

# The Actuary

## Challenges and solutions for Canada's profession are mirrored in other countries

by Neville Henderson  
1996-97 President  
Canadian Institute of Actuaries

**T**he actuarial profession in Canada is facing significant challenges, the resolution of which will present the profession with excellent opportunities for the future. These challenges are not unique to Canada and are driving actuarial organizations worldwide to reconsider the future of the profession.

Our role in the business world and the employment of actuaries are major concerns. Changes in the pension industry and the current consolidation in the life insurance industry have reduced the number of traditional job opportunities for employee benefit and life insurance actuaries. Though the current and medium-term demand for casualty actuaries is strong, the sense is that, long-term, rationalization will occur in the P&C industry too.

Concurrent with consolidation, the entry of banks into the insurance market is creating more employment opportunities in traditional areas. Opinions differ on whether the net effect will be a decrease in the number of traditional actuarial jobs or simply a stabilization. Virtually no one believes the demand will increase. Recognizing value, preparing for the future. The positive side of these developments is that they have forced the profession to look beyond its current universe. We're recognizing that contemporary

actuarial skill sets are a subset of general risk measurement and management technologies — which means a wider applicability for our skills in the business world. This recognition has led the North American actuarial bodies into another challenge: to redefine the education and professional development systems to prepare future actuaries for this wider range of opportunities. The Canadian Institute of Actuaries (CIA) strongly endorses and supports that effort and is working closely with both the Casualty Actuarial Society and the Society of Actuaries to redesign the relevant structures. The CIA also has created a task force to make recommendations for expanding the profession into nontraditional areas.

Because of globalization, the CIA has made efforts to increase its international presence and participation. The CIA, subject to due diligence, is scheduled to assume responsibility in January 1998 for the secretariat of the International Actuarial Association and its new section, the International Forum of Actuarial Associations. The CIA views this function as an important step in bringing the North American and foreign actuarial bodies closer together. Considering the globalization of the business world and the commonality of issues facing actuarial organizations, working together and sharing ideas with organizations that

are rich in intellectual capital are major advantages.

Greater status brings need for adjustment

Within Canada's borders, the profession has improved its status but now faces the challenges growing from our greater visibility and importance.

*(continued on page 3)*

### Inside this issue

Editorial: The SOA needs louder voice .....	2
By Robert J. McKay	
Canadian & U.S. actuaries compared.....	4
By Mary C. Patrick, Ph.D.	
The invisible actuary .....	6
By Anna Rappaport	
Bowles Symposium focuses on elderly .....	8
By James C. Hickman	
The Pizza Hut actuary? Nontraditional roles .....	10
By Jacqueline Bitowt	
April NAAJ to include discussions .....	13
Complete Actuary: Managing time..	15
By Dean L. Taylor	
E&E Corner .....	16
On the lighter side.....	17
By Jacqueline Bitowt	
Letters to the editor .....	18
Puzzle .....	20

# The Actuary

The Newsletter of the  
Society of Actuaries

Vol. 31, No. 2 • February 1997



Robert J. McKay  
Editor responsible  
for this issue

#### Editor

William C. Cutlip, FSA  
76443.1471@compuserve.com

#### Associate Editors

Robert H. Dobson, FSA  
bob.dobson@milliman.com  
Sue A. Collins, FSA  
102714.2361@compuserve.com  
Robert J. McKay, FSA  
Robert D. Shapiro, FSA  
73231.102@compuserve.com  
Marc Twinney, FSA

#### Assistant Editors

Selig Ehrlich, FSA  
Craig S. Kalman, ASA  
74262.2543@compuserve.com  
J. Bruce MacDonald, FSA  
jbm1mac@ac.dal.ca  
Ken A. McCullum, FSA  
102757.2132@compuserve.com

#### Puzzle Editors

Louise Thiessen, FSA  
lthiesse@accessweb.com  
Dan Reichert

#### Society Staff Contacts

847/706-3500  
Jacqueline Bitowt  
Public Relations Specialist  
jbitowt@soa.org  
Cecilia Green, APR

Director of Public Relations  
cgreen@soa.org

Linda M. Delgadillo, CAE

Director of Communications and Administration  
ldelgadillo@soa.org

Correspondence should be addressed to

*The Actuary*

Society of Actuaries

475 North Martingale Road, Suite 800  
Schaumburg, IL 60173-2226

*The Actuary* is published monthly  
(except July and August).

David M. Holland, FSA, President

Bradley M. Smith, FSA, Director of Publications

Nonmember subscriptions: Students, \$10; others,  
\$25. Send subscriptions to: Society of Actuaries,  
P.O. Box 95668, Chicago, IL 60694.



Copyright © 1997,  
Society of Actuaries.

The Society of Actuaries is not  
responsible for statements made or  
opinions expressed herein. All  
contributions are subject to editing.  
Submissions must be signed.



Printed on recycled paper in the U.S.A.

## EDITORIAL

# The SOA's voice needs to be bigger — and louder

by Robert J. McKay

**T**wo articles in this month's issue of *The Actuary* deal with fundamental characteristics of actuaries.

Anna Rappaport, our president-elect, argues (successfully, I believe) that we are not nerds, that we communicate well, and that we don't use jargon. She convinced me that we are a savvy bunch with a wide variety of personalities and interests. Mary Patrick, on the other hand, concludes that we do have similar interests, at least across certain subsets of our membership.

Neither article identifies a trait common to too many actuaries — lack of involvement in the direction of the profession, particularly in the Society of Actuaries.

This is not to ignore the substantial number of individuals who provide thousands of volunteer hours to the SOA every year. The Society would not exist without this commitment and involvement. About 175 members assist the program committee to develop some 300 sessions a year for the SOA's three major meetings. As the E&E Corner in this issue notes, 900 serve as examination proctors, supervisors, and examination committee members to keep our complex education and examination system running. About 250 participate in Actuarial Circles, in which actuaries promote the profession at the local level. Some 350 partnered with the Foundation for its Social Security consumer education program. And dozens more contribute their knowledge, expertise, and time to practice area and research committees, Section newsletters, *The Actuary*, *The Future Actuary*, and other programs.

However, actuaries of the SOA seem to lag their counterparts in the Canadian Institute of Actuaries (CIA) when it comes to expressing interest in the profession as a whole. CIA members seem more willing to challenge the profession — that is, to help set its course for the years ahead.

The article in this issue by Neville Henderson, current president of the CIA and past chair of the SOA's Education and Examination Committee, describes some of the issues currently facing Canadian actuaries. These allude to ways in the past two years that Canadian actuaries have become much more involved in the Institute. I'd like to expand Henderson's comments with these examples:

- General sessions of the CIA meetings, which previously had been good opportunities to linger over coffee and renew old acquaintances, are now "standing room only" as actuaries passionately debate issues traditionally engaged only by the CIA leadership.
- Comments from members were, in part, responsible for initiating a major review of the CIA's discipline process.
- Last spring, the three candidates for the CIA presidency used the Internet extensively for lively debates on the key issues facing Canadian actuaries. While only 15% of members eligible to vote did so on the first ballot, 46% voted on the second. The number of votes cast on the second ballot set a new CIA record.
- Turnover in committee membership is being mandated to eliminate the "old boy" syndrome.

- Members reacted negatively to a proposed consolidation in the standards of practice. As a result, they have been sent back for a fundamental rewrite. (Canadian members are not perfect by any means. They did not speak until the last minute, though they had several opportunities to comment on preliminary drafts.)
- A survey will be conducted in 1997 to determine membership views on key issues.

Let's contrast that with SOA participation in two key areas.

First, fewer than 40% of Fellows voted in last year's Society elections. The good news is that for the first

time in four years, the percentage of Fellows voting increased from the previous year.

Second, fewer than 5% of members responded to a recent survey providing feedback on the proposals to fundamentally alter the way actuaries are educated by the SOA. Though members weren't prompted to respond with a followup communication or offered an incentive and, granted, most have completed the E&E process, one would expect a larger response to an issue central to the actuarial profession's future.

With a membership about five times larger than the CIA's, the Society can speak with a very influential voice —

a voice that needs input from many more SOA members. Institute members are doing their best to help drive our profession into the future. SOA members should show a similar active interest in the high-level concerns of the profession. Who knows; one small voice — yours — could spur ideas that, if implemented, could make a significant contribution to the new SOA mission.

The alternative is to become a savvy group of individuals with no collective vision or direction. I think that if we ask ourselves whether this is the way to face the 21st century's challenges, the answer will be "No."

## Challenges and solutions (continued from page 1)

Today, the role of the appointed actuary is recognized in insurance legislation, and our responsibility to the public is reflected in our guiding principles. These developments are relatively recent, so we are actively engaged in adjusting to the changes this recognition has brought.

The profession's heightened public visibility in Canada requires we fully demonstrate our integrity, and the CIA's metamorphosis to its new status has caused pain. Almost a decade ago, the CIA began to consolidate its standards of practice. The project has been resource-intensive and complex because of the ever-changing business environment. Though this project is taking shape, it is a moving target and requires constant vigilance. Consequently, one vice president and several councilors of the CIA have been dedicated to bringing this project to completion.

As the profession matures, the CIA is strengthening its discipline process, resulting in an increased number of discipline cases and expenses. These

dramatic changes to the discipline process — coupled with the introduction of rewritten standards of practice — have raised concerns among the membership. In response, a task force is reviewing every aspect of the discipline process and will make recommendations for improvement. A membership survey to be completed in early 1997 will help us ascertain the full range of issues and provide more guidance regarding how the membership thinks they might be addressed.

Active in public debates  
To help in the CIA's continuing effort to raise awareness of the value actuaries bring to society, the CIA has actively participated in the public debate on social issues, such as the financial health of the Canada and Quebec Pension Plans, Worker's Compensation, and health care management. Early in 1997, the CIA will co-sponsor a seminar on pension issues with two other Canadian organizations. We hope to demonstrate that the actuary can provide strategic input into the social adequacy of financial structures

and offer creative solutions to problems, in addition to performing the financial calculations.

The CIA has a full agenda as it tries to meet the demands of an increasingly complex business world. Its June Council meeting will add an extra half-day to address its membership survey results and the task force on discipline's findings and to begin to allocate our scarce resources to those issues that have the most important implications to the profession.

The outlook for the actuarial profession worldwide is extremely bright. Actuaries have the intellect and creativity to find ways to expand beyond the traditional roles. I have no doubt we can succeed — and enjoy the process along the way.

Neville Henderson of Tillinghast-Towers Perrin, Toronto, is a consultant to the insurance industry on strategy, mergers and acquisitions, and capital allocation. He was general chairperson of the SOA's Education and Examination Committee in 1991-92.

# What's the difference?

## Project examines personalities of U.S., Canadian actuaries

by Mary C. Patrick, Ph.D.

**D**id you know that, among actuaries native to the United States or Canada:

- English-speaking male and female Canadians have interests in common with U.S. males.
- French-speaking male and female Canadians have interests in common with U.S. females.
- Both male and female French Canadians are more people-oriented than English-speaking Canadian males and U.S. males.
- Men have a greater tendency to pursue creative opportunities than do women.
- Women have a greater tendency to pursue practical opportunities than men do.

These are just a few major findings of the Actuarial Profile Research Project® (APRP), an initiative that can help the actuarial profession gain insights into itself as a whole. The author initiated the APRP to enable the actuarial profession to be included as one of the 109 occupations included on the Strong Interest Inventory (SII), the most widely used instrument in North America to help individuals identify career choices.

The APRP was conducted by the author in cooperation with the American Academy of Actuaries (AAA), under the leadership of James J. Murphy, and the Institute of Insurance and Pension Research, under the leadership of Robert L. Brown.

A major APRP goal was to gather accurate information about Canadian and U.S. actuaries based on reliable and valid assessments of interest patterns and personality preferences; demographic, cultural, educational, and occupational backgrounds; and job satisfaction and skills.

About one-third of AAA and Canadian Institute of Actuaries members were randomly sampled. The response rate was greater than 51%.

Two standardized instruments, each with more than 50 years of validated research, were used for the APRP: the Strong Interest Inventory (SII) and the Myers Briggs Type Indicator (MBTI®). Both instruments are used extensively in career and organizational development.

The APRP's value

As the actuarial profession looks toward the 21st century and increasing its involvement in a worldwide economy, a sophisticated understanding of the individuals involved in the profession can help actuaries keep pace with the global marketplace and appropriately expand their sphere of influence domestically and worldwide. The in-depth analyses of the APRP provide a solid understanding of the profession and its nuances. The dramatic consistency in the results from the various analyses and the high response rate provide findings that have a very high degree of validity and significance for the actuarial profession.

The results of the Actuarial Profile Research Project can benefit the profession in several ways:

- *Database for continuing education programs:* This database should be used to help develop continuing education programs that increase professional growth using a variety of educational methodologies.
- *Tools for individual development:* At the individual level, both the Strong Interest Inventory and the Myers Briggs Type Indicator are dynamic tools that provide a framework for personal and

professional development which could help actuaries enhance their strengths and learn new skills to be more effective and sensitive individuals.

- *Visibility for the actuarial profession:* Having "actuary" as an occupation in the Strong Interest Inventory introduces the profession to a significant number of people (including individuals and career development professionals) who might never have been exposed to it before.

A brief look at some of the APRP's findings based on the two assessments used highlights some striking similarities — and differences — among actuaries. Thinkers and organizers: the Strong Interest Inventory The SII provides a broad-spectrum profile of an individual's various interests. Most individuals have an SII profile consisting of two or three of the SII's six interest patterns.

For the profession as a whole, the SII provides valuable information about particular characteristics of successful, satisfied actuaries. People who've done well in their occupation and enjoy their work tend to have similar interest profiles.

In the Actuarial Profile Research Project, the SII results indicated that actuaries tend to have one of two somewhat similar interest profiles: Investigative-Conventional (I-C), a pattern called "thinkers," or Conventional-Investigative (C-I), called "organizers." The I-C and C-I interest patterns indicate individuals who are analytical, persistent, conscientious, self-controlled, and professional. They tend to enjoy solving complex problems, particularly in the areas of finance, research, computers, and



investments. An observable difference between the two patterns is that I-C types tend to prefer theoretical and long-range problems that may or may not have practical outcomes, whereas the C-I types tend to prefer projects with practical outcomes that have clearly stated time frames and procedures.

The I-C “thinker” interest pattern appeared most often among English-speaking Canadian actuaries of both genders and among male U.S. actuaries. This pattern applies to people who are independent, analytical, introspective, and conscientious. They prefer flexible work structures and place a high value on autonomy and achievement.

The C-I “organizer” interest pattern arose most often among French-speaking Canadian actuaries of both genders and among female U.S. actuaries. This pattern appears among people who are conscientious, methodical, conservative, and analytical. They tend to prefer clean lines of authority and value systematic activities.

Introspection, logic, control: The MBTI-personality profile The Myers Briggs Type Indicator provides a composite profile of personality preferences. It is a dynamic developmental tool to help increase self awareness, understand behavior, and value differences, fostering both personal and professional development.

The four dimensions measured by the MBTI are energy (with extraversion — an MBTI term — on one end of the scale, introversion on the other), perceiving (sensing-intuition), decision-making (thinking-feeling), and lifestyle (judgment-perception).

For three of the four MBTI profile dimensions, the actuarial personality preference profile was generally consistent across gender and culture. The three dominant preferences were introversion, thinking, and judgment. This indicates that as a group, actuaries are introspective, logical, and controlled.

Thus, they:

- Need quiet reflective time to revitalize

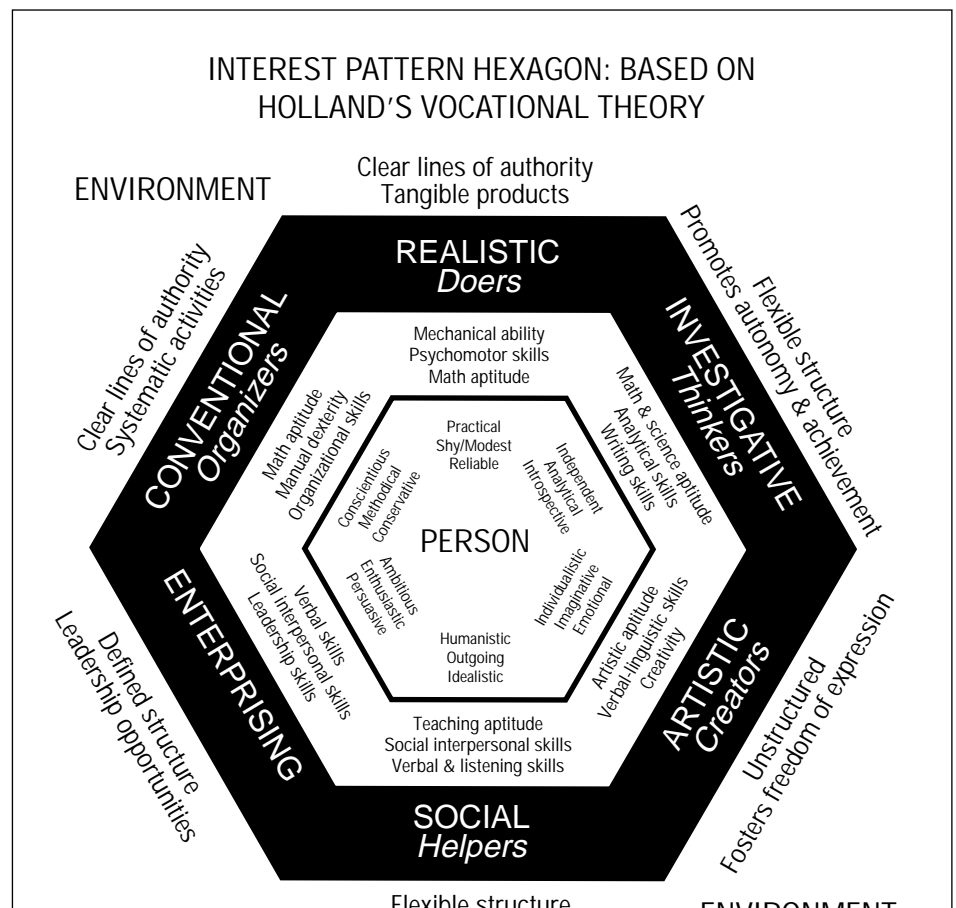
- May appear private, quiet and reserved
- Tend to organize information and make impersonal, objective decisions using logic and analysis
- Prefer to follow schedules, obtain closure, maintain control, and work first, then play

However, this is a general profile. Male English-speaking Canadian actuaries had a significantly greater need for quiet, reflective time. Also, compared to U.S. female actuaries,

Canadian female actuaries expressed a stronger preference for lifestyles that are planned and organized.

The one MBTI dimension in which actuaries showed great disparity from each other was the perceiving dimension. Perceiving, according to the MBTI, identifies preferences people have for paying attention and gathering information. The perceiving scale extends from the label Sensing,

(continued on page 7)



© 1994. Adapted from J.L. Holland (1985) *Making Vocational Choices: A Theory of Personalities and Work Environments* Prentice Hall, By M. C. Patrick

The Strong Interest Inventory (SII) is based on Holland’s Vocational Theory. Figure 1 is a graphic visualization of this theory using a hexagon to display the theory’s six interest patterns. Each pattern is associated with a repertoire of needs, skills, interests, values, and perceptions as well as characteristics of a satisfying work environment. *The two inner hexagons* reflect characteristics associated with the person: the innermost hexagon identifies some personality traits associated with each personality type; the next hexagon identifies potential aptitudes, skills, and abilities commonly associated with each personality type. *Outside the large hexagon*, the organizational structure and typical rewards (motivators) found in each environment type are described. Few individuals and organizations/occupations can be classified as pure types. Most are a combination of two or three.

## OPINION

# The invisible actuary

by Anna M. Rappaport  
1996–97 President-Elect  
Society of Actuaries

Where do people get their ideas about our profession? Most seem unaware of what we do, and those familiar with the profession often have very skewed ideas about us. I recently attended a non-actuarial business meeting attended mostly by human resources executives. The guest speaker was an actuary. He was introduced with words to the effect that “unlike other actuaries, he is an interesting speaker.” I was incredulous, but even more so when the speaker went along with it. Needless to say, that stereotype is not helping us.

This caricature of somebody who’s kind of a technical nerd, can’t communicate very well, can’t talk, and uses jargon hurts us with our customers. That’s just not a profile of actuaries today. If I could change that perception with the stroke of a wand, it would be to one that portrays us like any other

professionals—savvy, and with a variety of personalities and interests. Frankly, we’re just as interesting as lawyers, managers, or any other profession.

For example, we have a president who sings, and many actuaries run marathons or participate in other amateur athletics, the arts, and even auto racing. One of the most fascinating accomplishments by an actuary is the novella just completed by the former editor of *The Actuary*, Mike Cowell. I’ve read it and it’s wonderful. It deals with complex social issues related to an aging population. Not only is the novella really interesting, it also serves the community in raising these issues.

In addition to having interesting hobbies and outside activities, many actuaries have a strong sense of responsibility and duty to the public, which transcends both their professional work and community participation. Though for the most part invisible to consumers, actuaries

have a duty to plan participants and policyholders. That duty makes us more aware of our public responsibility. The SOA recognized this in its new vision statement adopted in 1996.

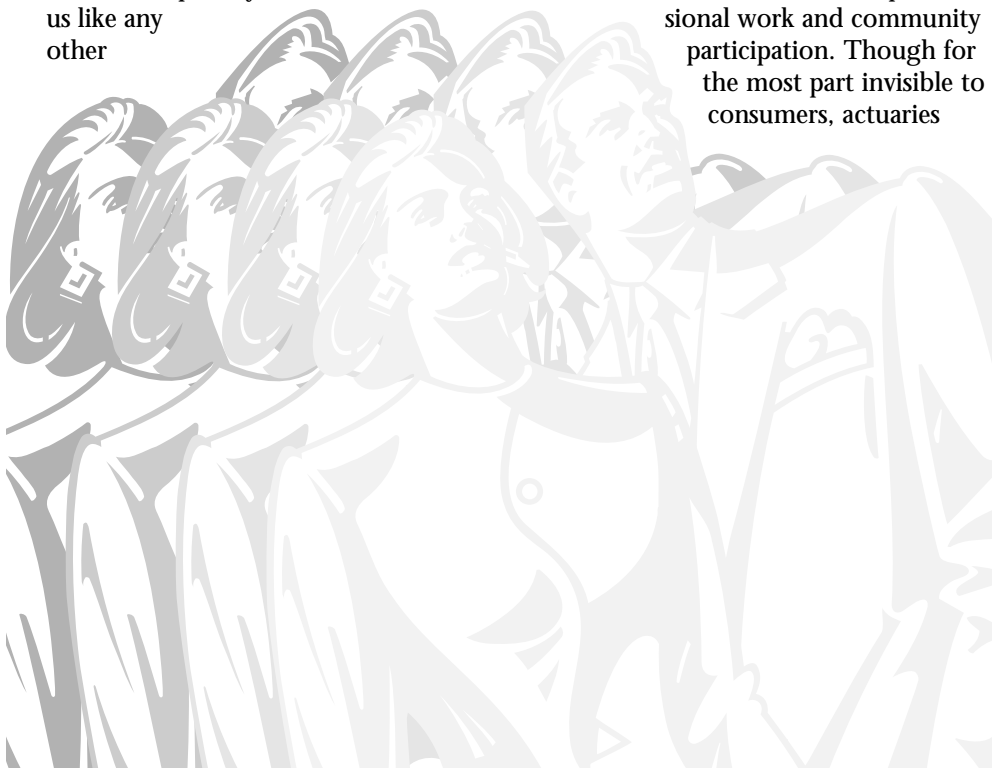
For example, look at the outreach efforts of the new SOA Foundation. It has dedicated itself to using the specialized skills of actuaries to the advantage of all our citizens. Nowhere is that more evident than in the various math tutoring/mentoring programs established and run by actuaries that are being funded by the Foundation’s new grant program.

Jim Lynch of Security Mutual Life Insurance has gotten its actuarial department involved in providing tutors for individual students at the Benjamin Franklin Elementary School in Binghamton, N.Y.

Actuaries from Blue Cross of California and Cigna are involved in a pioneering project to use “telementoring” for Newman Elementary School in Chino, Calif. Because of the distances involved, the mentors reach the students through the Internet.

“The Financial Wizard Program,” the creation of John Hancock’s Mark Newton, originally benefited Boston’s Samuel Mason Elementary School. Now the program, which introduces children in pre-school to grade 5 to the idea of applying math concepts to business, is being considered by other Boston schools.

The Nashville Actuarial Club joined the PENCIL Foundation (Public Education: Nashville Citizens Involved in Leadership) to create the program “Multiples of Success,” providing math tutoring. Alan Pennington and Bill Bryan, of Bryan, Pendleton, Swats & McAllister, have taken the lead here.



In Springfield, Mass., Liberty School has partnered with Mass Mutual to create a pilot project aimed at fourth grade students. Actuaries Richard Breen and Bob Bartholomew helped get it off the ground.

Teresa R. Winer, a self-employed actuary formerly with Life Insurance Co. of Georgia, put together a project using actuaries as one-on-one tutors and as leaders in math clubs and labs at Warren T. Jackson Elementary School in Atlanta.

These are some of the outstanding recent efforts by actuaries, but not all efforts have to be alike. What's critical is to network and open lines of dialogue with people outside our profession. I have been involved with several different activities: the Chicago Network, the Pension Research

Council, the National Academy on Aging, and the Health and Medicine Policy Research Group. Each of these groups brings together diverse perspectives from business leaders, academics, and the community. I would encourage everyone to get involved in groups like these because they're where real people are talking about real issues.

We spend too much time talking to ourselves. We go to a lot of meetings, but they are frequently meetings with other actuaries. If we can be in the places where the issues that we're concerned about are being worked on and talked about, I think we do a lot more good.

Anna M. Rappaport is managing director of William M. Mercer Incorporated in Chicago.

## Position open at George Mason

George Mason University, Fairfax, VA, has a tenure-track position open at the rank of assistant or associate professor in the department of mathematical sciences.

Preferred areas of specialization are actuarial science, mathematical finance, numerical analysis, or applied mathematics. Qualifications for actuarial candidates include a doctorate or Fellowship in an actuarial society.

The applicant chosen will teach both undergraduate and graduate students. He or she also will be expected to take a leadership role in expanding the bachelor and master degree programs in either actuarial mathematics or computational and applied mathematics, including recruiting and advising students, coordinating activities with related departments in business or engineering, expanding contact with local industry, and developing external funding. Opportunities for interdisciplinary work and teaching doctoral students exist in the Institute for Computational Sciences and Informatics.

Applications arriving before March 10 will be considered, and late applications will be accepted until the position is filled. Candidates should arrange for a vita, statement of teaching and research interest, and at least three letters of reference to be sent to: Ittai Kan, Chair of Search Committee, Department of Mathematical Sciences, George Mason University, MS 3F2, 4400 University Drive, Fairfax, VA 22030-4444 (e-mail: [ikan@gmu.edu](mailto:ikan@gmu.edu)).

## What's the difference (continued from page 5)

meaning detail-oriented (in part), to intuition, or "big-picture" thinking (labeled "iNtuition" on the MBTI).

These perceptual differences can create significant barriers to effective communication among actuaries. There were gender and cultural differences among the six groups. Female English-speaking Canadian actuaries and both female and male French-speaking Canadian actuaries tended to prefer Sensing, which indicates that they gather information about the world from a practical, down-to-earth perspective by attending to facts. However, male English-speaking Canadian actuaries and male U.S. actuaries tended to prefer iNtuition, suggesting that they perceive information about the world from a wide perspective, attending to the patterns and possibilities. Female U.S. actuaries

were evenly divided between Sensing and iNtuition preferences.

Availability of reports

A report on the Canadian portion of the study is available for \$50. Those wishing copies should contact Nandane Basdeo at the Institute of Insurance and Pension Research, University of Waterloo, Waterloo, Ontario, Canada N2L 3G1 (telephone: 519/888-4744; fax: 519/746-1875; e-mail, [nbasdeo@jeeves.uwaterloo.ca](mailto:nbasdeo@jeeves.uwaterloo.ca)) and request Report # 96-06. A full analysis of the U.S. data has not been completed due to lack of funding.

Mary C. Patrick, Ph.D., is an organizational and educational psychologist who designed and conducted the APRP. She can be reached at 206/803-9028 (e-mail: [103633.2210@compuserve.com](mailto:103633.2210@compuserve.com)).

# Impact of an aging population focus of Bowles Symposium

by James C. Hickman

**W**e grow older. This is true for each of us as individuals and for the economically developed nations of the world. This reality and the societal changes it brings were the basis of the 1996 Bowles Symposium, "The Old Age Crisis: Actuarial Opportunities," September 26-27, 1996, at Georgia State University, Atlanta.

This was the second symposium honoring Thomas P. Bowles. In addition to a successful business career, Bowles, founder of Tillinghast, served the actuarial profession as president of both the Society of Actuaries and the American Academy of Actuaries. A travel grant from the Society of Actuaries Foundation provided some funds for graduate students and faculty members in fields related to actuarial science to participate.

Variety of perspectives presented

The worldwide flood of political discussion on the budget-busting potential of entitlement programs provided an overture for the symposium. Social Security reform received an appropriate amount of discussion. The symposium, however, also explored the old-age crisis from several perspectives.

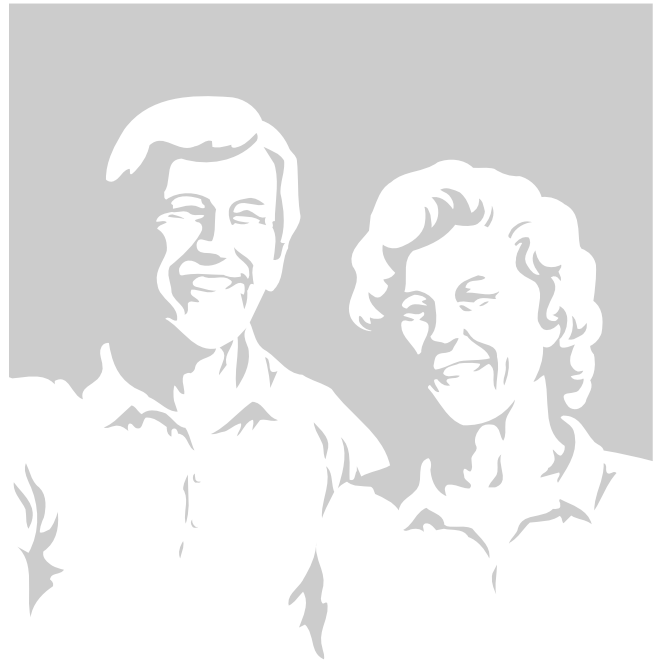
Among the topics addressed was the need for new mathematical tools to design and manage the financial security systems that will be needed by a large generation (likely to have less family support than earlier ones) followed by a smaller generation. Bruce Jones, assistant professor at the University of Western Ontario, illustrated a multiple state stochastic model, using data for a continuing care retirement community. Models of this type seem appropriate for systems where members move among various levels of care. Jim Robinson,

associate scientist at the University of Wisconsin, followed a similar path, using data from long-term care insurance. His model differed, in part because the status of the beneficiaries was known only at periodic times.

Mike Cowell, vice president and corporate affairs actuary of UNUM Life Insurance, took a "novel" approach to the theme. His novella, *Cyberbug*, traces the life of Bill Wainwright, an actuary born in the Midwest, well into the 21st century. The life of the main character is influenced by technological changes, political realignments, and shifting family values, as well as his own aging and that of his family and his world. Participants found this nontraditional contribution a delightful change from the conventional program.

Rick Foster, chief actuary of the Health Care Financing Administration, graphically displayed the salient features of the 1996 Trustees' Report on Hospital Insurance and Supplemental Medical Insurance. The impending fiscal problems of these systems cannot be attributed primarily to the aging of the population, but point to the need to modify the health care system before the baby boom generation further strains it.

Anna Rappaport, managing director of William M. Mercer's Chicago office, examined the changing employer-employee relationship and its interactions with the aging demographic profiles. She explained



cash balance pension plans, which offer varying degrees of flexibility, as a possible prototype of employee benefit adaptations compelled by new realities. Social Security topics

Six contributions focused on Social Security. Bob Myers, former chief actuary of the Social Security Administration, analyzed the proposals of the Social Security Advisory Council, though it had not been formally published at the time of the symposium. He foresees a stormy political reception for the proposals to allocate part of the payroll tax to individual accounts, partly because of the impact on the federal budget deficit of any diversion of the payroll tax. He suggested a blended program of increased payroll taxes, higher retirement ages, and a modest program of individual retirement accounts for all except the lowest-paid workers.



Bruce Schobel, corporate vice president and actuary of New York Life Insurance, also analyzed the Advisory Council proposals. He and Rich Burkhauser, economics professor at Syracuse University, also discussed using normal retirement age as a policy tool. Burkhauser supported shifting the distribution of retirement ages upward. He presented statistics indicating that the decline in workforce participation rates by men ages 63 to 65 in the United States has been halted by messages already sent by the phased increase in the normal retirement age from 65 to 67. His statistics also showed that most of those who retire before age 65 are physically able to work longer. Schobel approved of proper actuarial decrements for early retirements, but said that pushing the earliest age of retirement upward would be an unwarranted intrusion of the government. Schobel also demonstrated how the higher retirement age and changes of employment practices within families will reduce the relative importance of Social Security as a source of retirement income in the future. For example, families in which both spouses work could see lower

Social Security benefits. The progressive benefit formula applied to each spouse's wages could result in lower income than when benefits are based on one earner with a dependent spouse.

Rob Brown, professor at the University of Waterloo, developed a set of characteristics necessary to a program that prefunds social security to provide real economic relief to a nation when the ratio of the number of retired persons to the number of employed persons rises. Participants got a distinct impression that, in this imperfect world, it would be difficult to develop a funding program with the needed characteristics.

Howard Young, adjunct professor at the University of Michigan, viewed Social Security not as an isolated government program but as a component of a society-wide model. He illustrated how a modest increase in productivity would reduce the strain on the nation as the baby boomers retire.

Andrew Young, an actuary in the U.K. Government Actuary's Office, traced the story of the U.K. retirement system. Their system has a basic benefit independent of wage history and a

second benefit that is related to past wages. Also, individuals or groups can contract out of the wage-related system. With three components to adjust, the outlook seemed optimistic that the U.K. was making the adaptations needed for the next century. Wealth of information  
The symposium participants left Atlanta feeling that although interesting years are ahead for actuaries, models and ideas are available to manage the old-age crisis. The 1996 Bowles symposium presented a wealth of information that can help actuaries in their work. Those not able to attend can read the papers presented in a monograph to be published later this year as part of the SOA's Monograph Series.

As holder of the 1996 Thomas P. Bowles Chair, James C. Hickman served as chair of the symposium. He is a member of the SOA Committee on Health Benefit Systems Professional Education and Development. He is emeritus professor and dean of the University of Wisconsin School of Business in Madison, Wisconsin.

## Pan American actuarial congress set for May in Argentina

The Pan American Congress of Actuaries and the III Argentine Congress of Actuaries will be held in Buenos Aires May 21-23, 1997. The program will focus on four major areas:

- Insurance and reinsurance
- Social security institutions
- Investment and financing
- Professionalism and professional conduct

Simultaneous translation will be provided in the three languages of

the Congress: Spanish, Portuguese, and English.

All Society of Actuaries members are encouraged to attend. Several SOA members took advantage of a valuable opportunity to meet actuaries from Latin America by attending the August 1996 Congress in Brazil, and a similar delegation is expected for the 1997 Congress.

General details about the Congress are available from Linden Cole at the Society office (847/706-3595; fax:

847/706-3599; e-mail: lcole@soa.org). For more information, visit the Web site <http://www.cpcecf.org.ar> or contact: Simon Abel Groll, Consejo Profesional de Ciencias, Economicas de le Capital Federal, Viamonte 1549, (1055) Buenos Aires, Argentina (phone: 54-54-1/812-9292; fax: 54-1/812-9124; e-mail: cpcecf@cpcecf.org.ar).

Enrollment applications are due March 31, 1997.

# The Pizza Hut actuary?

## A look at the topic of nontraditional employers

by Jacqueline Bitowt  
SOA Public Relations Specialist

**P**eter Drucker, who published his first book in 1939, has a new one on the bookstore shelves: *Managing in a Time of Great Change*. The concept of change is wedded to today's business environment. The introduction to *Corporate Comeback*, the story of National Semiconductor, begins: "How do you achieve fundamental change without exposing your organization to unacceptable risk?"

Actuaries' ability to evaluate and help manage risk can make them key players in a wide range of business settings. Yet to do so — to move beyond the traditional employers — actuaries will have to make some changes in themselves.

These were the concepts behind the October 1996 annual meeting session "Marketing Actuaries to Non-Traditional Employers — what Product, Exactly, Are We Marketing?"

The session was developed by Joe Paesani, vice president and actuary for Union Fidelity Insurance Co. of Trevoese, Penn. Paesani moderated a panel consisting of an actuary, a bank executive, and an executive recruiter.

"What professionals are equipped to manage risk?" Paesani asks rhetorically. "Actuaries have an incredible capacity and skill set that would allow us to make major contributions to any business where management of risk determines whether that business rises or falls as the environment changes.

"Yet outside of the insurance industry, there are entire risk management departments of major companies that do not have even one actuary. When executives anywhere build a risk management department, they should immediately think of actuaries."

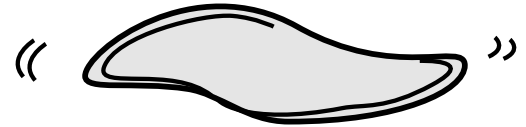
The annual meeting session, which attracted a full house, concentrated on new approaches to using and presenting actuarial skills. Banking and finance, areas seemingly ripe for actuarial employment, were discussed from several perspectives. But the session's panel encouraged the audience to think even more broadly. The Pizza Hut actuary "Why not a Pizza Hut actuary?" asked panelist Robert L. Buckner, assistant vice president and actuary for ERC Life Reinsurance Companies in New York. Buckner applied his knowledge of actuarial work to the topic of maximizing profits for Pizza Hut. This perhaps melodramatic example raised ideas that may seem amusing to most actuaries but are crucial and "on target" when considering employment in non-traditional arenas.

"How sensitive are customers to ingredient changes in a pizza?" Buckner began. "Perhaps customers will trade a little bit of pepperoni for some extra sauce, or vice versa. Then, our actuary could compare the price of pepperoni versus that of tomato sauce, and by doing so, he or she could design a cost-efficient pizza.

"Then there are additional relationships," he continued. "If you're assuming linear relations, you'd use linear computation. If relationships aren't linear, the job becomes even more challenging for our actuary. Maybe there's even a use for fuzzy logic."

Applying skills actuaries use daily, Buckner said, "The Pizza Hut actuary could increase profits by 1%. That's the margin on many term products."

"But we can do more," he said.



"Build a hedge against rising ingredient prices with 'pizza futures' developed from beef, pork, and other commodity markets. Now, we've created a product with a higher profit margin with lower volatility. In effect, we've gotten closer to the efficient frontier: greater return with lower risk.

"Help Pizza Hut stay ahead of the consumer market. This would help the company sell more product and gain greater market share, perhaps without as much expensive advertising. The actuary could anticipate change in consumer buying habits through study of geography, demographics, and so on. What about drive-through pizza? Or ordering by computer? What about non-fat pizza? Who better than the actuary to piece together bits of demographic data to discover these trends?"

"Finally, the Pizza Hut actuary could get involved in the hard financial analysis of capital needs."

"The list is endless," concluded Buckner. "This is not 'pizza pie in the sky.' If we think about problems

a little bit differently, we can contribute to virtually any industry.” From insurance to banking Panelist Barbara N. Oppen, the World Bank’s senior manager of financial policy and projections, sees banking as ripe for actuaries.

“Historically, banks had straightforward risks,” Oppen noted. “In that setting, strategic planning was mainly for marketing. All that has changed with deregulation and a much more volatile environment.”

“What’s important today is risk-based product pricing. Banks are trading daily in futures, derivatives, and asset-backed securities. Pricing of these often is developed without real quantification of their inherent risks — flaws that would be obvious to actuaries.” Furthermore, she said, “there’s a need for asset-liability management of the whole balance sheet — institution-wide risk management.”

Oppen noted that many banking leaders, recognizing this need, have established a role in their banks similar to that of chief actuary in an insurance

company. Also, bankers often hire from the investment banking arena, where the language and experiences are similar, risk management’s value has been recognized, and risk managers have proved their worth.

The ‘product’ and its value need to be understood. Why hasn’t the profession been able to expand into nontraditional areas? Paesani pointed out that while “there are many individual success stories,” what’s missing is “a wide general interest in hiring actuaries because of what they can bring.”

Said Paesani, “It’s probably a combination of lack of awareness by nontraditional employers of what actuaries can do, along with the profession’s inability to clearly define the ‘product’ it has to offer and effectively market it to nontraditional employers.

“What’s needed is a broader, concerted effort by the profession to recognize these nontraditional needs and implement strategies to expand our professional opportunities to address these needs.”

What is the ‘product’?

Panelists suggested answers to the question posed in the session’s title: What product, exactly, are we marketing?

Said Buckner, “The ‘product’ is a broadly skilled professional who can compute probability, quantify risk, analyze alternatives, develop a solution, and communicate the results and the impact.”

Oppen saw actuaries as professionals engaging in “the measurement and communication of the financial implications of future contingencies — so that appropriate decisions can be made.”

In this era of change, panelists urged listeners to know their strengths and weaknesses. However, Buckner mentioned some traits as weaknesses that also serve to define the profession. “For most of us, our actuarial education is based in life/health and employee benefits,” he began. “Our knowledge horizons should be stretched beyond those industries. We can start with more closely allied industries — finance and banking.”

*(continued on page 12)*

## Learn the language, know the issues to win in nontraditional arena

If banks aren’t hiring actuaries, why would Pizza Hut? This was the question posed by Aimee Jordan, executive recruiter with Andover Research Ltd. in New York, in the annual meeting session “Marketing Actuaries to Non-Traditional Employers — What Product, Exactly, Are We Marketing?”

Jordan’s point was that for actuaries to build bridges into any nontraditional market, they need to speak the language of the market they’re targeting. And if actuaries have a difficult time communicating an actuary’s value to bankers — professionals focused on financial products, which are number-based — then job hunting in markets where the product isn’t a financial

one could be even more difficult.

What can actuaries do to surmount the barriers to nontraditional markets? Jordan used banking as an example of an area where actuaries might apply techniques to overcome barriers.

*Language:* Learn to speak the language bankers understand. Like hires like. Banker’s hire MBAs because that’s their background, too. Their comfort level depends on how well you communicate. You did not have a similar career path or work experiences. They need to know you think the same, even though you’re different.

*Learn about the industry:* Actuaries must understand the day-to-day issues of the banking

industry. This is not so actuaries can run the show or avoid a learning curve, but rather so interviewers can feel comfortable with your knowledge base and find common ground.

*Demonstrate value:* Show them how you can actually model a particular scenario or price a particular product. Then change it, and show them how your model will give them a new set of results with one change in the specifications. Ask them to put in a few variables of their own. Let these bankers see what you are capable of doing within their realm, that you can provide a valuable service — modeling, measurement of risk — that can make their business less risky.

## Pizza Hut (continued from page 11)

Who should lead the way? How can a demand for actuaries be created in the market? Panelists and audience members offered several suggestions.

*Individuals:* Develop a career blueprint, and prepare to work outside the traditional insurance marketplace. Develop communication and job hunting skills. Become aware of your strengths and limitations, and of other industries, their needs, and their languages.

*SOA and the Foundation:* "The profession needs to be a little more pro-active in effecting change," Paesani noted. "This can't be a part-time effort." Some suggestions include:

- Investing in and developing a full-time public relations program, "bringing someone on

board to put together a marketing program, attend targeted non-insurance industry meetings"

- Strengthening ties to undergraduate finance programs to help attract more students to actuarial careers
- Persuading more consulting actuaries, who almost by definition lead a nontraditional work life, to help other actuaries gain new skills so they can break into new markets, leading to greater hiring of full-time employees in those markets
- Supporting the Foundation's work to gain visibility for the profession

*Students or senior actuaries?*

Audience members attending the session raised the question of who should be the flag bearers: students

who are beginning their careers and so won't suffer a salary loss by moving into a nontraditional area, or experienced actuaries who have better skills and could set an example in a new industry — or even hire actuaries?

Two audience members cast their votes for experienced actuaries. "In commercial banking, regulators are calling for high-level risk managers," one member said. "A few well-placed seasoned senior people who can speak the language could make a tremendous difference, at least in banking." Another audience member suggested that experienced actuaries could develop solutions to society-wide problems. "Senior actuaries can go to the public and make them aware that these are the skills actuaries have," he said, "and this would help the actuaries of the future. The sky's the limit."

## Deadlines announced for 32nd ARC

The 32nd Actuarial Research Conference (ARC) will be held August 6-8 at the University of Calgary in Calgary, Alberta. ARC provides a central meeting place for academics and practitioners interested in all aspects of actuarial science.

Presentations on all topics of interest to actuaries are welcome. To accommodate scheduling, paper titles are due by June 1 and photo-ready abstracts are due by July 1. Presentations will be published in

the conference proceedings, *Actuarial Research Clearing House* 1998.1.

For more information, contact Dr. David P.M. Scollnik, University of Calgary, Department of Mathematics and Statistics, 2500 University Drive NW, Calgary, Alberta, Canada T2N 1N4 (telephone: 403/220-7677; fax: 403/282-5150). Information also is available on the World Wide Web (<http://balducci.math.ucalgary.ca/32ndARC.html>).

## Correction

In the December issue of *The Actuary*, the photograph of a school on page 19 was incorrectly captioned. The photo is of the Samuel W. Mason Elementary School in the Roxbury section of Boston, not the Liberty School in Springfield, Mass., as indicated. Both schools are receiving Advancing Student Achievement Grants from the Society of Actuaries Foundation to involve actuaries in volunteer programs in math education.

## New specialty guide available

An updated Professional Actuarial Specialty Guide, "U.S. GAAP — Financial Reporting," edited by Bruce Darling, is now available from the Society.

The guide "U.S. GAAP — Financial Reporting" includes broad topics covering introductory material, authoritative accounting standards, relevant

actuarial standards, and special topics.

The guide is enclosed with this issue of *The Actuary* for members of the Financial Reporting Section. Other Society members may obtain a copy by calling the Books Department at 847/706-3526 or faxing a request (attention: Books) to 847/706-3599. The SOA

provides single copies free of charge. Multiple copies are available for a nominal fee.

Specialty guides are intended for actuaries who want to become familiar with or more competent in various specialized areas of practice. They give an overview of the area and describe the role of the actuary within the area.



# April NAAJ to include discussions of papers

The April 1997 issue of the *North American Actuarial Journal* includes articles on some of the most important topics facing actuaries today, as well as some discussions of the articles with responses from authors. The second issue of this quarterly journal, which replaces the refereed annual publication *Transactions*, is part of the SOA's new scientific publishing initiative to bring timely and broad-based information to an international audience.

Discussions from eight respondents will accompany the article "Stochastic Analysis of the Interaction Between Investment and Insurance Risks" by Gary Parker. In addition to Parker's article, readers will find articles on risk theory and cash flow, portfolio selection, management of interest rate risks, and analyzing data from continuing care retirement communities.

Early release copies are available for \$5 per article from the Books Department (phone: 847/706-3526; fax: 847/706-3599).

**Interest Rate Risk Management**  
by *Andrew Ang and Michael Sherris*  
This paper surveys recent developments in the modeling of the term structure of interest rates and the application of these models to risk management and the valuation of interest-rate-dependent cash flows. These developments extend the concepts underlying immunization and matching to a stochastic interest rate environment. Such cash flows include those for assets such as bonds and mortgage-backed securities, as well as those for annuity products, life insurance products with interest rate sensitive withdrawals, accrued liabilities for defined-benefit pension funds, and property and casualty liabilities.

**Optimal Portfolio Selection with Transaction Costs**  
by *Phelim P. Boyle and Xiaodong Lin*  
This paper examines the lifetime portfolio-selection problem in the presence of transaction costs. Using a

discrete time approach, the authors develop analytical expressions for the investor's indirect utility function and the boundaries of the no-transactions region. The economy consists of a single risky asset and a riskless asset. Transactions in the risky asset incur proportional transaction costs. The investor has a power utility function and is assumed to maximize expected utility of end-of-period wealth. The authors illustrate the solution procedure in the case where the returns on the risky asset follow a multiplicative binomial process. The paper both complements and extends the recent work by Gennotte and Jung, which used numerical approximations to tackle this problem.

**Methods for the Analysis of CCRC Data**  
by *Bruce L. Jones*

This paper presents an approach to analyzing continuing care retirement community (CCRC) data and demonstrates the methods using data from a CCRC. It is assumed that residents make "transitions" among a number of "states" that represent the levels of care required by residents. There is randomness associated with both the transition times and the states entered at these times. The model is conveniently characterized in terms of "transition intensity functions," which represent the instantaneous rates of transition between pairs of states. Statistical methods for estimating these functions are discussed, and estimates are obtained from the data set. A simulation approach to determining probabilities and other interesting quantities based on the estimated intensity functions is also described and illustrated.

**Stochastic Analysis of the Interaction between Investment and Insurance Risks**  
by *Gary Parker*

In selling life policies, the two main sources of uncertainty for the insurance

company are random mortality and random rates of return on the assets.

The insurance risk due to mortality can be diversified by selling more policies. The investment risk, however, cannot be diversified in that sense because of the strong correlation structure existing between rates of return.

A company can only benefit from knowing the level of risk it is taking when underwriting life insurance coverage. One step in that direction is achieved by studying the magnitude of the two sources of risk involved. The company is then in a better position to manage its business. For example, based on the analysis of the risks, a company may alter its pricing or its investment strategy, determine appropriate contingency reserves, and assess its solvability.

This paper presents a simple model for studying an insurance portfolio in a stochastic mortality and interest environment. The portfolio may contain any number of various insurance policies such as temporary, endowment, and whole-life insurance. The mean and variance of the present value of all the benefits of the portfolio are derived. A random cash-flow approach allows us to divide the total variance, used as a measure of risk, into an insurance risk component and an investment risk component. A simple portfolio is used to illustrate the results.

**Application of Risk Theory to Interpretation of Stochastic Cash-Flow-Testing Results**  
by *Edward L. Robbins, Samuel H. Cox, and Richard D. Phillips*

This paper offers practical guidance to actuaries who are seeking ways to evaluate and manage the output from the stochastic cash-flow-testing process. A commonly expressed opinion about the stochastic approach is that almost all the results are

(continued on page 14)

## April NAAJ (continued from page 13)

successes, whereas the adverse scenarios are arguably the ones of major interest. This paper responds to the question "Given that I've run a large number of stochastic cash flow testing scenarios resulting in only a very small number of scenarios landing in the adverse area, or 'ruin tail,' how can I use the results of the entire set of observations to better estimate the area under the ruin tail?"

The authors begin the paper with a discussion of the types of variables that could be investigated using the output from the typical simulation models used in practice today. The choice of variable worth examining appears to be rather flexible and could include the accumulated surplus at the end of the time horizon of the scenario, the present value of the accumulated surplus discounted to the beginning of the time horizon, or the lowest risk based capital (RBC) multiple realized during the time horizon of the scenario. The

authors use the present value of accumulated surplus in this study.

Once the variable of choice has been decided upon, the study illustrates various methods from risk theory that could be used to investigate the variable of choice. All the methods discussed are tools readily available to the actuary, originally developed as part of traditional risk theory. To illustrate these methods, output from a simulation model valuing a portfolio of single-premium deferred annuities under various stochastic interest rate scenarios is used.

Each technique is reviewed, and illustrations are shown to adapt them for the specific purpose at hand. In particular, parametric model selection for standard families based on maximum likelihood estimation (MLE), mixtures of standard models, Esscher approximations, and the normal power method are discussed.

This study shows that parametric

models selected via MLE have several advantages over the classical Esscher and normal power methods. Parametric models fit the entire distribution, whereas the classical methods give only point estimates. Also, the statistical theory of MLE estimation is well understood and, for example, allows the actuary to calculate such useful statistics as confidence intervals.

Simple mixtures of familiar two parameter models are also discussed because they are easy to fit using moment estimators. Their main drawback, however, is that the large number of parameters to be estimated can make them difficult to work with. The classical methods are shown to be harder to use and they do not give better results than fitting the parametric models. The study also addresses the issue of sample size.

## Exam prep seminars announced for U.S., Canada

### Broverman seminars

Seminars for the May 1997 exam period will be conducted in Chicago and New York by Professor Samuel A. Broverman, associate professor of actuarial science, University of Toronto.

The seminars will be held in April and May. They will cover Courses 120, 130, 135, 140, 141/EA1A, 150, 151, and 160.

Details are available from Professor Broverman at the University of Toronto, Department of Statistics, Toronto, Ontario, Canada M5S 1A1 (phone: 416/978-4453 or 416/966-9111).

### Waterloo Actuarial

April seminars will be offered in Chicago, Hartford, Conn., and Waterloo by Waterloo Actuarial. Details are available from the individual instructors.

Frank G. Reynolds (phone: 519/886-5232) will present seminars in Waterloo for Courses 151, 160, 161, 165, 230, G-420C, G-421U, G-422, I-442C, V-480, F-580, and F-585. In Hartford, his seminars will cover Courses 230, G-525U, I-540, and I-550.

Keith P. Sharp (phone: 416/975-1850) will teach seminars for Courses I-340 and I-443U in Chicago and Hartford.

Rob L. Brown (phone: 604/224-0941) will teach Course 200 in Chicago and Hartford.

### Austin 150 seminar

James W. Daniel will offer an eight-day intensive seminar on Course 150, April 5-12, in Austin, Texas. Daniel is director of actuarial studies at the University of Texas at Austin. Registrations are due March 1. Phone or fax (512/343-8788) Daniel for registration forms.

## THE COMPLETE ACTUARY

## 10 timely tips for the time-crunched office

by Dean L. Taylor

Most of us have read about time management techniques for individuals: creating filing systems, making priority lists, uncluttering work areas, and handling each piece of paper only once. This article is about how your office can become more efficient using 10 collective time management ideas we have instituted in the actuarial division of Trigon Blue Cross Blue Shield. These practical, time-tested programs have boosted our collective productivity immensely. In addition, these ideas facilitate communication among employees, which in turn helps them be more effective managers of people and projects.

**Tip #1: Publication facilitators**

Have you struggled to keep up with all the publications and internal reports that routinely cross your desk — sometimes weeks after the publication dates?

We first made a list of the publications our division receives, and then asked everyone to facilitate one publication. The facilitator's role is to quickly review the publication when it arrives, summarize pertinent articles in one or two sentences, and attach the summary to the cover with the routing slip. We also asked everyone to decide which publications they wished to see.

A publication that once took months to complete its journey now takes only a week or two. For several publications, summaries of articles are disseminated by e-mail, eliminating the need for a routing slip. *The Wall Street Journal* has five facilitators — one per business day — who send summaries of insurance, health, and technology articles over e-mail.

**Tip #2: Mail slots for everyone**

In our division of 41 people, time often was lost on failed attempts to distribute items to others. Now we use individual mail slots placed at the

entrance of our division. Employees drop off and retrieve mail several times a day. If an employee is out of the office for more than a day, a note is posted at the mail slot so routed publications are forwarded.

**Tip #3: Computerized calendars**

A computerized calendar system is an excellent way to save time. You can view everyone's schedule with the click of a button. These calendars are extremely helpful to our secretaries for scheduling meetings and to individuals for assigning blocks of time to their own projects. Also, we recently created a calendar that displays the dates individuals are out of the office for at least half a day.

**Tip #4: Voice mail**

Voice mail, when used properly, is a great way to communicate with others when a short verbal response is appropriate.

Voice mail is encouraged because it eliminates some of the secretary's distractions.

**Tip #5: Divisional handbook**

Several years ago, we learned that new employees in the actuarial section received very little information about it. So, one employee spearheaded an effort that resulted in a division handbook. Sections include each

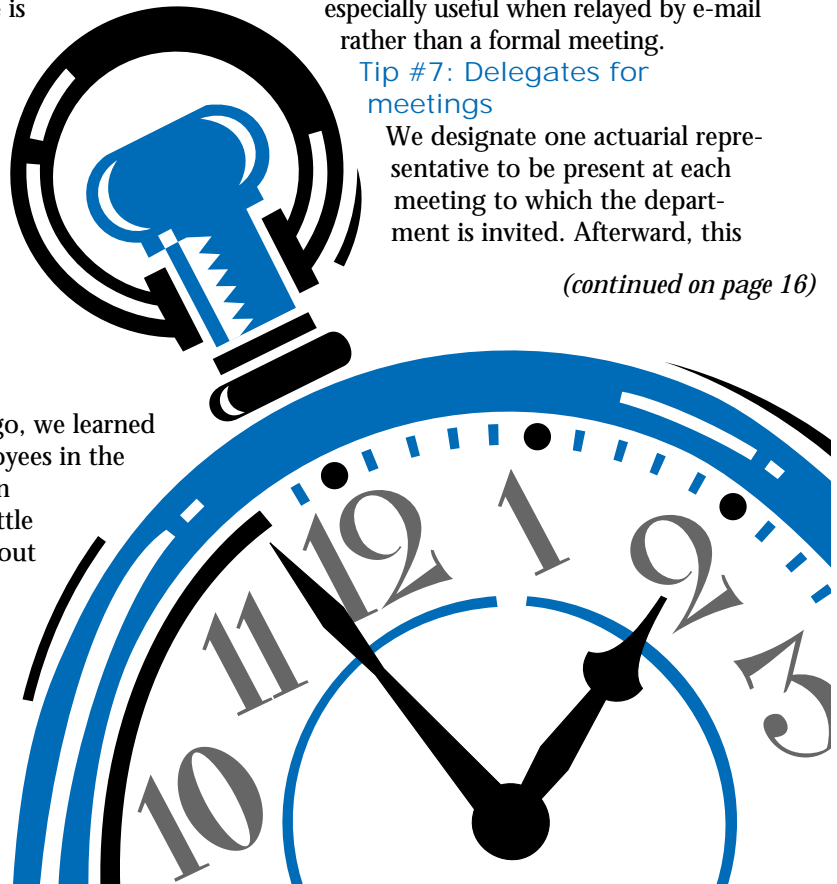
area's responsibilities, aids to help a new hire acclimate, a list of actuarial data bases, and contact persons for various topics. The handbook is updated as necessary. A consistent level of knowledge is provided to each new hire, and we have found that this eases them more quickly into their new positions.

**Tip #6: Electronic mail**

Every employee in our office is connected by e-mail, and we find it very useful in soliciting short and concise information from each other. One of the advantages of e-mail is the ability to set up distribution lists of names. For instance, the six employees in the individual pricing area often communicate informally to each other during the work day via an e-mail list. Summaries of phone conversations or meetings are especially useful when relayed by e-mail rather than a formal meeting.

**Tip #7: Delegates for meetings**

We designate one actuarial representative to be present at each meeting to which the department is invited. Afterward, this

*(continued on page 16)*

## 10 timely tips (continued from page 15)

individual sends a brief summary of pertinent actuarial issues to the appropriate persons within the division. This allows everyone to make more productive use of their time while remaining in the loop.

**Tip #8: Staff meeting reports**

Our division's chief actuary used to hold a weekly meeting with his direct reports, who would then conduct follow-up meetings with their employees. This caused delays of up to a week. Our new approach is to designate one person at the chief actuary's meeting to send a summary of the minutes by

e-mail to all division employees. This saves time formerly spent on meetings and shortens the time gap.

**Tip #9: "Do Not Disturb" sign**

When employees really need uninterrupted time, they place a sign stating that fact outside their office or cubicle. Also recommended is the use of the "do not disturb" button on the telephone.

**Tip #10: Birthday celebrations**

In prior years, our division celebrated each individual's birthday. To save valuable time, we now hold only one birthday celebration each month.

A few employees are responsible for

organizing the monthly celebration.

Time management is critical for both busy professionals and entire departments. By adopting these time management ideas, your department can reduce disruptions and increase its productivity, yielding collective dividends all around.

Dean Taylor is a senior actuarial associate for Trigon Blue Cross Blue Shield in Richmond, Va., and a member of the Committee on Management and Personal Development.



November results

The November exam grades have been mailed. The total number of candidates was 13,459, with 9,254 writing Series 100 and 4,205 writing Series 200 and higher.

As a result of November exams, six earned Associateship and 155 Fellowship candidates completed exams and are now eligible to attend the Fellowship Admission Course.

The exam process could not run smoothly without the aid of dedicated volunteers. The Education Services Department would like to thank the 900 supervisors, proctors, and examination committee members for another successful exam session. Risk Theory seminar changes considered

The 152 Risk Theory Intensive Seminar is currently under review. We anticipate implementing a few changes to make the week spent in this seminar more productive. One change being discussed is distributing the seminar notebook in advance so

candidates can become familiar with the material before the week begins. Pension track consolidations  
Several consolidations will be taking place in the Pension track in 1997:

- *Consolidation of P-560, P-561C, and P-562U*: A new pension course, P-567, "Retirement Income Security — A Worldwide Perspective," will be offered for the first time in fall 1997. It will replace courses P-560, which will be offered for the last time in spring 1997, and P-561C and P-562U, which were offered for the last time in fall 1996.
- *Consolidation of P-566U and P-362U*: Beginning this fall, P-362U will contain material from P-566U, and the number of credits will increase to 20.
- *Consolidation of P-565C and P-361C*: As of fall 1997, P-361C will contain material from P-565C, and the number of credits will increase to 25.

Supervisors needed for research paper option

The Research Paper Committee is compiling a list of qualified supervisors to assist candidates interested in the research paper option.

Under the Education and Examination Research Paper Option, candidates can earn 30 examination

credits through the successful submission and acceptance of a research paper. Before submitting an outline, a candidate must select a supervisor to guide him or her through the process. The list being compiled will aid students in selecting a supervisor.

Qualifications for supervisors are:

- Either FSA or ASA status
- Have experience conducting research or have had at least one paper published in a professional journal
- Have expertise on the paper's subject matter

Duties include:

- Writing progress reports at the end of each three-month period
- Guiding the candidate's efforts in producing a quality paper on an actuarial topic
- Helping develop the candidate's research skills

Since the Research Paper Option began in 1988, 55 candidates have submitted proposals, and 11 papers have been accepted for credit.

To enroll as a prospective supervisor or to obtain more information, contact Bob Conover, education actuary, at the Society office (phone: 847/706-3597; fax: 847/706-3599; e-mail: rconover@soa.org).





## on the lighter side

### No snow job

# One actuary adds it all up

by Jacqueline Bitowt  
SOA Public Relations Specialist

About this time of year, the winter holidays' romantic notions about snow — walking in a winter wonderland — are being rapidly cast aside for thoughts of warmer and sunnier days.

For skiers, however, snow can be a year-round passion. And for skier Tony Crocker, an assistant actuary with Transamerica Life & Annuity in Los Angeles, snow has taken an even bigger role, becoming an off-hours subject for his actuarial skills.

Crocker, a skier since the '70s, maintains a Web site (<http://members.aol.com/crockeraf>) giving current snowfall information for more than 60 locations, historic data for 85 sites going back an average of 18 years, and a summary of each ski season since 1968. He also provides a snow quality analysis (water content and temperature) for 11 popular areas to help answer the truly devoted skier's vital question: Where will I find not just adequate snow but that drier, highly satisfying type called powder?

It should come as no surprise to non-skiers that a magazine by the name of *Powder* exists and even thrives. A little over a year ago, Crocker and his work were the subjects of *Powder's* cover. The publication ran 10 pages of Crocker's statistical analysis, calling it

“the most complete, comprehensive, and objective guide to snowfall — and both prevailing and expected snow conditions — in major North American ski regions ever published.”

A regular skier of Mammoth Mountain in California, Crocker kept tabs on the snowfall there until 1991. Then in 1992, Crocker learned about Knox Williams, who had a government grant to maintain the Avalanche Network — measures of snowfall in Colorado and five areas in other states.

This was a goldmine of information. So in 1992, Crocker bought a home computer and began his work, using information from Williams and his network. “I used APL because that's what I knew best,” he said. “The calculations were the ones I always use to model both incomplete data and complete data.” Much of the work was done late at night and into the wee hours of the morning, long after his family had drifted off to sleep.

Not all the information came from the Avalanche Network. “In some cases, I had to dig into an area to find out what the numbers were,” Crocker said. What he discovered is that some ski areas vastly overstate — “and

surprisingly, even understate” — the numbers. “The most conspicuous understatement is Mount Bachelor in Oregon,” Crocker said. “They measure at 6,300 feet [elevation] while the skiing ranges from 5,900 to 9,000 feet. Their brochures only claim 300 inches a year, while the measurements at 6,300 feet have averaged 366 inches since 1974.”

Early snowfalls have predictive value. Snow storms in November and December will provide a base for March and April — popular ski vacation times. Watching the early snowfall “is how I plan my ski trips, so I'm sure others do, too,” Crocker said.

Crocker's Web site was getting 30 hits a day in November and December. But what's in its future? Gathering the data and pulling it into shape has been a labor of love and some expense, mostly for long-distance phone calls. And the extra hours of work are wearing, even for one as committed as Crocker.

Still, his Web site and the 1995 issue of *Powder* remain an encyclopedia of numbers that adventuresome skiers can use far into the future.



*Tony Crocker surrounds himself with snowfall data. No armchair amateur, he's shown here with son Adam and the real thing on the slopes in Brighton, Utah.*

DEAR EDITOR

Problems and solutions:  
Social Security funding

Bruce Schobel would have a stronger case for participation by actuaries in Social Security policy making in the U.S. (*The Actuary*, "Why actuaries have a real voice in Canada's Social Security issue," November 1996) if he could point to a proud history of accurate actuarial projections of Social Security finances by actuaries. Unfortunately, past actuarial projections have proven over periods measured in decades woefully wide of the mark.

There may be good reason for this. The pension plans and insurance policies on which actuaries normally work are too small to impact the U.S. economy. Social Security, which represents about 10% of the U.S. economy, can have a material impact on the economy. This means, first, that realistic assumptions must take into account feedback between Social Security and the economy; and second, that political decisions regarding Social Security will be made with an eye to their impact on the economy. So perhaps it is appropriate that U.S. politicians turn to economists for advice on Social Security. And perhaps it is time that actuaries learn to incorporate economic principles into their Social Security projections.

I do not mean in any way to impugn the work done by the actuaries at the Social Security Administration, who do an excellent job within the constraints imposed by law and their bosses.

Eric J. Klieber

\* \* \* \* \*

The Society of Actuaries Foundation's recently released pamphlet, "On the edge of change: Putting Social Security back in balance," has been described as an objective analysis of the problems facing Social Security. However, it does not completely accomplish the

goal of providing unbiased factual information.

One common misconception regarding the U.S. Social Security System is that it is funded. While literally true, in an economic sense it is a pay-as-you-go system. It is not "funded" in the sense that a private pension plan might be. Rather, a cumulative accounting of the excess of current tax collections over current benefits has been maintained by the government (the so-called Trust Funds). While these funds are "invested" in U.S. government bonds, the economic significance of this is the government lending money to itself, the net effect of which is that the excess collections are used to fund other government expenditures.

At that point when current benefits exceed current collections, the system turns to the Trust Funds to finance the difference. This is done either by selling bonds on the market or by redeeming maturing bonds and/or using the interest on these bonds. The treasury must either borrow to make these redemptions and interest payments or finance them through other tax revenues. Thus effectively, drawing on the Trust Funds is net borrowing by the government. At such time as the Trust Funds are exhausted, the excess of benefits over collections could continue to be funded by net borrowing. While this may be a political issue, there is no particular economic significance to the prediction that "in 2029, the combined Trust Funds will be used up."

The pamphlet also refers to the suggested alternative of directing excess contributions into private investment, rather than government securities, noting that this could increase the return on the trust funds. This may be true, but it misses the most important point. The significance of such a radical departure from current policy would be that, to the

degree funds are diverted from government bonds to private investment, this would represent a real attempt to "fund" the system. The danger here, however, is the tendency to apply principles that apply in a microeconomic sense to a macroeconomic arena (i.e., the government). To the extent such actions increase overall investment and increase future economic production, this idea has merit. However, such action would eliminate a source of government revenue, requiring other borrowing or tax revenue for the government to achieve its stated goals. The net result may simply be a reallocation of savings (investment) with no net change to the economy as a whole. Thus, to reiterate, it may not be possible to "fund" Social Security.

The real issue is not the application (or misapplication) of traditional actuarial funding techniques to social security, but whether we are willing to accept the distribution of income in future years which will be required, based on current benefit levels and demographic projections.

Allan W. Ryan

\* \* \* \* \*

While I applaud the Society of Actuaries Foundation's effort "to provide accurate, timely, and unbiased information to the public" [in the brochure "On the edge of change: Putting Social Security back in balance"], I must take issue with the statement made in the Foundation's first consumer education program that "the sooner we make necessary changes to the system, the less drastic they can be... ."

While I support adoption of equitable changes in the near future to bring the program into long-range actuarial balance, the above statement is correct only if program benefits are advance-funded. If the program is financed on a pay-as-you-go basis, the statement is incorrect. For example,

if the program can be placed into actuarial balance by increasing the combined employee-employer tax rate by 4% of pay effective in the year 2028, this change is no less drastic if adopted this year or 30 years from now. Since the profession has historically endorsed pay-as-you-go financing for Social Security, we should refrain from making the claim that changes now will prevent more drastic changes later.

If, on the other hand, the Society of Actuaries Foundation truly does support adoption of changes now that can prevent more drastic changes later, then it should be explicitly supporting advance-funding of baby boomer benefits. For example, the Foundation could inform the public that the 1983 amendments to the program originally anticipated significant advance-funding of baby boomer benefits. However, because no actuarial methodologies were adopted in 1983 to automatically amortize increases in actuarial liabilities due to actuarial losses, changes in assumptions, or changes in program provisions, the program fell out of long-range actuarial balance in 1990. Perhaps the Society of Actuaries Foundation could then do something even a little more daring — such as proposing actuarial solutions to the problem so that the next “75-year Solution” does not unravel after a mere seven years like the last one did. Kenneth A. Steiner

Dwight Bartlett responds  
As chair of the Project Oversight Committee for the Society of Actuaries Foundation, I read with interest the letters by Messrs. Steiner and Ryan on our pamphlet “On the edge of change: Putting Social Security back in balance.” They raised interesting, but not new, questions about the economic reality of the Trust Funds and whether it is possible in any meaningful sense to advance-fund the Social Security programs. These sophisticated questions go well beyond the level of

understanding we assumed in drafting the pamphlet. It was intended for readers with no more than a ninth-grade education.

I do believe the statements in the pamphlet are fair in light of the fact that, by consensus, it has been agreed that the long-term financial viability of the programs is measured in part by the projected Trust Fund balances, as reflected in the annual trustee’s reports. These balances will be larger if benefit reductions and/or tax increases are enacted sooner rather than later.

Incidentally, I am not aware that the actuarial profession has ever taken a position endorsing pay-as-you-go financing for Social Security, as opposed to some degree of advance-funding. Furthermore, research I did in the early 1980s for a *Transactions* paper led me to conclude that the projected costs of OASI as a percentage of covered payroll had been remarkably accurate over the years, with increasing costs accounted for primarily as a result of benefit liberalizations.

## Foundation Social Security program update

Thanks to the outstanding support of Society of Actuaries members, more than 103,000 copies of the brochure “On the edge of change: Putting Social Security back in balance” have been distributed. The pamphlet is central to the Society of Actuaries Foundation’s first consumer education program, focused on helping citizens better understand Social Security.

The survey card inserted in the brochure has drawn a 2% response rate. Because 64% of those responding said they will pass the brochure to another

person, we estimate the total circulation at more than 160,000.

Ninety-three percent of the respondents either agreed strongly (38%) or agreed somewhat (55%) that they had a better understanding of the Social Security system after reading the brochure. Many who disagreed somewhat (5%) or strongly (2%) were actuaries who wrote notes praising the brochure and explaining that their answers reflected their previous knowledge of the system.

## IN MEMORIAM

Richard A. Burr  
FSA 1978, EA 1980

Philip F. Finnegan  
FSA 1948, MAAA 1965

Charles H. Jones  
ASA 1930, MAAA 1966

Owen A. Reed  
FSA 1962, MAAA 1968,  
FCIA 1965, EA 1976

Dennis R. Tobleman  
ASA 1977, MAAA 1979

Milton J. Wood  
FSA 1930, MAAA 1965