no record that this was considered by either of those parties."

"Then in 1914, the time when the need for actuaries was not obvious to the managements of casualty insurance companies, the daunting specter, social insurance, became reality in the form of mandatory workman's compensation insurance in several states and in Canada."

Tilley on actuarial models
"My paper is essentially an essay on mathematical ideas. It is among other
Foundations cont’d

things, however, an exhortation to actuaries, including all of you in the audience, to step away from your current problems and to bend your minds away from the traditional channels of actuarial thought...and to search for the common elements of actuarial models. The reason for searching for common elements is that if we are able to find them, then we can sensibly decide how our future may evolve. If we understand our current problems in a common enough framework, we may reasonably make extrapolations that can stand the test of time.”

"...We may need to expand our models from their purely actuarial aspects and to include nonactuarial aspects. Indeed for many of the problems – the difficulties with our system of tort law, the providing of healthcare to people of all ages, inflation protection, retirement benefits and, particularly pressing right now, the problem of AIDS –...the nonactuarial elements may, in fact, be the most pressing.”

"...We ought to adopt a more systematic approach when we look at actuarial problems...The place to start is to realize that many, if not all, of our actuarial ideas really are expressions of the dynamics, the time evolution of systems, and are embodied in equations of motion, and emotion as well, I suppose.”

“The formal mathematical study of equations of motion is known as systems dynamics. There is input to the system, the system itself is represented by some kind of process in a black box, equations of which really characterize the system, and out of the system emerges output.”

“A slightly more complicated version of a system recognizes that one can impose some control over the input before we let the process have at it, and that, in turn, will modify the nature of the output.”

“And all of this leads more generally to a very fundamental question...of stochastic versus deterministic behavior. The real importance in the study of chaos or...just nonlinear dynamics, is...whether the behavior you’re looking at is governed by deterministic equations of motion or is actually fundamentally random, fundamentally unpredictable. And what’s really interesting is that a lot of behaviors one sees in the world, although they have the appearance of randomness and of unpredictability, when you look a little closer, you find a great deal of the profted unpredictability, or variation, is actually explainable by nonlinear phenomena, nonlinear deterministic phenomena.”

"...Black Monday, in October 1987, for the global stock markets gave a real shot in the arm to chaos theorists. It’s very difficult to believe how that kind of behavior could emerge from a true random walk or any of the other forms of purely stochastic models. But it’s not the least bit difficult to see how that kind of behavior can emerge and, in fact, emerge a little more frequently than those of us would be comfortable with from a nonlinear dynamics model.”

"...If artificial intelligence, particularly voice recognition and other aspects really develop...I can imagine myself, I don’t know whether it’s the year 2025 or 2050 or a little later than that, but I can imagine myself sitting down with my computer. [I’d be] talking to it about the problems I want to work on in...very complicated systems with a lot of interrelated elements. actuarial and nonactuarial elements, and explaining what I thought about the interrelations and explaining what things that I felt really had to show up as output to be useful. And. I can then imagine the computer drawing on the results of other disciplines and having a dialogue with me and, together, getting to a point that makes a lot of sense. I expect that that won’t come early, and it may not come in my lifetime.”

"Nonlinear dynamics may challenge us to rethink the fundamental issue of stochastic versus deterministic models. But in any event, whether that happens or not, the importance of mathematics of financial economics will cause actuaries to become skilled in the theory of stochastic processes. Without significant advances in computers...particularly artificial intelligence and voice recognition, actuarial science probably will not evolve to its potential...I have no doubt that a successful future in actuarial science depends on borrowing concepts and mathematics from other disciplines."
Estey defines professionalism

Centennial keynote speaker Willard Z. (Bud) Estey is a retired Justice of the Supreme Court of Canada, who now is Deputy Chairman of Central Capital Corporation. During the Centennial opening session, "The Actuary: Yesterday, Today and Tomorrow," Estey spoke on "The Challenge of Professionalism." The following are edited excerpts from his presentation:

"There are challenges against the professional world today, particularly in North America and to some extent in the English-speaking Western world elsewhere. Generally speaking, the public takes the view that a profession is somewhat in the age of ancient Druids and [that these] secret societies and mythical groups [are] somehow seeking and getting occasionally, if not too frequently, privileges and preferences over the balance of the population. One of the great duties and responsibilities of professional leaders today is to dispel that mythology...and to convince the general public that the professional is a tool and an instrument for the modern society to improve itself materialistically and in the condition of life."

"There are three general qualifications accepted in literature about professions as spelling out a rough outline of a definition. First, [they] must be associated with a professional undertaking, [involving] skill and intellectual technique. There must be a voluntary association at the core of the profession, and that association must have a code of conduct or ethics for the formalized mode of enforcement upon its membership. One of the great duties and responsibilities of professional leaders today is to dispel that mythology...and to convince the general public that the professional is a tool and an instrument for the modern society to improve itself materialistically and in the condition of life."

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"The actuary has grown way beyond his original and somewhat narrowed task of assessing or quantifying risks on the basis of experience in the field in question. Now the actuary is involved in the examination of widely different transactions and events such as the stock market and its analysis. Of even greater importance is the assessment for the future of [the] impact of new social legislation, assessing assets and liabilities in the world of commerce."
Editorial

We have only just begun

by R. Stephen Radcliffe

The Centennial Celebration meeting in Washington, D.C., was a fantastic success. It was a clever combination of a happy celebration of our many past accomplishments and a serious consideration of the challenges that face our profession. Thank you, Tommy Bowles, for a memorable event.

I came away from the meeting feeling good about our profession. We have much to be proud of. The financial security systems that we have cared for have prevailed through economic ups and downs for more than 100 years. We actuaries were the scientists, architects and engineers who developed, built and maintained these financial security systems. The systems have endured because they were built on a foundation of sound principles. This is the gift of our profession to our society and our economy. Even though actuaries have often been chided for their conservative bent, it is this conservatism that provided the glue that held the financial security systems together during times of stress. Recent surveys have shown that our publics are thankful and generally trust the actuaries with the safekeeping of their insurance institutions.

History has been kind to us. We have been fortunate to participate in and contribute to a free economy. The growth of our economy and these institutions has allowed us a handsome opportunity to grow. We should be thankful.

The future of the actuary looks very bright indeed. Opportunity abounds for our profession to make many more important contributions to society. We need new models, especially in the areas of healthcare delivery and long-term care for the elderly. Much remains to be done in the study of investments and the interrelationship between asset and liability cash flows.

We also need to hone our skills. In the past, we have concentrated our study on the mean values of random variables. The increased volatility in the economy means that we now need to advance our study to the analysis of the standard deviations of these values.

We did not spend all of our time at this meeting congratulating ourselves. Much time was spent considering the serious issues that face the actuary in the years to come. If I could put my finger on one primary threat to our profession, it would be complacency of the membership. Now is not the time to be complacent. Our services are needed now more than ever.

For our ideas to be relevant, they will have to be useful to the publics we serve. For the ideas to be useful, we are going to have to work harder than we ever have before. Neither can we afford to be reticent about our ideas. The public wants to hear from us and needs to hear from us. We are the keepers of the truth.

Our history demonstrates that we have usually taken a passive role as advisers. In the future, we may need to take an active role and be advocates. Not necessarily advocates of political issues but advocates of truth — the truth inherent in the ideas and principles of our profession. To be effective advocates, we are going to have to learn to clearly communicate our opinions and make a commitment to advance them into the public domain and public debate, or we will be ignored.

So, we have taken a moment to pause along our busy paths to feel good about ourselves, but we cannot rest too long. There is much left to do. May we have as much good fortune in the next thousand years as we have had in the first hundred.

R. Stephen Radcliffe is Senior Vice President and Chief Actuary of American United Life Insurance Company. He is currently a Vice President on the SOA Board and Guest Editor for this Centennial issue of The Actuary.
Kevin M. Ryan, President of the Casualty Actuarial Society (CAS), said the casualty actuarial profession recently entered a new phase. In the past, CAS activities focused on the educational process, but now activities deal more with the organization's external and internal relationships.

The CAS not only is defining its own profession through the establishment of principles, but it also is involving a broader audience in its activities, he said. Ryan, President of the National Council of Compensation Insurance, predicts that the CAS will grow and play a larger role in the future.

Elimination of fragmentation in the profession is a key issue facing all actuaries, said Ian M. Rolland, President of the Society of Actuaries. "My hope is that we can enter the 1990s with single public interface bodies in the United States and Canada," he said. "And we need more clearly defined roles for the other actuarial organizations. This will be a major step toward our more effective participation in public discussion on issues relevant not only to actuaries but also to society in general."

The issue most prominent for the Canadian Institute of Actuaries (CIA) is defining the nature of the FCIA designation, said CIA President Peter C. Hirst. "Is it a license to practice, an educational degree, or both, and to what extent?" he asked.

In addition, he said the CIA is asking itself if it provides sufficient continuing education opportunities for its members in different practice fields and what the Institute can do in the field of research. "These are all questions we are addressing on both short-term and long-term basis within the CIA," said Hirst, of Actrex Partners, Ltd.

The presidents of the five organizations that sponsored the Centennial discuss the issues facing their organizations during the general session. "The Challenge from the Leadership." From left are Ian M. Rolland, SOA President; W. James MacGinnitie, AAA President; Kevin M. Ryan, CAS President; Peter C. Hirst, CIA President; and David L. Hewitt, CAPP President.

Robin B. Leckie

The five presidents discussed how their organizations plan to respond to the key recommendations of the Task Force on Strengthening the Actuarial Profession.

MacGinnitie said the Academy already has taken several steps in that area including restructuring volunteer committees so they can be more effective and publishing a new magazine, called Contingencies, to reach the nonactuarial audience.

"It isn't so much that we have too many voices," Ryan said. "I think we don't have a voice. The whole process should focus more on the substance of what the problem is, which is that we have to become much more vocal and approach the problems that society is faced with."

Hirst said the CIA would do anything it can to help strengthen the profession provided its own unified position is not weakened in the process.

"We are going to need to pay more attention to our communication skills so we can transmit to our publics what we are all about and what our findings are," Rolland said. Actuaries will have to be able to deal with more managerial problems that may not have a "black and white" solution. "I think this is the kind of world that actuaries are going to have to live in in the future if we are going to be effective," he said.

Hewitt said the real challenge of enhancing the role of the actuary is to admit a broader spectrum of talent to the actuarial profession.

MacGinnitie agreed with Hewitt, adding, "I think that the action of attracting more broad-based, larger context, better trained actuaries to the profession and at least relatively fewer of our traditional rear-window cartographers will make it easier to participate effectively in public policy discussions."

Contingencies (Secretary)

Continued on page 10 column 1
Using the gavel given to the SOA by the Institute of Actuaries in November 1949. Thomas P Bowles, Jr. calls to order the first meeting of the Centennial Celebration. The gavel was carved from an oak beam of Staple Inn Hall, destroyed by a bomb in World War II.

An ice sculpture and a replica of the Capitol were displayed as part of the decorative theme at the Monday evening reception.

Roger Corley, left, President of the Institute of Actuaries, presents lan Rolland, SOA President, with a decanter in honor of the Centennial.

Right, above: Edward Cowman displays the index he compiled of 100 years of actuarial literature at the artifacts exhibit. His index, an invaluable research tool, covers TASA, RAIA, TSA, RSA, TSAR and The Actuary.

John Angle, left, strikes up a conversation with President-Elect Allan Affleck at a Centennial reception.
Geoffrey Crofts and wife, Jean, enjoy the Centennial festivities.

Dwight Bartlett, right, presents Jack Moorhead and his wife, Iris, with a leatherbound copy of Moorhead's book, Our Yesterdays: The History of the Actuarial Profession in North America, 1809-1979, and a framed parchment proclamation in appreciation for his work to preserve the history of the profession.

One of the 10 remaining arithmeters - the calculating machine invented in 1859 by Elizur Wright - was donated to the Smithsonian Institution during the Centennial Celebration. Making the donation is John A. Fibiger, center. President of The New England. Receiving the arithmeter, which has the power and accuracy of an 80-foot slide rule, are Steve Lubar and Peggy Kidwell of the Smithsonian.

Frank Livsey questions panel members during the breakout session on "Pensions Today and Tomorrow."
Presidents cont'd

While actuaries can have a significant impact on many social issues, Rolland said they are hampered by the lack of public understanding about how the private insurance mechanism works.

"And they (the public) have, in my view, too low a level of trust of the people in our business," Rolland said. "I think the actuary, maybe more than any other person, has a role in that educational process. and it has to be directed not only at public policymakers at the federal and state levels, but at the public in general. That's because, in the last analysis, what we do in the private sector is based upon support from the average person who votes and elects a representative."

Often, MacGinnitie said, actuaries must bring unwelcome news to the public. The public wants the security of automobile accident insurance, healthcare insurance and retirement funding — and the actuary has to add up the final bill.

Exams and continuing education

"The continuing education question is critical as well," Ryan said. "We must continue to develop programs and make them available to working actuaries so that we have a group that continuously updates their experience and moves forward in the ability to handle problems as they emerge. I feel confident that we're doing both very well."

Rolland said he is pleased with the new flexible SOA examination system. In addition, he said, "I think we have to be able to demonstrate to the public that not only are we qualified up front through an examination and education process but that we have a process in place for keeping up-to-date on current issues in the actuarial area and are therefore qualified to continue our practice."

MacGinnitie said, "Finally, I'd say that this whole flexible system that the Society of Actuaries has moved toward provides the opportunity for the big step over time toward a more common core for all actuaries, be they casualty, pension, health, life or actuaries of the third or fourth kind. And I'm really distressed to see the level of resistance that that has encountered, the opposition to alternative college credit, the opposition to mandatory attendance at certain kinds of seminars, and the hue and cry from the students about increased travel time."

Technology, competition to change profession

by Judith Bluder

The future actuary faces major changes as a result of updated technology and competition from other professionals. concluded a panel of actuaries during the final general session at the Centennial Celebration in Washington, D.C.

Centennial Steering Committee Chairperson Thomas P. Bowles, moderator for the session titled "The Response to the Challenges," posed questions to panel members about a number of topics.

Less time will be spent on well-structured problems, which are the "traditional grist" of the actuarial trade, and more time on ill-structured problems, said panel member Robert C. Winters, Chairman and CEO of the Prudential Insurance Company.

"We have seen the old actuarial function folded into business units designed to take organizations closer to their customers," he said. "We've seen more use of teams in both problem solving and problem identification."

Panel member E. Sydney Jackson, Chairman of the Manufacturers Life Insurance Company, said his company also relies on the "team approach" to solve some problems. In particular, he said, that approach is used because of the decreasing importance of traditional life insurance and increasing interest in short-term investments, variable life insurance and universal life.

He said the team often is led by an actuary but sometimes by a lawyer, accountant or marketing professional. "So we have a lot more talents to solve these complex problems and rapidly changing ones," Jackson said.

In addition, he said, there are other dramatic changes in the life insurance business, including the increasing pressure on profits. Competition in the short-term products offered by some companies means they have thin margins on their new products.

The impact of AIDS is another question actuaries must address, he said. "So we see from that an increased pressure on professionalism. Are we going to be competitive at the expense of profits? The pressure is on the actuary to maintain his professional standards and yet resist peer pressure in some instances."

Jackson also addressed how internationalization of financial services in other businesses will offer new challenges to the actuary. Over the next 10 years, he said, internationalization will have a great impact on the U.S. life insurance business.

The American market is relatively mature, and expansion outside

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From left, Thomas P. Bowles questions panel members John J. Byrne, Robert C. Winters and E. Sydney Jackson during the general session. "The Response to the Challenges."
Change cont'd

of the United States will come in 1992, he said. "Europe, in 1992, will be a common market, which will offer great opportunities for enter-
prising life companies. Even more will surface in Pacific Asia, where full industrial development is terrific and where insurance services are very elementary."

The results will be a "harmonization" of some regulations. That already has happened with bank capital ratios, GAAP accounting and the European Common Market rationalizing regulations, he said. In addition, he said actuaries will be exposed to new ideas and new products by American companies doing international busi-
ness and foreign companies coming into the United States.

Bowles asked, "How can the right kind of actuary be produced to fill the needs caused by these challenges?"

"I would emphasize that he (the actuary) does need to be more of a businessman than a mathematician," Jackson said. "He has to show a willingness to change, because the world is going to change. That means continuing education, not only in his existing discipline, but looking toward the new areas that remain to be explored."

Panel member John J. Byrne, Chairman of the Fireman's Fund Corporation, said that the key in the casualty/property insurance business is for actuaries to be more balance-
sheet oriented.

He said the casualty/property business experiences "terrible cycles."

"We ruin America's faith in us, we ruin our agency relationships, even CEOs get fired."

Those cycles can be blamed largely on misstated balance sheets, Byrne said.

In 1981 and 1982, he said casualty/property companies were telling the world they had about $50 to $55 billion of policyholder surplus standing beneath their casualty/property liabilities. Actually, Byrne said, the companies had only $10 billion in surplus, and that was because their balance sheets weren't stated properly.

"Where were the actuaries who signed those statements?" he asked.

"I like an actuary who says, 'This is your balance sheet,' and five years later you can say, 'Yeah, he (the actuary) called it pretty close,'" Byrne said. "More actuaries need to make those calls."

Bowles also asked Byrne how he views the difference between life and property/casualty actuaries.

Property/casualty actuaries tend to work in less well-structured programs than life actuaries. Byrne said. In addition, property/casualty actuaries become more involved earlier in their careers in the "real business" of marketing, distribution and design.

Another question discussed by the panel was whether the collective body of actuaries in North America should reexamine their whole process of seeking credentials and licensing.

Winters said in terms of official recognition that U. S. actuaries have sought domains of exclusivity before and since 1965. In 1965, he said, U.S. actuaries tried to obtain a congres-
sional charter similar to the Canadians' federal charter, but that attempt failed.

In general, actuaries have been unsuccessful in gaining official recognition. Winters said. "In part, we've run up against a kind of American elitism.

Those who would claim for themselves a domain-exclusive operation have to be able to define the domain. What are the activities you're talking about, and what is the public interest which is served by limiting access to that behavior? We've succeeded substantially in connection with signing off on the statutory state-
ments of life companies and foreign casualty companies. We have succeeded to some degree, but not to the degree that many have hoped.

Bowles asked how the difference in U.S. and Canadian environments will affect actuaries' professional response.

Jackson said he is concerned with the American problem of all the different jurisdictions. The rules in Canada are general and place a great deal of responsibility on the indi-
vidual actuary and on his profession.

"I wonder if the detailed regulations in the United States might become more general if we had a better recog-
nized profession in the United States," he said. "And I think that is very much in the public interest, because in times of rapid change, detailed regulations don't change as fast as the world is changing."

Bowles's enthusiasm was fueled by the overwhelmingly positive audi-
dence reaction to several innovations at the Washington, D.C., celebration. He said, "Everyone seemed to appreciate the video enhancement used in the general sessions. With a live-action video image of the speakers on a giant screen, everyone had a front-row seat."

Bowles, interviewed after the Centen-
nial meeting, said organizers are exploring use of video enhancement at upcoming Society annual meetings.

Compliments also were heard on the animated, 12-projector audio/visual show chronicling the history of the profession. "We wanted to give actuaries a sense of their history and pride in it. Our goal was to make it emotional and inspirational — and to give everyone goosebumps."

Centennial innovations may change future meetings

by Diana Montgomery

The Centennial Celebration brought the dawn of a new era in the way actuarial meetings are handled," said Thomas P. Bowles, head of the meeting's steering committee.

"It set a new standard for meetings to come."

Centennial celebration social events also were more ambitious than usual. A Monday evening reception offered attendees a chance to mingle for two hours while sampling a large assortment of hors d'oeuvres. They listened to a band play music from the 1920s to the 1980s chronologically as slides from the appropriate eras.
Innovations cont’d

flashed up on the three screens at the back of the ballroom.

"The atmosphere was festive," said Bowles. "That kind of atmosphere makes people more relaxed, friendly and communicative." Bowles said new heights of elegance were reached with Tuesday night’s black-tie dinner featuring the Canadian Brass. "If registration fees can support events like that, we might want to offer them," he said. "The dinner brought some new life to the meeting."

Kenneth T. Clark, who delivered the meeting’s closing remarks, presents Thomas P. Bowles, Jr. with an engraved silver platter in appreciation for his hard work as head of the Centennial Steering Committee.

Bowles, who began working on the Centennial Celebration four and one-half years ago, estimates he spent one-half of his time last year on the meeting and one-third the year before that. Much of that time was spent on the phone. "Until you work on a meeting like this, you have no idea the amount of planning and details involved," said Bowles, who left on a two-week vacation to British Columbia and Washington State immediately after the meeting.

"I was lucky to have the right people working on this with me. Members of the steering committee – Ed Boynton, Harry Garber, John Gardner and Stan Hughey – were vital to this meeting’s success. There couldn’t be a better person to head the program committee than Robin Leckie, who had a hard-working committee in Ed Friend, George Morrison, Dick Robertson, Bob Shapiro and Mavis Walters," he said.

"Our collective goal was to have people leave the meeting saying, ‘Golly, I’m glad I was there for that.’"

Fundamental Concepts to shape standards and principles

Charles L. Trowbridge’s new monograph on the Fundamental Concepts of Actuarial Science may help shape actuarial standards and principles for the next 100 years.

The Actuarial Education and Research Fund (AERF) commissioned Trowbridge early in 1988 to author the monograph, which identifies the fundamental intellectual concepts of actuarial science. It was distributed to attendees at the Centennial Celebration.

Trowbridge, a former SOA President, said in an interview that the monograph is an important stepping stone for developing actuarial standards and principles. Without fundamentals, it would be impossible to develop standards and principles, he said.

However, Trowbridge said, the monograph is somewhat out of the ordinary. "It’s kind of unusual. I don’t know any other profession that’s done this," he said.

In the introduction, Trowbridge described a three-tier structure the profession appears to be moving toward. The first level includes the fundamental concepts at which the monograph is aimed. The second level is the principles actuaries employ, as they apply fundamental concepts to practical problems. The last tier is composed of actuarial standards.

He also emphasized the importance of unity in the actuarial profession. In an interview, he said the gap between life and casualty actuaries needs to be filled, and all actuaries must unite.

In the monograph, Trowbridge also touched on the evolution of the profession. He wrote, "In earlier days, most of those who thought of themselves as actuaries were employees of life insurance companies and hence part of the insurance industry. This close connection between the actuarial profession and the insurance industry is largely a thing of the past."

In one of the book’s lengthier chapters, Trowbridge addressed the economics of risk, citing the special relationship actuaries have with financial security systems as one of the foundations of actuarial science.

In the same chapter, he discussed the uniqueness of the actuarial role.

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Centennial panel examines challenges from without

by Judith Bluder

Members of an expert panel at the Centennial Celebration called for actuaries to change some of their old ways and expand their abilities in response to challenges from employers, the government, regulators and policyholders.

In Chapter II, Trowbridge identified probability and statistics, the study of random variables, as another foundation of actuarial science. In Chapter VII, he said the cluster of ideas surrounding classification, selection and antiselection also is a fundamental concept.

Trowbridge discussed assumptions, conservatism and adjustment in Chapter VIII. He defined actuarial conservatism as "the use of any actuarial technique (usually but not always the choice of one or more assumptions) that leads to a higher price for a set of benefits, or a higher value of liability..."

In the Chapter VIII summary he wrote, "Except where prohibited by law, or effectively barred by competition, actuaries tend to incorporate some degree of conservatism into their calculations and their recommendations...The actuary's bias in favor of the conservative approach is based on a conception of the public interest, and on a preference for the results of erring on the conservative side as opposed to the consequences of the opposite kind of error."

The final chapter dealt with the role of fundamental concepts in the development of standards. Trowbridge wrote, "This monograph cannot anticipate the actuarial standards or actuarial principles that may eventually develop, but it may be useful to illustrate some of the ways in which foundations, principles, and standards might be interrelated."

The American Academy of Actuaries will send complimentary copies of the monograph to members with the September/October issue of its magazine Contingencies.

Others interested in a copy of the monograph may send a charitable contribution to the Actuarial Education and Research Fund, 475 North Martingale Road, Suite 800, Schaumburg, IL 60173.

In addition, he said employers will challenge their actuaries to better understand how products are sold. Gerken suggested actuaries spend some time in the marketing departments of their companies as part of their training.

"Everything I've said so far brings me to one major conclusion," he said. "Actuaries will have to have a broader background and, in many career roles, will have to become generalists."

Casualty insurance

From the view of employers in the casualty insurance business, panel member Carlton W. Honebein said the challenge facing actuaries is to help companies make a profit consistently over time. Actuaries also have a responsibility to accurately estimate the liabilities listed on the balance sheet.

In addition, he said actuaries must learn to be more individualistic and proactive. The way in which rates are determined has changed. In the past, actuaries determined rates in a group effort. But today, in a world of open competition and competitive ratemaking, actuaries cannot depend on their "strength in numbers," said Honebein, President of AVCO Financial Insurance Group.

"To me, the challenge from the employers is clear profitability and adequate reserves," he said. "But, it's really up to the actuaries to be influential in helping corporate management get to those answers. Actuaries must not be passive by-players."

Government challenge

The challenge from both the Canadian and U.S. governments will be for actuaries to conduct thorough cost analyses of existing social insurance and pension programs and of proposed changes to those programs, said panel member Robert M. Hammond.

"However, I think the challenge will be for actuaries to convince governments of this fact by producing credible results and by being able to explain and justify them."

In addition, government will continue to seek actuarial opinions on...
the adequacy of actuarial reserves for insurance, pension and social security benefits, said Hammond, Deputy Superintendent of Financial Institutions in the Office of the Superintendent of Financial Institutions, Canada. "But I think they'll want more. In my opinion, they will also be looking for opinions on solvency and continuing future financial viability. I also believe that they'll be looking for actuaries to provide advice on the ramifications of legislation."

Governments also will expect actuaries carrying out these activities to put the interest of policyholders above those of shareholders, he said. Consequently, a solid set of guiding principles must be created to support the integrity and independence of the actuary.

Policyholders

From the policyholder's point of view, Honebein said the largest challenge to actuaries is to propose lower premiums and affordable prices.

He introduced a concept called paradigms, which are preconceived mental boundaries causing a person to accept or reject additional data. He said actuaries have their own set of paradigms as a result of the exposure they have had to inflation, high medical costs, a litigious society and other factors.

"If we can learn how to break out of those paradigm traps that we carry in our minds, we may be able to meet the challenge from insurers for affordability," Honebein said.

Actuaries are influenced by several paradigm traps, including prices, demographics, the U.S. self-centered view, the "erosing concept" of personal responsibility, and cost control, he said.

With prices, Honebein said actuaries seldom if ever ask, "Can the buyer truly afford the cost of the product we are proposing? In the future, I think we're going to have to perhaps ask that question as the first step, determine what the buyer can afford and then come around and compute the price for whatever can be included in the package that's being offered by the company."

Demographics and the "changing customer" also influence the actuary, he said. Actuaries depended for many years on historical data to figure their rates. But as the population changes, the data used for these rate forecasts are going to become "very suspect."

"We won't be able to use the looking-out-the-back-window ratemaking approach very much longer."

In addition, he said U.S. companies must change the view that they are the center of the world insurance market. "It's all too prevalent a paradigm of U.S. companies to ignore what is going on overseas in the international marketplace. This really isn't a problem for people in other countries because, for the most part, they've always had to go outside their own borders in order to generate the kind of revenue and premium that they wanted."

Honebein said actuaries must learn to venture outside of the United States and examine overseas companies.

Professional identification

Overall, the actuarial profession faces many challenges, including professional identification, a fiduciary responsibility and public issues, said panel member James C. H. Anderson.

The actuarial profession worldwide confronts identification problems, he said. What actuaries do is not widely known. And in order for a profession to receive lasting recognition and respect, society generally must know what a profession does and who its members are. In the United States, these problems are compounded by the fragmentation of professional organizations, each of which qualifies its own members and which even compete with each other for relative status and recognition.

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**Centennial panel cont'd**

“We the members of a small and obscure profession, whose members have nevertheless achieved notable success, must demand that our leadership take the steps necessary to receive more widespread recognition and respect,” said Anderson, of Tillinghast/Towers Perrin. “And, when our leadership responds to this demand, we must be prepared to follow no matter how unpopular those steps may be among important but complacent segments of our membership.”

In addition, he said actuaries who are not involved in the regulatory process must share with regulators the responsibility for the soundness of insurance companies, pension funds and other fiduciaries they serve. “Full acceptance of this responsibility may require some actuaries to develop skills that are not now part of our traditional scope.”

Finally, Anderson said actuaries have not contributed as actively as might be expected to the discussion of public issues within their areas of expertise. Some of those issues include proposals to socialize rates for certain insurance coverages and to finance retirement income needs, medical expenses and long-term care. Many actuaries may be reluctant to participate in debate because they are affiliated with insurance companies and other organizations with a vested interest in the outcome of the issues.

Anderson said the profession in North America will continue to flourish as long as actuaries keep pace with the flood of new challenges headed in their direction. “Our enemy is complacency. Our friend is constructive change. We are members of a young profession that has already conferred upon its members both honor and personal success. We, the inheritors of that legacy, have the duty to bequeath it undiminished to our successors.”

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**Overseas visitors present anniversary gifts**

Several overseas actuarial organizations helped toast the 100th year of the actuarial profession in North America at the Centennial Celebration in Washington, D.C. Many sent representatives who came bearing congratulatory gifts for the sponsoring organizations.

The Actuarieel Genootschap presented a special flowered plate inscribed with a few words about the Centennial while the Institute of Actuaries in Japan offered a hand-painted flowered red vase.

From the Faculty of Actuaries in Scotland, the sponsoring organizations received a Quaich, or Scottish drinking cup, and from the International Actuarial Association they received a large engraved pewter tray.

The Institute of Actuaries of Australia presented a mounted opal, the Royal Association of Belgian Actuaries gave a book entitled "Flemish Art," and the Actuarial Society of South Africa presented a serpentine stone sculpture, entitled "Tribal Dance."

From the Institute of Actuaries, the sponsoring organizations received a crystal decanter. The Swiss Association of Actuaries gave a round pewter plate decorated with the symbols of 26 cantons and demicantons representing the states of the Swiss confederation.

The Danish Society of Actuaries presented a book entitled "The Queen, the Shepherdess and the Chimney-Sweeper," about the making of a film based on the story by Hans Christian Andersen. From l'Association des Actuaires in Paris, the sponsoring organizations received an historical drawing.

A plaque inscribed with a message noting the Centennial Celebration was given by El Colegio Nacional de Actuarios, S.C., Mexico, and a small Labradorite stone was presented by Finnish actuaries.

From the Society of Actuaries in Ireland, the sponsoring organizations received a small silver bowl inscribed with symbols of Irish history, and Svenska Aktuarieforeningen, Sweden, presented a coin featuring the likeness of the renowned Swiss statistician Harald Cramer.

Not pictured in the accompanying photograph is an etching of the main entrance of the University of Technology in Vienna, presented by the Aktuar Vereinigung Osterreichs.
News conference draws media attention to Centennial

by Diana Montgomery

Seventeen reporters representing such publications as Barron's, the Washington Post and the Journal of Commerce attended a news briefing June 13 spotlighting the Centennial.

Held at the Capital's National Press Club, the news briefing was moderated by James J. Murphy, Executive Vice President of the American Academy of Actuaries. Five other actuaries representing the health, casualty, life, pensions and employee benefits areas discussed trends in their fields and summarized papers delivered during the celebration.

Murphy briefed reporters on the Task Force Report on the Actuary of the Future, saying that demand for actuaries now exceeds the supply and that it will continue to increase as actuaries move into nontraditional areas. Murphy also referred to a recent survey of life insurance CEOs in which 95.7% said they were satisfied with actuaries and their work and 68.2% saw a need for a greater number of actuaries in the future.

The press briefing, which gave reporters an indication of the breadth of the role of the actuary, is part of the "Forecast 2000" Centennial public relations campaign supported by the five sponsoring Centennial organizations. The campaign's purpose is to increase public understanding of the role of the actuary.


Robert Sturgis of Tillinghast/Towers Perrin released figures on "The Cost of the Tort System." and Yuan Chang, Vice President of Metropolitan Life Insurance Company, talked about "Preparing the Continent for a Graying Population." Chang urged the federal government to use a "Generational Equity index" to measure how well the working population is preparing for its retirement years.

The Centennial in historical perspective

How does the founding in 1889 of North America's first actuarial organization fit into world actuarial history? Here's a partial listing of non-North American actuarial organizations and their founding dates:

1848 – Institute of Actuaries
   London
1856 – Faculty of Actuaries
   Edinburgh
1888 – Actuarieel Genootschap
   Amsterdam
1892 – Institut des Actuaires Francais
   Paris
1895 – Association Royale des Actuaires Belges/Koninklijke Vereniging van Belgische Actuarissen
   Brussels
1899 – The Institute of Actuaries of Japan
   Tokyo
1901 – Den Danske Aktuarforening
   Lyngby, Denmark
1904 – Den Norske Aktuarforening
   Oslo
1904 – Svenska Aktuarieföreningen
   Stockholm
1905 – Association of Swiss Actuaries
   Zurich
1922 – Suomen Aktuaariyhdistys
   Helsinki
1929 – Instituto Brasileiro de Atuaria
   Rio de Janeiro
1929 – Actuarial Society of India
   Bombay
1929 – Istituto Italiano degli Attuari
   Rome
1929 – Asociacion Mexicana de Actuarios
   Mexico
1933 – Association des Actuaires Diplomes de l'Institut de Science Financiere et d'Assurances
   Paris
1942 – Instituto de Actuarios Espanoles
   Madrid
1948 – The Actuarial Society of South Africa
   Cape Town
1948 – Deutsche Gesellschaft fur Versicherungsmathematik
   Hamburg
Information technology could overturn actuarial concepts

Information technology may change the very concept on which the actuarial profession is based. The result could be the reduction of all risk categories to a category of one. John Diebold, chairman of the Diebold Group of management consultants, told a luncheon audience at the Centennial Celebration. Diebold said computers have the ability to handle all genetic code information becoming available in the late 1990s when genetic mapping will be completed. While the amount of information in each individual’s DNA is perhaps equivalent to 2,000 pages, processing it is a trivial job for a computer. He said this development could eliminate the concept of class of risk consisting of a large number of people and their probabilities, reducing the risk of class to only one.

If this actually happened and privacy issues did not prevent its use, it would turn upside down the most fundamental concepts with which actuaries deal, said Diebold.

Information technology also permits insurance companies to innovate in new fields. As an example, Diebold cited a new concept of insurance that would cover all the risks of life. Companies can integrate and analyze all the data they and others collect on customers. This was not possible in the past when information about health, casualty and property was each segregated in separate "back offices." This concept could represent an innovative way of responding to consumers just as computers made possible the money accounts covering brokerage and checking accounts, said Diebold, author of a basic book on automation.

Diebold said, "It takes a long time to change organizational structures, but the impact is fundamental. I have always said that the first thing to happen with computers is that they will do yesterday's business more efficiently. That has happened. The second thing is that one will start to do new things using the computer, and that is happening. Third is that the society in which the business exists will be changed by the computer, and that is where major business opportunities lie now and in the 1990s. As leaders in your field, you must think about the impact on all three levels."

"Actuaries were one of the earliest users of the technology, and you know that you can learn from testing. You have built a reservoir of knowledge of model building. Now you must recognize that information technology is changing not only routine processing, but your world."

"Americans are successful innovators. In the 1990s you will be called upon to innovate in your profession as much as we do in technology."

Information technology is also changing the definition of the problems actuaries address. Diebold summarized some of the consequences to be:

- Insurance will have to be priced before there is a risk experience in the area.
- The function of providing protection will be changed.
- American insurance companies can get into Europe and Japan by innovating in the difficult insurance problems produced by EDI systems, traffic control, smart highways, etc.
- An insurance perspective can be brought to the design of these systems. Actuaries with their analytical perspective could contribute greatly.
- All risk categories could be reduced to a risk category of one. Whether privacy laws would permit this is a different issue that will also have to be addressed.

Diebold concluded his talk with some practical questions for actuaries to ask:

1. How can I use the technology to make a difference in our business?
2. What constraints have I always accepted that I should now question?

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Information cont'd
- What insights would allow my company to offer attractive products at a reasonable risk?
- What new approaches or methodologies are now possible?
- How are my competitors using information technology? Is our ROI a valid criterion when considering the years past and years ahead?
- What is the best technical solution for my needs: PC or mainframe approaches?
- How are innovative users of the technology justified in other areas of the business and in other companies?

Clark gives epilogue

Kenneth T. Clark closed the Centennial Celebration with a few inspiring and thoughtful words about the years past and years ahead for the actuarial profession.

Today, Clark said the task of the actuary is more difficult than it was 100 years ago. However, actuaries now have greater means to carry out that task. "Our actuarial predecessors were given one talent but, unlike their counterparty in the Biblical parable, they behaved like the man with ten talents. We have been given ten talents and we must behave accordingly." The "moral" of the Centennial meeting was neither new nor surprising, but remarkable because it has been so forcefully, so repeatedly, and so eloquently expressed: "the lonely, hard and narrow path of public service is our only path to glory and prosperity," he said.

Clark concluded, "...Let us now go forth from here, strengthened in professional spirit and technical lore, and make our second century worthy of our first."

Descendant of Elizur Wright

Jack Moorhead alerted us to the passing of Christopher Wright, a great-grandson of the noted 19th-century American actuary, Elizur Wright. Christopher Wright, besides pursuing an illustrious career of his own, was helpful to Jack in assembling information on Elizur Wright for the book, Our Yesterdays: The History of the Actuarial Profession in North America, 1809-1979.

Christopher Wright’s education included a bachelor’s degree with high honors from Harvard University, a master’s degree in philosophy from Harvard, and two years at Oxford University, England, studying philosophy on a Fulbright scholarship. His working career included a stint at Los Alamos, New Mexico, on the Manhattan Project (which interrupted his college study of physics when he was 18). He also taught at Williams.

Mortality trends of males and females

Historically, male mortality rates were below those of females. However, that trend has been reversed within the last 100 to 150 years, causing revolutionary changes in the role of women.

This subject was examined in a paper on "Mortality Trends of Males and Females Over the Ages" by Barnet N. Berin, George J. Stolnitz and Aaron Tenenbein, presented at the Centennial meeting.

In the paper, which covers millions of years of history, the authors reviewed the consequences and changes that resulted from the differences in male and female mortality rates.

Since the beginning of the human species, the authors said, low life expectancy along with high maternal and infant mortality rates caused low population growth. Women had to conceive early and often if populations were to survive under the conditions of shortened life expectancy. Therefore, females were forced to care full time for their children. Until recently, that pattern continued worldwide for millions of years.

The authors wrote, "From the beginning of human existence, group survival must have required maximum attention to childbearing and child rearing; hence, to sex-defined divisions of function...As a result, by default, men were to be the 'natural' leaders." But as life expectancy increased, those sex-defined divisions tapered off.

The authors said the overall improvement in mortality over the first 80 years of the 20th century has been both substantial and continuous. Life expectancy at age 0 rose from 46.4 years to 69.9 years for males and from 49 years to 77.5 years for females.

And since life expectancy rates have increased, especially for women, the authors said they expect women’s efforts to achieve fully equal status, both inside and outside the family, to be reinforced by women’s increasing numerical superiority in the middle and upper adult ages.

The authors concluded, "If males historically could not be challenged in societies which were beset by population-threatening mortality and by needs for survival, it should follow that today’s radically transformed vital rate conditions might well indicate ever-rising sociopolitical and economic potential for women."
On behalf of the Government of Canada, I would like to convey my warmest greetings and sincere best wishes to the member groups of the Consortium of Actuarial Societies in North America as you commemorate the 100th Anniversary of your profession on this continent.

As our world becomes more complex, industries and businesses are responding to the challenges before them through modernization, by developing new strategies, and implementing effective management practices. Incumbent to a successful enterprise, actuaries will continue to play a leading role in planning for a secure and prosperous future.

Even as you celebrate your accomplishments, you are looking to the future. In the best tradition of actuaries, during 1989 you are undertaking many activities to exchange ideas and information.

I would like to take this opportunity to congratulate the membership of the Consortium of Actuarial Societies in North America during your centennial, and to wish you all the best as you embark on your second century of service.

OTTAWA 1989

Prime Minister
Brian Mulroney

PM, President send anniversary greetings

I am delighted to welcome the many actuaries assembled in Washington to celebrate the centennial of your profession in the United States and Canada.

Keeping businesses solvent and helping individuals plan for the future, you've made an important contribution to North America's economic progress, financial security. Your training in mathematics, science, and statistics has helped government and corporate leaders alike to develop effective marketing strategies and economic policies. You can be very proud of what actuaries have accomplished since 1889. I am certain your fine profession will continue to grow in the years to come.

Barbara joins me in congratulating you on this milestone anniversary. We wish you a productive meeting and continued success in the future. God bless you.

President
George Bush
ACTUCROSTIC

A. On April 25, 1889 he suggested strict exams.

B. Animals that stray into Prince William Sound have (2 wds).

C. Supreme god in Norse mythology.

D. American labor leader, 1909-1970

E. Commotion; tumult.

F. Easy; facile.

G. Defoliant containing dioxin affecting Vietnam veterans. (2 wds)

H. Mine; pit; quarry.

I. Chief justice U.S. Supreme Court, 1941-46.

J. Intermittently. (3 wds)

K. An innumerate. (2 wds)

L. Furnish with a dwer

M. Actuarial consultant for World Boxing Council (WBC). (2 wds)

N. In difficulty; in safety. (3 wds)

O. The first Secretary of the Society. (2 wds)

P. Blockheaded; numskulled.

Q. Talented youngster. (2 wds)

R. In a larcenous manner.

S. Hodgepodge; assortment. (3 wds)

T. Run of the mill; ordinary Joe. (2 wds)

U. John Drennan tells us of this peril; to CA?

V. One who is indolent or slothful.

W. Completed; finished.

X. The expert on pension portability.

Y. Absurd; incredulous.

Z. Seizure by legal process.

AA. There are usually about 6 of these in the final minutes of the NBA game. (2 wds)

BB. Misleading or deceptive action; flimflam.