

From the President



Mutual
Recognition
by Mavis A.
Walters

Over the past 18 months or so there have been five meetings of the presidents and presidents-elect of international actuarial organizations from primarily English-speaking countries. This group has included the leadership of the CAS, the SOA, the AAA and the CIA from North America; the Institute of Actuaries, a U.K. organization; the Faculty of Actuaries, the counterpart of the Institute in Scotland; the Society of Actuaries (Ireland), whose members are members of the Institute; and the Institute of Actuaries of Australia. In addition, we have been joined on occasion by a representative of the Government Actuaries Department in the U.K. and officials of the International Actuarial Association.

Besides getting to know each other, these meetings have provided an opportunity for us to share information about the issues of concern to each organization and to learn how others may have dealt with similar concerns. These meetings were particularly helpful in keeping us all up-to-date with the organization and implementation of a re-structured International Actuarial Association.

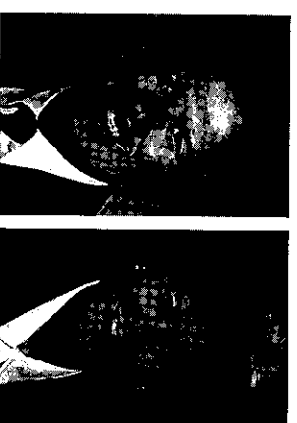
One issue that has been on the agenda for the past several meetings but

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Lehmann Becomes President; Gannon Chosen President-Elect

ARLINGTON, Va.—At the close of the 1998 CAS Annual Meeting held in Toronto, Canada, this month, Steven G. Lehmann will officially succeed Mavis A. Walters as CAS president. Current CAS Board Director Alice H. Gannon will assume the responsibilities of CAS president-elect.

CAS Fellows voted in October to elect Gannon as CAS president-elect. A CAS Fellow



→ page 12 Steven Lehmann Alice Gannon

Bensimon and Chernick Appointed to EC

WASHINGTON, D.C.—At its September meeting, the CAS Board of Directors voted to appoint Abbe S. Bensimon as the vice president—continuing education and David R. Chernick as vice-president—programs and communications.

Bensimon has served on the CAS Examination Committee in various capacities as member, assistant part chair, and part chair from 1990 to 1995. Since 1995, she has chaired

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Khury Retires as Editor-in- Chief; Wright Named Successor

Lacko Becomes Managing Editor

ARLINGTON, Va.—C. K. “Stan” Khury, who has served as editor-in-chief of the *Actuarial Review* since November 1989, has announced his retirement from this position. Walter C. Wright, who has been the AR’s managing editor since 1993, has been named the new editor-in-chief, beginning with the February 1999 issue.

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The Franchise

by C. K. "Stan" Khury

Readers will notice elsewhere in this issue the announcement of a number of changes in the staffing of the *Actuarial Review*. After nine years of service as editor-in-chief and more than twenty years of service, off and on, on the staff of the *Actuarial Review*, the choice of subject for this last column, written as editor-in-chief, invariably offers some intriguing possibilities. After considerable reflection, the topic that stands out is one that deals with *The Franchise*.

In 1914, a group of visionary people recognized the differences between the actuarial problems emerging in casualty insurance, most particularly in workers compensation, and those of traditional life insurance. The franchise for serving society professionally as "casualty actuaries" was claimed by these 97 individuals, and this claim was publicly affirmed and proclaimed by the formation of the

"...The franchise is thriving primarily because those who are practicing under its imprimatur, the members of the CAS, view the franchise very solemnly and seriously, in fact if not by intention, and serve in numerous capacities to keep this franchise alive and well."

distinguished history of this franchise is well known and needs little additional comment. Today the CAS consists of more than 3,000 members. Members today serve their clients in a multitude of capacities ranging across an entire rainbow of problems rooted in casualty (and similar) risk exposures.

One of the most outstanding features of the CAS, in its 84th year, is that it is a vibrant institution, animated almost exclusively by the energy of its members serving in numerous ways—all of which is given on a volunteer basis. In other words, the franchise is thriving primarily because those who are practicing under its *imprimatur*, the members of the CAS, view the franchise very solemnly and seriously,

in fact if not by intention, and serve in numerous capacities to keep this franchise alive and well.

Because the franchise does not have a *societal* charter that is granted affirmatively (whether legislatively or otherwise), its sustenance and preservation are contingent upon the members of the CAS continuing to fulfill the needs of their clients better than any other professional. Note here that the reference is to *members* of the CAS, not the CAS. As such, the vitality of the CAS is a direct corollary of the vitality of its members. Thus, our conclusion that the franchise can be sustained only if the members of the CAS serve their clients better than any other professional who may be able to claim similar abilities.

This naturally leads to an inquiry into the ways in which the focus of this franchise can remain on its members doing a good job for their clients. While there are many such ways, in this column we will focus on just three: actively minimizing the role of "bureaucracy," minimizing the role of actuarial theology, and maximizing the voice of the membership.

For many years now, the CAS has been and continues to be blessed with an

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The *Actuarial Review* is the quarterly newsletter of the Casualty Actuarial Society.

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Web Site Has New Look, Expanded Offerings

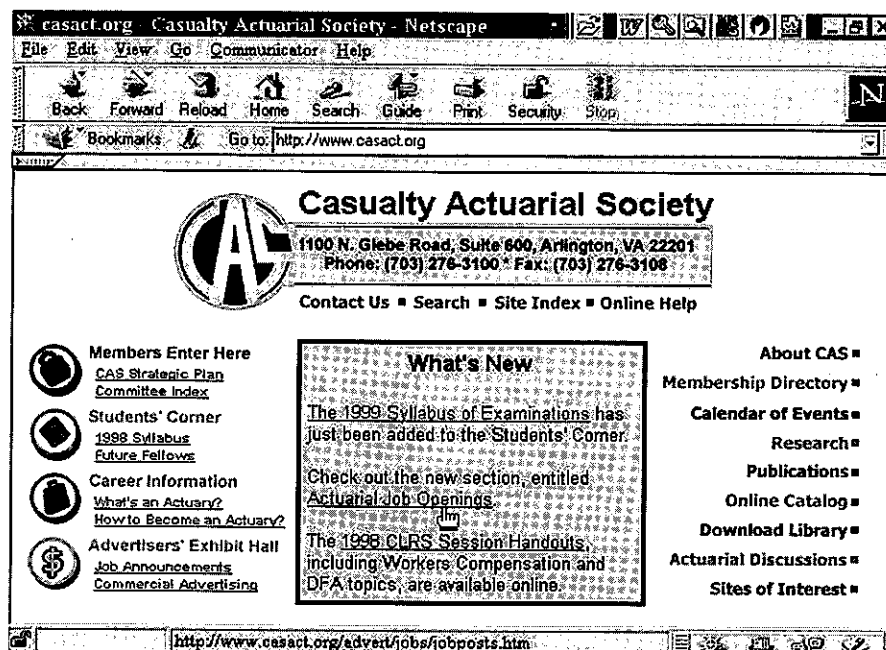
by J. Michael Boa

Redesign

The CAS Committee on Online Services (COOS) has redesigned the CAS Web Site at <http://www.casact.org> to make the site more user-friendly and easier to navigate. COOS reviewed feedback submitted by CAS members over the past two years to develop a compact home page that emphasizes content. The improvements to the Web site include:

- Fewer graphics—The new home page has fewer and smaller graphics than before, which allows the page to load very quickly;
- Expanded menu—Frequently accessed information is now just one mouse click away because the home page contains more menu items.
- What's New Box—As soon as the home page is loaded, you can see a "What's New" box highlighting the latest news, events, and features right on the home page;
- No scrolling—The new design of the home page eliminates the need to scroll down to see menu items because the entire page fits on one screen;
- Left-side navigation—The second level pages now have a menu on the left side of the page to make navigation between sections easier.

In addition to design improvements, two new online tools can help visitors find the information they seek. The Web site's search engine allows users to identify all pages on the Web site that contain certain words or phrases. Moreover, users can perform advanced searches by utilizing proximity operators. The section entitled "Online Help" contains a frequently asked questions (FAQ) page for Web site in-



The CAS Web Site launches its redesign in November.

quiries with tips for finding information on the CAS Web Site.

New Features

Along with the redesign, several new features have been added, the most noteworthy being Actuarial Job Openings. Companies seeking to fill actuarial positions have a new means to publicize their openings—they can now advertise their job opportunities on the CAS Web Site. The job openings are contained in a searchable database that allows users to search for jobs based on criteria such as title, location, and salary level.

The Students' Corner contains two new tools for candidates. The Exam Status Database allows candidates to verify the exams that they have passed. The Transition Rules Calculator allows candidates to indicate the examinations they have passed in the current exam system and then calculates how the exams will translate to the new exam system that will be implemented in 2000. In addition, the 1999 *Syllabus of Examinations* has just been posted to the Web site.

Other developments already in the works include adding the entire texts of the *Proceedings* since 1976 to the Download Library and forming an Online Exhibit Hall that will contain commercial advertisements for products and services.

The Committee on Online Services welcomes input and feedback on the CAS Web Site. If you wish to contribute any ideas or thoughts, send an E-mail to Israel Krakowski, COOS Chairperson, at IKRA0@allstate.com.

AERF and CKER Sponsor Grants Competition

The Actuarial Education and Research Fund (AERF), which is affiliated with the Actuarial Foundation, and the Society of Actuaries Committee on Knowledge Extension Research (CKER) announce their 1999 Individual Grants Competitions to support the advancement of knowledge in actuarial science. Grants will be funded through AERF or its sponsoring organizations, and CKER.

Proposals for the grants competition must be submitted to the AERF office by December 30, 1998. Grants will be announced by April 5, 1999.

Application forms for the proposals can be obtained by contacting Paulette Haberstroh at the AERF office by phone, (847) 706-3584, fax, (847) 706-3599, or E-mail, phaberstroh@soa.org.

Historic or Sad Moment?

Dear Editor:

I was delighted to see that there was a "Historic Moment For Casualty Actuaries" (August 1998, *Actuarial Review*). In one way, it was a positive historic moment. In another way, it was a sad day for casualty actuaries. Why? Because I think that it is a sad day when we, as a profession, get up in front of the world and announce that we cannot agree on something as fundamental to our profession as what constitutes "reserve strengthening." It is one thing to argue about Congress' intent behind the words, another to argue about the actuarial meaning of the words.

Frank D. Pierson, FCAS

Dividend Payments

Dear Editor:

In my mind, the only rightful source of dividends to policyholders is Actual Losses less than Expected Losses contemplated by the rate (Dave Schofield's letter, "From the Readers," August 1998). To build the cost of dividends

into rates is simply to redistribute premium. Further, it violates the basic premise of the insurance mechanism, which is that the premiums of loss-free policyholders (good experience) will pay the losses of the unfortunate few (bad experience).

Policyholders share in the benefits of fortuitously good experience in the form of dividends. If the actual experience isn't better than that anticipated by the expected losses in the prospective rates, there is no "dividend" to pay, and there is no source from which to pay the "dividend."

Of course, the competitive environment skews these insurance/economic principles beyond recognition in the real market.

Edward C. Shoop, FCAS

Global Warming Debate Continues

Dear Editor:

When I graduated from college, Phi Beta Kappa, I was recruited by the U.S. Air Force to become a weather forecaster. I was first sent to MIT, where I received an equivalent to 54 semester hours of meteorology. I was one course short of a masters in meteorology.

This does not qualify me as an expert today, but I have followed articles on weather and climate since my three years as a weather forecaster after MIT. I feel that I at least know the terms used by meteorologists and understand what they are saying. I also realize the extreme complexity of daily forecasting and the even more complex nature of climatological forecasts.

At the onset I would like to state that I agree with Fred Kilbourne that the certainty of global warming is flawed. The major reason for this is that the proponents of global warming base their major arguments on models of the atmosphere that have been proven unreliable. By this I mean that when you input data from the 1940s or 50s and run the models, they do not come close to replicating the climate in the 1960s, 70s, 80s, or 90s. Models that cannot replicate past history are very poor pre-

dictors of the future. Actuaries, if anyone, should agree with that.

The climate of the earth has had many and dramatic changes during its history. Just yesterday, two articles in the *Arizona Republic* confirmed this. The first was reported by Paul Recer of the Associated Press. He states that studies of ice cores of Antarctica and Greenland show that there was signifi-

"Models that cannot replicate past history are very poor predictors of the future. Actuaries, if anyone, should agree with that."

cant warming of the earth 12,500 years ago. Twenty degrees Fahrenheit at the south pole and 59 degrees in Greenland, all in a period of 50 years or so. This was the end of the last ice age. No one believes that this warming was due to human activity. No one knows how such a large temperature change could occur in such a short time. In the second article, according to Stanley Ambrose, an anthropologist at the University of Illinois, a volcanic eruption in Sumatra, about 71,000 years ago, cooled the planet significantly for at least six years and may have been responsible for killing most humans alive at the time.

The earth has been warming for the last 350 years, since the little ice age. The temperatures today are still lower than those of the "Medieval Climate Optimum," which occurred around the first millennium. That is when Greenland was green and settled by Norsemen, and Europe experienced a period of prosperity because of longer growing seasons and the abundance of plant growth.

During the little ice age, there was

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Malaysia Beckons

The Actuarial Society of Malaysia (ASM) welcomes any CAS member traveling to Malaysia to present a talk about casualty actuarial work. The Actuarial Society of Malaysia (ASM) has 150 members who are all life actuaries. "We definitely want to know more about casualty actuaries," said Hassan Kamil, an ASM representative. "The ASM would be glad to make arrangements for the CAS members to present a talk to ASM members," said Kamil. For more information, contact Hassan Kamil at hassank@tm.net.my.■

Risk vs. Risk: Tradeoffs in Protecting Health and the Environment

Edited by John D. Graham and Jonathan Baert Wiener (Harvard University Press paperback, 1997, \$18.95)

Reviewed by Donald T. Bashline

Actuaries are in the midst of an effort to broaden their profession's scope. The recently circulated discussion draft of "General Principles of Actuarial Science" tells us that "The primary focus of actuarial work is on the financial and economic consequences of events involving risk and uncertainty." This is broad enough to be almost all-inclusive, especially since an "economic good" is later defined as "something that has value to a person and that the person can consider exchanging for something else." Clearly, the assessment of the consequences of such an expansively defined class of events demands an equally comprehensive array of evaluative techniques. *Risk vs. Risk* is a valuable introduction to the process of "risk tradeoff analysis" (RTA), a technique that may prove particularly useful to the actuary dealing with an unfamiliar, and perhaps less quantitatively tractable, set of uncertain events.

RTA provides the decision-maker a framework for evaluating the consequences of decisions intended to reduce risk, which the editors define as "the chance of an adverse outcome to human health, the quality of life or the quality of the environment." As a result of improvements in health care, pollution reduction, automobile safety, and other areas, such risks have been markedly reduced in recent years. But steps taken to reduce one kind of risk may at the same time act to increase risk from other directions. Removing carcinogenic chlorine compounds from our water supply leaves us vul-

nerable to microbial diseases. Farmers, no longer able to use DDT as a pesticide, switched to less persistent but more immediately toxic replacements.

"RTA provides...a framework for evaluating the consequences of decisions intended to reduce risk, which the editors define as 'the chance of an adverse outcome to human health, the quality of life or the quality of the environment.'"

In their introductory opening chapter, the editors lay out a methodology by which countervailing risks (those risks introduced when action is taken to reduce "target risks") may be classified and evaluated. A "risk offset" takes place when the countervailing risk is of the same character as the target risk: perhaps one carcinogenic pesticide is to be replaced by another. "Risk substitution" takes place when the countervailing risk is of a different nature from the target risk: auto manufacturers forced to build more fuel-efficient (and less polluting) vehicles made them smaller and thereby less safe. "Risk transfer" eliminates the risk for one population but transfers it to

another, while "risk transformation" combines substitution and transfer, creating new risks for a previously unaffected population.

Awareness of interactions among different types of risk and consideration of decision-maker utilities make it possible (at least theoretically) to model risk tradeoffs along a risk protection frontier, analogous to the efficient frontier of modern portfolio theory. Decision-makers are thus able to model the entire set of implications of their actions: not just the effect on the target risk. The editors do not minimize the difficulties involved in either anticipating countervailing risks or in evaluating the net impact of any decision. Some of these present special challenges to which the actuary is already alert: how do we account for the timing of adverse outcomes? How do we deal with the uncertainty of estimates? Global warming, for instance, calls for decision-makers to take action now based on highly uncertain estimates of events occurring in the distant future. Actuaries have much to add to this discussion.

The heart of the book is a series of case studies presenting decision alternatives in the context of RTA. The case studies illustrate each of the risk tradeoff possibilities discussed above, and range from individual decisions (how to decide between an illness and the possible side effects of a curing drug?) to decisions that require worldwide cooperation (what are the relative risks of action and inaction given the threat of global warming?). While none of the

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Quarterly Review

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case studies are directly related to an actuary's practice, each emphasizes the importance of thinking in a new way about risk, looking beyond the immediate goal of reduction in a target risk to the less obvious unintended consequences of an action.

In their concluding chapter, the editors discuss the reasons that countervailing risks are often ignored during the decision-making process, and suggest some remedies. Any actuary who has been involved in a collaborative decision-making process will recognize the problems dealt with here. One of the most pervasive is omitted voice: some affected parties are excluded from the process in favor of more organized interests. Problem-solving methods may also make the comprehensive approach of RTA difficult to implement. Decision-makers tend to react to crises,

and deal with the most obvious symptoms of the most immediate problems. They also tend to disaggregate problems; this breaks problems into bite-sized pieces and so may make them easier to manage, but also makes the big picture harder to see. The increase in specialization rampant in most organizations also makes holistic decision making more difficult, since both expertise and accountability tend to become compartmentalized.

Decision-makers may also ignore the phenomenon of compensating behaviors: for example, workers may feel that improved protective equipment removes the need for safe behavior, resulting in a less-than-expected decrease in accidents. Also important is an organizational bias in favor of existing technology. Often new methods or technologies are rejected not because they are less effective or less safe than the old, but because they are evaluated using different and higher standards.

The editors make specific and practical suggestions for improving the organization's ability to more explicitly recognize countervailing risks. Using a medical analogy, they urge the decision-maker to "treat the whole patient," to supplement the necessary knowledge of the specialist with the broader point of view of the general practitioner. Additionally, specialists must communicate better with each other and with the generalists in charge of coordinating their efforts.

The editors conclude by noting the necessity not only for new techniques of decision making, but for a "cultural maturation" in which decision-makers would unblinkingly confront the complexities and interrelationships of a world in which important decisions often have unforeseen, but not unforeseeable, consequences. If actuaries are ever to fulfill their new, broader mandate, they had better heed this advice. ■

Editorial

From page 2

outstanding, efficient, capable, and professional office staff—as well as with an outstanding line of leaders—with no end of this supply in sight. This infrastructure—whether it is the CAS Office staff or the multitude of volunteers organized in numerous committees, task forces, councils, boards, nationally and regionally—is minimal. Keeping such infrastructure in a fully, and exclusively, supportive role is a serious responsibility of every member and is one of the keys to keeping the focus off the organization and on the individual member.

Once again, for many years, the CAS has engaged in a systematic and deliberate effort to articulate basic principles, standards, and guides on all fronts. This has been an evolutionary process—largely in response to the needs of the member practitioners. As such, what we have promulgated has withstood the test of time. Keeping this process in the mode of responding to needs is a clear and unambiguous path to preventing anything that might look like an actuarial theology from taking

root. We can give such efforts a lofty name, such as Principles of Actuarial Practice and the like. But any such wholesale codification can only serve

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to minimize the role of the individual member—to simply applying the principles articulated in this theology. A continued evolutionary path on this front, I believe, is essential to the continued vitality of the CAS.

Another way in which members can tend and safeguard this franchise is by making sure that their voices are heard. One of the best avenues we have had for this ability to express oneself is this very publication. Over the years, the *Actuarial Review* has served as an excellent forum for ideas of many shades. And most fortunately, the leadership of

the CAS has always permitted and encouraged the *Actuarial Review* to operate as an independent official publication of the CAS—a forum to publish news and views of interest to its members. This is a vital voice. Its vitality is an essential element of the vitality of the CAS.

Over the years, I have had the very special privilege of being associated with this voice. The joy of this service is, at the same time, hard to describe and easy to recognize. The extensive effort that goes into making this publication possible, by the many capable and dedicated members of its staff, I believe, is its own reward.

On the occasion of concluding my official service on the staff of the *Actuarial Review*, I am reminded of the words of its first editor, Matthew Rodermund, in his 1989 editorial, about the sweet sorrow he felt upon departing. I unabashedly admit to the same feelings. But these feelings are accompanied by an even stronger feeling of hope. Hope that this voice, the *Actuarial Review*, will continue to be a strong and independent element sustaining that very special franchise that was first proclaimed in 1914. ■

Actuarial Standards of Practice: Voluntary Versus Mandatory

by Charles Gruber

As a result of a July 1998 mailing by the CAS on revised rules of procedure for disciplinary action, I sent out to CAS members, through the Internet, my thoughts on voluntary versus mandatory actuarial standards of practice. I postulated that the CAS needed a basic directional change in its approach to discipline. I stated that the CAS should:

- promote voluntary standards;
- list specific penalties for situations where discipline is absolutely necessary, for example, expulsion for a criminal fraud conviction;
- change the Actuarial Board of Counseling and Discipline to an organization solely concerned with mediation and conflict resolution; and
- expose fully the CAS discipline process to CAS member workshops and panels.

In my letter, I also listed several arguments for voluntary standards, which I summarize in the table above.

Of the approximately 800 E-mail addresses listed in the CAS directory, about 200 sites came back as non-deliverable. Over a week's time, I received 11 replies, with two stating that they didn't want unsolicited E-mail. I was disappointed because a typical mailing response rate is from two percent to four percent; thus I'd expected from 12 to 24 replies. I was told, however, that my response rate was excellent.

Of the nine responses, four agreed with my position on voluntary standards, four disagreed and one requested further clarification. There is, of course, no conclusion to be drawn from such an insignificant sample. I have extracted from it, however, the essence of the respondents' comments on mandatory versus voluntary standards:

	Voluntary Standards	Mandatory Standards
More precise definitions	yes	no
More helpful to actuaries	yes	no
More resistance from actuaries	no	yes
Potential misinterpretation of standards in disciplinary case	no	yes
Greater participation by actuaries in process	yes	no
Heighten actuarial conflict	no	yes
Increase actuarial professionalism	yes	no

Mandatory Standards

As a profession trying to define itself as a "science," and trying to broaden its applications, the actuarial profession must establish and enforce standards of practice.

...actuaries present themselves as experts in areas where they are not qualified, and, even when qualified, produce work products that fail to meet

substitute for developing actuaries capable of performing quality work.

At the last Casualty Loss Reserve Seminar in Philadelphia, I attended a panel on loss reserving standards. The three panelists, all members of an Actuarial Standards Board committee drafting the standards, went through various comments received from the membership. Some comments were incorporated into the committee's forthcoming draft; other comments were rejected as not being the view of the committee. I realized that by just this process of including and excluding opinions, the committee automatically puts a segment of CAS members in potential violation of the selected standards. Why should professional work of several thousand practitioners be determined by committee? Imagine Copernicus being sanctioned by a panel of medieval astronomers who insisted the Earth did not orbit the sun. Or some committee in Queen Isabella's court ruling that Columbus couldn't be a sailor because he wanted to find a pathway to the East by sailing west.

I urge actuaries to become involved and express their opinions about standards and the discipline process. My belief is that many actuaries will see it my way: voluntary standards improve actuarial performance and professionalism. ■

"My belief is that many actuaries will see it my way: voluntary standards improve actuarial performance and professionalism."

any reasonable actuarial standard...the credibility of the society and profession depends on its public commitment to maintaining standards.

Voluntary Standards

...any mandatory standard becomes a tool for a lawyer...they [should] be called guidelines or something less restrictive.

...voluntary standards could be more helpful to many practitioners. Policing the actuarial profession is a poor



Actuaries Abroad

General Insurance, Lloyd's Highlight Fall Activities

by Kendra M. Felisky-Watson

Fall is the time for the annual ASTIN Colloquium and the annual gathering of general insurance actuaries in the U.K., the General Insurance Convention.

This year the first joint ASTIN and General Insurance Convention conference was held in Glasgow, Scotland. Five hundred and three actuaries, including 11 CAS members and a large contingent of European actuaries, attended from 24 countries ranging from Australia to Iceland.

While both gatherings are about general insurance, some significant differences are apparent in their approach to actuarial science. ASTIN tends towards the more theoretical aspects of actuarial methodology while the U.K. General Insurance Convention leans more towards the practical aspects of actuarial practice. This joint conference was a wonderful opportunity for each side to learn more about the other's approach.

The themes for the ASTIN Colloquium were "Asset-Liability Modeling Including Capital Management" and "Applications of Multi-Variate Modeling Techniques to Non-Life and Health Care Problems." At the plenary sessions, papers on topics such as pricing, reserving, and finance were presented and discussed. In addition, a number of workshops took place on more specialized topics such as reinsurance pricing, benchmarking, and tobacco and stochastic claims reserving. Guest speakers included the well-known Professor Hans Bühlman and the chairman of Lloyd's of London, Max Taylor.

Two thick volumes of papers were distributed (complete with nifty tartan covers!) and are currently available from the Institute of Actuaries. I think the prize for the best title of a paper must go to Miguel Usabel from Spain for his work, "Pricing the Risk of a

General Insurance Portfolio Using Series Expansions for the Finite Time Multivariate Ruin Probability in a Financial-Actuarial Risk Process." The prize for the best concluding paragraph

"This joint conference was a wonderful opportunity for each side to learn more about the other's approach."

in a paper goes to Gianni Bosi and Roberto Daris for their paper, "Minimum Solvency Margin of a General Insurance Company: Proposals and Curiosities," where the concluding line was: "It is somewhat surprising that $1/B=7Pn$."

Another occurrence this fall was the third annual Lloyd's capacity auctions. Previously, when a Name wanted to get out of Lloyd's or died, their existing capacity just went into a general pot. Eventually, people realized that this capacity actually had value and could be traded. This year more than ten percent of Lloyd's capacity, around £1 billion, was traded through the capacity auctions. The average price for the capacity was 15.9 pence for each pound of capacity traded with the highest price being 48.1 pence for Syndicate 1176, which writes exclusively nuclear risks.

Prices are greater than last year, which means that the purchasers still value participation in the Lloyd's market. What is more interesting to note is that the main purchasers were corporate vehicles while the sellers continued to be mainly individual Names. Corporate vehicles are buying capac-

ity particularly in their own syndicates, which means they are supplying capacity to themselves, like a real insurance company! In fact, over half of the capacity for 1999 will be provided by corporate capital and many analysts believe that by 2003 there will be no more individual Names at Lloyd's.

Actuaries in London have become involved in determining the price of capacity to be traded. Past profitability of the syndicate can be much more easily determined than future profitability. However, future profitability should have more influence on the price. Various actuarial models exist to calculate the prices for a syndicate's capacity. Some are fairly basic and some are incredibly complicated. It is interesting that this is another nontraditional area where actuaries can add value. ■

Faculty Post Available

Drake University is offering a tenure track position in actuarial science in the College of Business and Public Administration, to begin August 1999, pending final budget approval. Rank and salary will be based on qualifications. Duties include teaching six courses per year; recruiting, advising, and placing students; conducting scholarly research; and serving the University and the profession. Must have a Ph.D. in actuarial science or a related area and an Associateship in the CAS or SOA is preferred.

Submit a CV and arrange for three letters of reference to be sent to Professor Stuart Klugman, FSA, CBPA, Drake University, Des Moines, Iowa 50311. Drake University actively seeks applications from women and minority group members qualified for the position. EO/AEE ■

A Modest Champion

by Elizabeth A. Smith

Editor's note: Brian Haney is taking a break from the column this quarter. He's off to Italy to get married. The Actuarial Review staff wishes Brian and his wife Elizabeth all the best.

Within GEICO's Washington, DC office, a champion works.

This Fellow got his start competing in the U.S. Open. He was truly surprised when he took 8th place—he didn't think that he was that good. Spurred by this early success, he was inspired to compete in his sport's grand tournament. From his competitive beginning in 1987, he was impressive. By 1997 he was a record-breaking champion.

He's not a golfer or a tennis player. What he does is more mind boggling than those sports. His pursuit is one of nuance. It challenges him to decipher the tricky into something familiar. It combines his love of words and of games. He is a crossword puzzle champion.

A Champ's Beginnings

Our Fellow began solving crossword puzzles as a child. He has enjoyed playing with words and doing puzzles of different types for as long as he remembers. He first read about the U.S. Open Tournament in *Games Magazine* and decided to give it a try. After his strong finish in that competition, our Fellow entered his first American Crossword Puzzle Tournament in 1987, placing 4th in Division A. The next year this sleeper won the tournament outright, which started him on his way to becoming the contest's record-holder for most wins.

From 1988 on, our Fellow dominated in the American Crossword Puzzle Tournament. After his first win in 1988, he went on to win the tournament in 1992, 1994, 1996, and 1997, becoming the event's first five-time

champion. He also made impressive placements in his "off" years, winning second place in 1989 and 1995, and third place in 1990, 1991, and 1993.

Racing the Clock

While the competition is intense at tournaments, it doesn't come from the competitors. They employ no "dirty tricks" or "psyche outs." Beating the

"After his first win in 1988, he went on to win the tournament in 1992, 1994, 1996, and 1997, becoming the event's first five-time champion."

clock to solve the puzzle in time or ahead of time is what drives them. They are a friendly group of people who enjoy getting together every year and solving puzzles. Many have developed friendships from years of competing against one another. Most come back year after year to compete.

In Division A's final round, the contestants solve the puzzles on big boards displayed on stage. Completely calm when it comes to tournament competition, our Fellow finds the final puzzles the most challenging and fun. He shrugs off any indication of nervousness saying, "It's only a game. It's not that big of a deal if I win or lose." The clock is his main competitor.

Today and the Future

Our Fellow continues to solve crossword puzzles just about every day, mostly from books and magazines. "The puzzles in the daily papers aren't as interesting," he claims. Our mystery actuary has also branched out to include Scrabble tournaments. He has been in several such tournaments and describes himself as somewhere between intermediate and expert. (Just give him a couple of years.)

Following his fifth win in 1997, our Fellow decided to take a break from competition. While he was content to be an observer this year, he does intend to compete next year. Watch for him in 1999.

So the next time you run into **Doug Hoylman**, be sure to congratulate him on his wins. And while you're at it, ask him, "What's a seven-letter word for 'surprise success'?" ■

The Tournament

Started in 1978, the American Crossword Puzzle Tournament is the first major crossword puzzle competition to be held in the U.S. since the 1930s. The tournament has several different divisions with Division A including everyone—rookies, regional players, young, and old. The tournament awards cash prizes and trophies to winners in all divisions. Division A's prize purse is \$1,000. All tournament crosswords are specially created and edited for the competition.

To learn more about the American Crossword Puzzle Tournament, visit the official Web site at <http://www.crosswordtournament.com/index.htm>. ■

1998 Reserves Papers Search for the "Best Estimate"

by Joanne S. Spalla

At the Casualty Loss Reserve Seminar on September 28-29 in Philadelphia, six sessions were devoted to the 1998 Call for Papers sponsored by the Committee on Reserves. The topic of this year's call was "Best Estimates for Reserves." The eleven papers submitted in response to the call explored the issues that actuaries face in recommending the "best" estimate to book.

In the first session, **William Lakins** described a model to determine "Efficient Estimators Through Data Segmentation." **Richard Vaughan** then discussed "Some Extensions of J.N. Stanard's Simulation Model for Loss Reserving," which explored a wide variety of questions arising in loss reserving.

In a concurrent session, Glen Barnett presented the paper, "Best Estimates for Reserves," which he co-authored with Ben Zehnwrith. The paper established a methodology to determine whether assumptions underlying standard actuarial techniques are supported by the data. Barnett went on to develop and test a probabilistic model of the loss process, using regression techniques to estimate the distributions.

In the third session, Richard Stein and Michael Stein explored the cognitive, operational, and methodological issues that affect the quality of the actuary's reserve estimate in their paper, "Sources of Bias and Inaccuracy in the Development of a Best Estimate." **Paul Struzzieri** and **Paul Hussian**, authors of "Using Best Practices to Determine a Best Reserve Estimate," employed a case study to illustrate a set of best practices that the actuary could follow at each step of the reserving process to minimize the impact of biases.

On Tuesday, Kathleen Blum and David Otto discussed terminology and communication issues surrounding the

selection of a best estimate reserve. Their paper, "Best Estimate Loss Reserving: An Actuarial Perspective," surveyed the current accounting, tax, and actuarial regulations concerning the selection of a best reserve estimate. In the same panel, **Michael McCarter** and **Jan Lommele**, authors of "Is the 'Best Estimate' Best?," contrasted the "best estimate" wording of the NAIC Codification Issue Paper Number 55 with the "reasonable provision" wording of the annual statement instructions for the statement of actuarial opinion. The panelists also discussed practical considerations regarding the actuary's communication of a point estimate to management.

In the next session on "Estimating the Variability of Loss Reserves," **Richard Sherman** examined a new family of loss distributions that fit simulated claim data. Also during this session, **Alfred Raws III** presented the 1998 Reserves Prize paper, "Statistical Modeling Techniques for Reserve Ranges: A Simulation Approach," which he wrote with **Chandu Patel**. Raws described approaches from this prize-winning paper that utilized both simulation and judgment to generate a range of reserves and provide a basis for selecting the best estimate.

In the final session, both panelists discussed the application of utility theory to the selection of the best estimate. In "Using Utility Theory For Describing Best Estimate Reserves" **Mark Littmann** discussed the results of a survey of professionals, including actuaries, regulators, company management, and shareholders. He also presented a case study that illustrated different utility functions. Robert Buchanan, author of "The Philosophy of Reserving," discussed the issues of discounting, inflation, variability, and risk margins. His paper utilizes a time

series of successive estimates to approach the best estimate.

Readers interested in learning more about these papers are directed to the fall edition of the *CAS Forum*, which was distributed in September. The papers are also available in the download library of the CAS Web Site at www.casact.org. ■

CAS Continuing Education Calendar

January 7-8

Seminar on Loss Distributions, Hyatt Regency, Washington, DC

March 11-12

Seminar on Ratemaking, Opryland Hotel, Nashville, Tennessee

April 12-13

Seminar on Financial Risk Management, Denver Marriott, Denver, Colorado

May 16-19

CAS Spring Meeting, Disney's Contemporary Resort, Orlando, Florida

June 6-8

Seminar on Reinsurance, Marriott Inner Harbor, Baltimore, Maryland

July 19-20

Seminar on Dynamic Financial Analysis, The Drake Hotel, Chicago, Illinois

September 13-14

CAS/AAA/CCA Casualty Loss Reserve Seminar, Marriott's Camelback Inn and Mountain Shadows Resort, Scottsdale, Arizona

Nashville To Host CAS Ratemaking Seminar

by John J. Winkleman Jr.

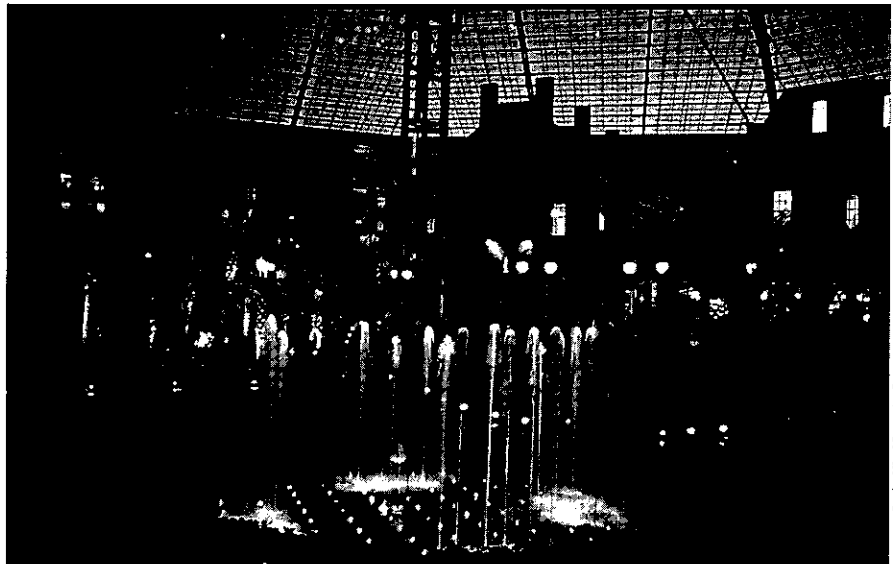
Insurance professionals can expect to learn about a variety of topics at the CAS 1999 Seminar on Ratemaking, one of the most popular CAS educational events. Offering more than 50 sessions, the seminar will be held March 11-12 at the Opryland Hotel in Nashville, Tennessee.

"Attending the Ratemaking Seminar can keep an actuary current on many ratemaking topics and is one of the easiest ways to satisfy continuing education requirements," said John Winkleman, chair of the Ratemaking Seminar Committee. "The committee is always interested in keeping the seminar fresh, so this year we're offering 14 new topics," Winkleman continued.

New sessions for 1999 include "Introduction to Data Management," "Actuarial Data Quality Standards," "Pricing Adverse Loss Reserve Covers," "Sport Utility Vehicles and Auto Insurance Cost," plus topics on health care, the year 2000 problem, and product development. In addition, the seminar will feature sessions with authors presenting their papers selected from the 1998 call paper program, "Evaluation of Non-Loss Reserves."

One seminar highlight is the introductory track, which covers standard ratemaking techniques for the major lines of business. The track is intended for actuarial candidates, underwriters, and those who may not be very familiar with specific concepts or types of insurance. Other seminar sessions will cover catastrophes, data management, reinsurance, workers compensation, dynamic financial analysis, and managed care.

The CAS will post a list of attendees on the CAS Web Site one week before the seminar. The list will also be available at the seminar. For more information on registration and accommodations, contact the CAS. ■



Scenes from the Opryland Hotel Convention Center: clockwise from the top, Delta Fountain, Convention Center, and the Delta.

Photos courtesy Opryland Hotel Convention Center

CAS Trust Receives \$10,000 Contribution

The Trustees for the CAS Trust (CAST) are pleased to announce that D.W. Simpson & Company donated \$10,000 to the Trust on October 7, 1998.

The CAST was established in 1979 as a non-profit 501(c)(3) organization to afford members and others an income tax deduction for contributions of PCAS volumes and funds to be used for scientific, literary, research, or educational purposes.

The CAS is grateful to D.W. Simpson & Company and its employees for their contribution to the advancement of casualty actuarial science. ■

Elections

From page 1

since 1984, Gannon is vice president with United Services Automobile Association in San Antonio, Texas. Gannon was CAS Vice President-Programs and Communications from 1992-1995. She has served on the CAS Board of Directors since 1997 and the Long Range Planning Committee since 1995. Gannon has also served on the Program Planning Committee, both as chair and vice chair, and the Examina-

tion Committee. She is currently liaison representative to the Society of Actuaries' Planning Committee.

Also elected to the CAS Board of Directors were four new directors: **Charles A. Bryan, John J. Kollar, Gail M. Ross, and Michael L. Toothman.** The new directors will serve three-year terms. They succeed **Regina M. Berens, David R. Chernick, C.K. "Stan" Khury, and David L. Miller.** As the most recent past president, Walters will serve as

chairperson for the CAS Board of Directors during 1999.

The number of Fellows voting this year was 883, or 47 percent of the total number of Fellows. Valid ballots cast last year totaled 782 or 47.1 percent of the total number of Fellows eligible to vote. Members of the CAS Nominating Committee for the 1998 CAS elections were chairperson **Allan M. Kaufman, Robert A. Anker, Irene K. Bass, Albert J. Beer, and David P. Flynn.** ■

From the President

From page 1

which is now being pursued somewhat more vigorously, particularly by our colleagues outside of North America, is that of mutual recognition. Simply

"Organizations with a rigorous education and examination procedure should find some way to respect the attainment of the highest levels of achievement within each organization."

stated, this would mean that an actuary who has attained Fellowship by examination in one of the organizations would be granted Fellowship by the accrediting body of another country if that actuary moved to that country and wanted to practice there. For example, an FCAS moving to Australia, upon request to the Institute, would be granted Fellowship in the Institute of Actuaries of Australia.

While CAS members would certainly find this appealing, this recognition would not be granted without reciprocity; that is, a Fellow of the Institute of Actuaries of Australia practicing in property-casualty and moving to the U.S. would, upon petition to

the CAS, be recognized as an FCAS. This latter proposition is not as likely to find favor among the majority of CAS members.

Currently, the CAS does provide some recognition of the examinations sponsored by the Institute of Actuaries (U.K.), the Faculty (Scotland), and the Institute of Actuaries of Australia. We grant credit for exams passed based on the equivalency of these exams with the CAS *Syllabus*. Currently such exam waivers fall short of Associateship requirements in the U.S. and the new Affiliate membership class, which was recently sent to the Fellows for approval to implement, falls short of the recognition sought by our international colleagues.

The concept of mutual recognition is sound and all of those participating in the latest discussions thought it to be a worthwhile goal. Organizations with a rigorous education and examination procedure should find some way to respect the attainment of the highest levels of achievement within each organization. On the other hand, there are some very difficult issues that need to be addressed and there are no readily apparent solutions. For example, we are the only organization specializing in property-casualty issues and no other education and examination structure comes close to ours. And why would we want to grant an FCAS to those who may not be familiar with our legal, regulatory, and accounting systems?

Discussions will continue with the International Presidents group on this topic and I know Steve Lehmann and

Alice Gannon would be very interested in hearing your views.

* * * * *

Since this is my last column as president of the CAS I would like to take this opportunity to offer some personal comments.

"Stan...has worked very hard over the years to pull it all together."

First, I would like to recognize the long and dedicated service to the CAS and to the *Actuarial Review* of Stan Khury, who retires as editor-in-chief with this issue. Stan has been only the second editor-in-chief of this fine publication and he has worked very hard over the years to pull it all together. We owe him our thanks. And congratulations to Walt Wright who moves up to become editor-in-chief with the next issue. I am sure Walt will do very well in this position.

Finally, I would like to give thanks to Tim Tinsley and the entire CAS office staff for the truly outstanding work they do, day-in and day-out, on behalf of all of us. Those who have had the opportunity to work with the CAS Office staff understand what hardworking, dedicated professionals they are and all of us owe them our thanks and appreciation. ■

Vice-Presidents

From page 1

the Committee on Special Interest Seminars. Bensimon's other committee involvement include the Program Planning, Yearbook, and Continuing Education Committees. Bensimon replaces **Susan T. Szkoda**.

A member of the Ratemaking Seminar Committee since 1990, Chernick has also chaired the External Communications Committee and worked on the Examination Committee as vice chair, part chair and member. He has served as a director on the CAS Board since 1995. Chernick replaces **Patrick J. Grannon**.

The Board of Directors reelected the three other vice presidents on the 1997-98 Executive Council for 1998-99. These vice presidents are **Curtis Gary Dean** (Administration), **Kevin B. Thompson** (Admissions) and **Robert S. Miccolis** (Research and Development).■

Don't Be Left Out!

Be sure to update your address for the 1999 Yearbook. Send your new information by fax, mail, or E-mail to the CAS Office.■

Patel and Raws Win 1998 Reserves Prize

Alfred Raws discusses the prize-winning paper that he co-wrote with Chandu Patel.



Chandu C. Patel and **Alfred Raws III** won the 1998 Reserves Prize for their paper, "Statistical Modeling Techniques for Reserve Ranges: A Simulation Approach." **Stuart B. Suchoff**, chairperson of the Committee on Reserves, presented the award to Raws at the general session of the 1998 Casualty Loss Reserve Seminar on September 28. The Reserves Prize is awarded to the authors of the best paper submitted in response to a call for papers regarding reserves whenever the program is conducted by the Casualty Actuarial Society. Papers are judged by a specially appointed committee on the basis of originality, research, readability, completeness, and other factors. Recipients need not be members of the Casualty Actuarial Society. The amount of the Reserves Prize is currently \$1,000. The Patel and Raws paper can be found in the CAS Web Site's download library at <http://www.casact.org/pubs/98fforum/98fftoc.htm> or in the 1998 Fall Forum.■

1998 Woody Scholarships Awarded

Four college seniors have been chosen winners of the John Culver Woody Scholarships for 1998, the Actuarial Education and Research Fund (AERF) announced. The students will each receive \$2,000 scholarships, which were established by the estate of John Culver Woody, a distinguished actuary who died in 1987. The Woody estate established the scholarship to help worthy actuarial students complete their education.

Woody Scholarship recipients for 1998 are:

- Tanya Beeker (Elizabethtown College), nominated by Gabriela Sanchis
- Weijian Liang (Zhongshan University, People's Republic of China), nominated by Shuguang Shen
- Victoria Maile (University of Wisconsin-Madison), nominated by Edward Frees
- Daniel Post (Lebanon Valley College), nominated by Bryan V. Hearsey.

Twenty-nine schools in the U.S., Canada, Mexico, and China sent in

applications for the scholarships. The next round of applications will be accepted in June 1999.

Undergraduates are eligible if they are scheduled for senior standing in the semester after the scholarship is awarded, rank in the top quartile of their classes, have successfully completed at least one actuarial examination, and are nominated by a professor at their school. Applicants must also submit a brief essay. Preference is given to candidates who have demonstrated leadership potential through extracurricular activities.■

From the Readers

From page 4

a sparseness of sunspots, which led some climatologists to conclude that there is a variation in the radiation from the sun. Recent studies confirm that there is indeed a variation in the radiation from the sun. The earth-warming models consider radiation from the sun to be a constant. Since variations in the energy hitting earth from the sun cannot be forecast, the model assumption of constancy is about the only thing they could do, but past history tells us that this assumption is in all likelihood not tenable. In any event, this assumption, by itself, should render the results of the models questionable.

The proposition that CO₂ levels are the cause of earth-warming are also in question. There have been many periods in earth's history when CO₂ levels have been much higher than they are today. None were caused by humans. The primary causes were believed to be decaying vegetable matter and volcanoes. Even today, humans account for only about five percent of the total CO₂ produced by the world. It has also been proven that higher levels of CO₂ in the atmosphere enhance plant growth and add to the food supply of the earth. With increasing earth populations, this might be good.

Water vapor is a much more powerful greenhouse gas than CO₂. It is also self-correcting. As more water vapor enters the atmosphere, more clouds appear and the clouds reflect the radiations from the sun back into space, which cools the earth. In the 1950s jets flying in the stratosphere and putting out nine pounds of water vapor for every pound of fuel burned were considered a threat to the earth by reflecting too much of the sun's heat and causing global cooling. As I understand it, the earth warming models do not take into account clouds or cloud formation as a counterbalance to warming through direct radiation or greenhouse gases.

The increasing concentration of CO₂ in the atmosphere is a health problem and we should do what we can to reduce it. But, to use global warming as an excuse is very lame.

The Kyoto Protocol will do nothing to reduce CO₂ emissions. More than half of the world is exempt from the controls of the protocol and with the free flow of capital and global competition in manufacturing, the production of electricity and other products that use energy will migrate from those countries adhering to the protocol to those that have no restrictions. Can't you see a string of electrical power plants on the Mexican side of the Rio Grande, expelling untold, unregulated tons of pollutants into the United States while furnishing the U.S. with the power it needs to keep growing? Can't

"Actuaries should not let politics prevent them from seeing an issue such as global warming in its scientific context."

you see the manufacturing labor force, who now complains of plants being relocated overseas, really being put out of work because of heavy industry's move to China or India or South America?

Finally, I find most distressing Mr. Bashline's dismissal of Dr. Seitz's work, not on its merits (or lack thereof) but simply because his work was financed by a "far right" organization. The arrogance of this dismissal, apparently without even reviewing the work, is not only non-scientific, it is typical of those who, when confronted with a message they disapprove of, attack the messenger, rather than refute the message.

If you review the Internet site of Dr. Seitz's report, you will find several things. First, he has a list of 19,200 scientists that agree with him, of which 2,380 are physicists, geophysicists, climatologists, meteorologists, oceanographers, and environmental scientists. Another 4,963 are chemists, biochemists, biologists, and other life scientists.

Of the 19,200, 16,800 have qualifications for the evaluation of research data. Truly a "vast right wing conspiracy!" Second, most of the data he uses is from sources over which he has no control. It is available to anyone who wants to make an analysis. I am sure that if Mr. Bashline reviewed this material at <http://sitewave.net/pproject/review.pdf>, even he might agree that not all information from someone of a different political persuasion is not necessarily false.

I have much more to say on this subject, but will wait for a future time. For example, there is the whole argument that if the Kyoto Protocol is adopted, it will benefit those who wish to humble the U.S. (within and without) without reducing CO₂ emissions.

My only wish at this time is that Mr. Bashline would look at the facts and not resort to name-calling as a way of proving his point, whatever it is.

Darrell W. Ehlert, FCAS

Bashline Responds

My point was that actuaries should not let politics prevent them from seeing an issue such as global warming in its scientific context. Obviously, there is a wide range of possible outcomes for the world's climate, and I am not rejecting any arguments for political or any other reasons. I am only arguing that we as actuaries should be able to evaluate these on their scientific merits without talking about Stalin's geneticist and the like. I didn't think I resorted to name calling (except for calling Fred "Fred"). If Mr. Ehlert is referring to my characterization of the Scaife Foundation as "far right," I stand by it.

Donald T. Bashline, FCAS

Editor's Note: *The Actuarial Review staff would be happy to hear from readers on the global warming issue or any other issues. Send your letters to the Editor, Actuarial Review, in care of the CAS Office. ■*

Paul E. Lacko will take over the managing editor position previously held by Wright. Lacko has worked as AR associate editor since late 1995. **Martin Adler** will join the AR staff as associate editor, replacing Paul Lacko.

Other members of the AR staff are **J. Parker Boone**, copy editor; **Daniel F. Kligman**, headline editor; **Stephen W. Philbrick**, Brainstorms; **John P. Robertson**, It's a Puzzlement; **Robert F. Wolf**, news editor; **Kendra M. Felisky-Watson**, U.K. correspondent; **Brian D. Haney**, Nonactuarial Pursuits; and **Elizabeth Smith**, Publications Production Editor.

Stan Khury has served as the second editor-in-chief of the AR, taking over from Matt Rodermund, who founded the AR in 1974 and served as the editor-in-chief until 1989. Matt reports that when he retired as the first editor-in-chief, he "was lucky to have Stan Khury to turn to." Matt expresses the opinion of the whole AR committee when he says: "He will be missed....he was a leader, a manager, and a forward thinker. The AR was lucky to have him, in all his capacities."

In his years at the AR, Stan's vision was clear: to produce a professional newsletter that was visually attractive, that contained interesting news and provocative opinions, and that was freely available as a forum for members. Walt Wright and Paul Lacko intend to carry on in this tradition.■

What's New?

The Actuarial Review has a continuing need for news items. We are always seeking articles that are of interest to CAS members, from brief announcements to feature stories. Please submit articles directly to the Elizabeth Smith at the CAS Office. If you would like to write an occasional article on an assigned topic, please notify Bob Wolf, in care of *The Actuarial Review*, CAS Office.■

Brainstorms

New and Improved Bornhuetter-Ferguson

by Stephen W. Philbrick

I received an E-mail informing me that the deadline for this column was rapidly approaching as I was heading for the Bermuda airport. I was leaving for a four-day, four-actuary, four-hundred-mile bicycle trip through the Carolinas; not the best opportunity for writing. Luckily, I was awaiting my flight at the airport with **Ted Dew**, and had some time before takeoff. I told him (and remind readers) that my goal is to provide a forum to other actuaries with ideas to share.

He hesitated at first, but then told me about a refinement to a reserving method that he is working on. Ted likes the Bornhuetter-Ferguson (BF) method, but he recognizes that the determination of the Initial Expected Loss Ratio (IELR) is the weak link in the method. Good price monitoring tools can improve the reasonability of the IELR's, but, in practice, the selection of the IELR's is often heavily subjective.

"Good price monitoring tools can improve the reasonability of the IELR's, but, in practice, the selection of the IELR's is often heavily subjective."

Even when the IELR is based upon solid information, the standard application of the method uses the same IELR even after substantial emergence occurs. Some people advocate a second application of the method (that is, use the implied loss ratio from the first application as an IELR for a second application). However, this seems terribly ad hoc.

Ideally, we want to calculate the best possible estimate of the expected (not the actual) loss ratio for the year. (Our ultimate goal is an estimate of the actual loss ratio for the year, but the BF method requires a good estimate of the expected loss ratio as an input.) Before the year starts, a formula incorporating price changes, exposure changes and other trends should represent the best possible information. However, as the year progresses, the actual year's experience should provide information relevant to the expected loss ratio for that year.

The emerged experience to date is not a perfect estimator of the expected loss ratio for two reasons:

1. The true reporting pattern is not known with certainty.
2. Inherent randomness of the loss process means that the actual loss ratio will depart from the expected loss ratio.

Consequently, it seems reasonable that the best estimate of the IELR might be some weighting of the loss ratio implied by the experience to date and the original estimate calculated before the year started. We can express this as a formula by letting:

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Multiply While You Shop

by John P. Robertson

An actuary picked out four items at her local convenience store. To occupy her mind, she multiplied the prices in her head while she shopped. She was surprised to find that the product, \$7.11, was related to the name of the store. She was even more amazed when the clerk totaled her purchases, and the sum of the prices also turned out to be \$7.11. How much did each item cost?

Scrambled Addition

The previous problem was to substitute digits for the letters in the following addition, subject to certain constraints given in the last issue.

The solution is given by $934137.63 + 3961325.37 = 4895463$. Most solvers found some relations that helped

	C	A	S	U	A	L	.	T	Y
+	A	C	T	U	A	R	.	A	L
	S	O	C	I	E	T	Y		

narrow the number of possible solutions, and then used trial and error. For instance, from the rightmost two columns, one immediately has that $Y+L=10$ and $T+A=T+Y=9$. It follows that $C=9$ because the sum of the third column from the left must be 9 or 10, and cannot be 10. Other relations can be found, and a little trial and error is needed, leading to the unique solution.

We thank Chris Yaure for creating this extremely popular puzzle. Readers are encouraged to propose problems for this column. They shouldn't

be too hard, or too easy, or too well-known.

Solutions were sent in by Mary Ellen Cardascia, Oscar Chow, Michael Claborn, **Stanley Dorf**, Dianne Fiebrink, Kurt D. Hines, **Randy Holmberg**, Mark Kertzner, Allen Lowe, **Don Manis**, Chaim Markowitz, **Rich Newell**, Khanh Nguyen, Jabran Noor, Riccardo Ochierstio, Apryle Oswald, Jason Santos, Rob Schmid, **Leroy J. Simon**, **David Spiegler**, **Kathie Terrill**, W. Mont Timmins, Anthony C. Yoder. ■

Brainstorms

From page 15

- IELR represent Initial Expected Loss Ratio
- SULR represent "Standard" Ultimate Loss Ratio
- n represent the year associated with the estimate
- Z represent the weighting factor.

Then we can express the calculation as:

$$IELR_n = Z \times SULR_{n-1} + (1-Z) IELR_{n-1}$$

It would be interesting to calculate the theoretical weights representing the credibility of these two values. (Or perhaps someone can point out that this problem has already been solved and provide a reference.)

Short of a theoretically rigorous solution, Ted Dew suggests that the reporting pattern itself has some desirable properties consistent with what we would expect for the set of credibility factors. Specifically, most reporting patterns tend to increase with age, as we would expect the credibility associated with maturing actual experience. Long-tail lines have lower expected emergence than short-tail lines, implying a lower credibility at early emergence dates, again consistent with intuition.

One potential flaw is that I would argue that the credibility associated with actual experience should never reach 100 percent, but this is unlikely to be a practical problem, as the BF and other methods tend to converge before

the reporting pattern reaches 100 percent.

Does anyone have any thoughts on whether this approach is reasonable (or already discussed in the literature) or whether it can be improved? Perhaps the square or the square root of the reporting pattern makes more sense, or perhaps there is some other easily calculable amount that can be used as a weighting factor.

After submitting this column, I started reading the papers in the Fall 1998 *Forum*. One of the papers by Paul Struzzieri and Paul Hussian specifically discusses the selection of weights to be used in a BF method. (You can find this paper on the CAS Web Site's download library at <http://www.casact.org/pubs/98fforum/98fftoc.htm>.) They also reference a forthcoming paper by Spencer Gluck (*PCAS* Volume LXXXIV) (<http://www.casact.org/pubs/proceed/97proceed/index.htm>) that will address the question for the BF as well as the Stanard-Bühlmann (Cape Cod) method. ■

In Memoriam

James M. Cahill

(FCAS 1929)

September 28, 1998

Paul A. Verhage

(FCAS 1965)

September 25, 1998