



The Actuarial Review

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From the President

Thoughts on New Year's Day

by Patrick J. Grannan



Patrick J. Grannan, 2001 CAS President, officially receives the gavel from 2000 President Alice H. Gannon.

It is New Year's Day (and New Millennium Day) as I write this column, so happy New Year! You are probably reading this on a day that does not feel like the unrushed interlude between past and future that today is for me. Nonetheless, I'm hoping you will take a moment to sit back and think about our profession—what it is today, what needs to be focused on most in order for it to have a successful future, and what role you personally can play in that future if you are so inclined. These are worthwhile things for the members of a profession to think about periodically if the profession's future is important to them. I'll give you my thoughts on each of these subjects, with the hope that this will provide useful food for your own thoughts.

What is the CAS? Fundamentally, it is an organization of professionals. It operates through hundreds of members who volunteer their time and energy, and through a support staff of

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2000's Actuarial Top Ten

by Robert F. Conger and Michael A. Walters

The performance of the property/casualty industry dominated this past year's news stories, having significant implications for casualty actuaries. Stories related to industry performance took the top four slots, according to our annual survey of CAS thought leaders. Also identified as significant trends were the continued emergence and evolution of new aspects of the property/casualty insurance business—including Internet distribution of insurance products and enterprise-wide perspectives on managing risk.

The top four stories identified were:

1. The failure or near-failure of various major carriers, notably in the U.S. market (where workers compensation results appeared to be a significant common element among

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U.S. Actuaries Adopt Revised Code of Conduct

For the first time, the conduct of the actuarial profession in the U.S. is governed by a single version of the Code of Professional Conduct. Culminating nearly three years of effort by the Joint Committee on the Code of Professional Conduct, each of the five U.S. actuarial organizations adopted an improved and unified revised Code effective January 1, 2001. The revised Code avoids potential conflicts for actuaries who are members of more than one organization.

The CAS Board of Directors approved the revised Code on November 14, 2000. A copy of the Code is on the CAS Web Site along with a Joint Committee memo with

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Exams 3 and 4 To Be Modified

by Marty Adler

ARLINGTON, VA—Responding to criticism and poor results for the jointly administered Exams 3 and 4, the CAS and SOA have implemented changes that significantly reduce the amount of material covered on the exams. The changes will take effect for the Spring 2001 exam sitting. The two organizations issued a joint statement announcing the change on December 21, 2000. On the same day, the CAS Task Force on Exams 3 and 4 also posted their report, which led to the changes, to the CAS Web Site.

Early last year the CAS Board of Directors appointed the task force and charged it with evaluating the appropriateness of both the learning objectives, especially for casualty actuaries, and the teaching materials. Chaired by **Howard Mahler**, task force members in-

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Elections 2000: An Actuarial Perspective

by C.K. "Stan" Khury

The events surrounding the final resolution of the 2000 presidential election are widely acknowledged to be unique in the history of the American republic. The twists and turns leading to the ultimate resolution are well known and require little additional comment. However, one aspect of the story deserves special consideration—especially when viewed from an actuarial perspective.

During the long five weeks following the election it became increasingly clear that, despite public expectation and despite all appearances to the contrary, the act of counting votes and deciding the presidential victor is a process that is based on

“...a (political) life and death situation was decided on the basis of an approximation.”

approximations. This reality, clearly present and operating for generations, somehow had never focused in our consciousness, notwithstanding a great deal of evidence plainly pointing to it. Consider, for example, that absentee ballots are not counted unless they could change the outcome of the election and that millions of ballots are incapable of being counted by the counting equipment (for a host of reasons including voter error, voting machine malfunction, and counting machine malfunction). The “problem” does not emerge fully unless and until there is a very close race such as the Florida voters produced, and election officials seek to replace an approximation with a precise result. This desire, in the case of Florida, spawned a web of “protests,” “contests,” and countless invocations of local election laws, federal voting rights laws, and constitutional arguments. And, of course, as we all saw, none of these methods of converting an approximation into a precise final result was particularly satisfying to either the contestants or their supporters.

Which brings us to the actuarial reserving paradigm. A reserve is an estimate—and at that an estimate of some fixed but unknown ultimate amount. Such an estimate is often accompanied by a statement along the following lines: “This estimate is subject to numerous uncertainties and errors of estimation—and actual development may turn out to be higher or lower than this estimate and may be much higher or much lower than this estimate.” Imagine the Florida officials describing the Florida results using the actuarial jargon: “The ballots have been counted and recounted and it appears that Bush has won the election. When every ballot has been recounted and the clear intention of voters has been ascertained, the results may be different (for example, Bush still wins the election but by a different margin than that of the first approximation) or the results may be very different (for example, Gore wins the election).”

If an actuary who produced a reserve estimate is asked to be more precise, the actuary may be able to resort to different and more elaborate methods of estimation that may or may not improve the precision of the estimate. But, at the end of the day, we can be certain that the actuary could never remove the uncertainty inherent in the estimation process.

Several attempts have been made to remove the election uncertainty, but after many legal battles on numerous fronts, the approximation had to stand as an approximation, much to the dismay of the Gore supporters. Thus a (political) life and death situation was decided on the basis of an approximation.

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Editor-in-Chief:

Walter C. Wright

Managing Editor:

Paul E. Lacko

Editor Emeritus:

Matthew Rodermund

Editor Emeritus:

C.K. "Stan" Khury

Copy Editors:

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Publications Production Editor:

Elizabeth A. Smith

Editorial/Production Assistant:

Megan V. Casey

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2001 CAS Spring Meeting Set for Miami Beach

by Sandra C. Santomenno

While Florida had difficulty in counting its votes for president of the United States, rest assured you can count on a very interesting CAS 2001 Spring meeting, to be held May 6-9 at the Fontainebleau Hilton in Miami Beach.

Featured speaker Mike Jensen, NBC News's Emmy Award-winning chief financial correspondent, has reported on every major economic event in the last three decades from the energy crisis in the '70s to corporate downsizing in the '90s. He has a knack for making finance and business easy to understand, clearly linking their impact on you, your business, and your industry.

Four general sessions are planned for the spring meeting. One general session, "Enterprise Risk Management: Panacea or Paradigm," will explore how organizations are beginning to look toward the process of coordinating their risk management through a

centralized unit and some of the hurdles they may encounter through this process. A second general session, "CATS—A Worldwide Focus,"

will discuss various scientific studies that underlie many of the catastrophe models in use by companies in the industry. "Expert Systems, Technology and Fraud" will center on developments and systems used to uncover costly fraudulent activity affecting the insurance industry. Finally, "Regulation—EU v. the Rest of the World" will compare the varying regulatory environments encountered as companies increase their global presence.

Planned concurrent session topics include an update on Lloyds, insuring new and unique exposures, allocation of capital, an update on securitization, the flight of capital offshore, credit en-



The Fontainebleau Hilton, Miami Beach, FL.

hancement project financing, an update on workers compensation state funds, the impact of the Frankel case on regulation, the state of personal auto insurance, diversity in the actuarial profession, developments in homeowners insurance, and many others. Limited attendance workshops focusing on developing general business skills will also be offered.

On Tuesday evening, members and guests are invited to join us for a buffet dinner and entertainment at the Fontainebleau Hilton. More detailed information on the CAS 2001 Spring Meeting will soon be mailed to members. ■

CAS to Conduct Fall Seminar on Globalization and Technology

Seminar Held in Conjunction with the Faculty and Institute of Actuaries 2001 GIRO Meeting

In recognition of the global range of the financial services industry, the CAS has coordinated with the casualty section of the U.K.'s Faculty of Actuaries and the Institute of Actuaries, called GIRO, to combine our October special interest seminar with their annual meeting in Glasgow, Scotland. A CAS seminar overseas is certainly unusual, granted, but the world is our marketplace now. The CAS enthusiastically encourages you to attend on October 3-5, 2001.

The Globalization and Technology Special Interest Seminar will put you in the perfect position to push the fron-

tiers of your employers' territory through professional networking, international learning, and the revelation of new business opportunities. This meeting is a very economical way for your company to provide you with international exposure, education, and information in areas that may directly affect your work product. This will be a great opportunity to expand your professional network, because more than 500 U.K. actuaries and others will attend the meetings. Glasgow is easy to get to, especially if you prepare for the trip well in advance.

The CAS invites you to enter a pa-

per in the Brian Hey Prize Competition. A prize will be awarded to the best paper on the subject of Globalization and Technology: Issues (and Solutions) for the Insurance Industry. We also invite you to present a paper on original research in any area of interest to an international group of actuaries (see story, page 9).

You can get more information about this meeting on the CAS Web Site, or by speaking with **Alan Hines**, chairperson, Committee on Special Interest Seminars, or **Abbe Bensimon**, vice president-continuing education. See you in Scotland! ■

Time and Money

Dear Editor:

I would like to respond to the article entitled "The Market Relevance of the Actuarial Profession" submitted by **Donald Mango** and **Thomas Struppeck** (*The Actuarial Review*, November 2000). I'm an associate actuary currently enrolled to take the first of the CFA exams in June 2001. My decision to abandon the CAS exam process in favor of the CFA track was in response to many of the same concerns raised by Sholom Feldblum in his recent opinion article (*The Actuarial Review*, August 2000). One particular concern is the inordinate amount of study time required to pass CAS exams successfully, relative to the benefits to the student or employer. It is not unusual now for a student to spend 500-600 hours studying for a Fellowship exam in order to achieve a passing score. Students who fail their first attempt may ultimately spend over 1,000 hours in an effort to pass any given exam.

That is an extraordinary time requirement for most people. Mango and Struppeck note in their opinion piece that students "work hard towards the

designation because it is so valuable." I do not believe this to be the case. Students receive only nominal pay raises for successful exam sittings. But salaries for actuaries have not risen to anywhere near the level of those achieved by their counterparts in the financial services industry. Why? Because actuaries still confine their efforts to the liability estimation and pricing. What do employers receive in return for their investment in time and money? Are their actuaries that much more valuable to them after passing exams? I think not. Employers do not want to pay more for an employee who passes exams but offers no additional talent to the company.

Mango and Struppeck go on to state, "If your interests lie in the capital market, please look elsewhere." What do they think actuaries should do when banks buy insurance companies or vice versa? Should we bury our heads in the sand in response to convergence in financial markets? I, for one, believe that the capital markets represent the next sphere of influence for actuaries qualified in the field of mathematics and finance. Only when actuaries step out

into the capital markets will they recognize their true potential and become more broadly useful to their employers, as well.

Christopher Allan, ACAS

Kudos for CAS Staffer

Dear Editor:

As a member of the Finance Committee, as chair of the Finance Committee, and as Assistant Treasurer, I would like to thank CAS staffer Todd Rogers for all his assistance. Having been involved in this committee since before he came to the CAS, I have been in a good position to observe his implementation of many improvements to the budget preparation process and budget and expense tracking packages, regular assumption of additional responsibilities, and responsiveness to all of my inquiries, audit comments, and suggestions. By continually making my role easier to handle, he contributed to my longevity on this committee. As a CAS member, I had a "front row seat" in observing his contributions to the CAS. Thanks again, Todd, for all of your assistance.

Michael P. Blivess, FCAS ■

In My Opinion

From page 2

The contemporary mathematician John Allen Paulos (author of *Innumeracy*) commented on the impossibility of determining the victor in the Florida election because the potential margin of error (of estimation) is greater than the margin of victory. In other words, no matter what is done to determine the victor, the process is so imprecise that whoever was declared the winner, by whatever process, cannot be the absolute winner as the margin of error can overwhelm the result of any counting one may undertake.

The actuarial equivalent of this commentary is something that is relatively obvious to each of us as a result of our training and experience: an actuarial estimate, given enough uncertainty, can be overwhelmed by the magnitude of the variability inherent to the estima-

tion process. We do our best to disclose this condition by the use of appropriate caveats. However, at the end of the day, a single number is entered on the financial statement of an insurer (or other risk-bearing entity). The caveats, however, remain ensconced in the supporting actuarial report. The typical reader of the published financial results has only the vaguest notion, if any indeed, of the amount of variability that can be attributed to the loss reserve estimate.

Given the importance of the margin of (estimation) errors, a case can be made that the caveats that accompany a loss reserve estimate should be lifted and carried forward as a note in the published financial statements that rely on such reserve estimates. The errors of estimation may or may not be reported in the history books that tell the story of the 2000 elections, depending on authorship. We can be certain that

such caveats are going to appear in the history books that tell the story of the 2000 elections according to the vanquished. Of course the history books written by the victors will simply fail to note the caveat altogether—and why shouldn't they, they were the victors, after all.

One of the perennial challenges of casualty actuarial practice is finding ways to quantify the potential errors of estimation and their associated probabilities, thus reducing our reliance on vague caveats that may be state of the art but are hardly helpful to the user. This is a fertile question capable of continuously challenging each of us individually as well as the casualty actuarial profession at large.

The Florida elections and the attendant angst in reaching resolution have brought many issues into a sharp focus—along with a number of actuarial

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Taking a Hard Look: The Actuarial Disciplinary Process

by Michael J. Miller

The CAS Board recently received an oral report from the ABCD that I personally found very frightening. Let me start with the proposition that most actuaries support a meaningful disciplinary process as a means of fulfilling one of the requirements of a legitimate profession.

In my view, the failing of the U.S. actuarial profession is that it has adopted a disciplinary process that is counter to the beliefs we hold dear and the rights granted to us by the U.S. Constitution. The Sixth Amendment guarantees the accused the right to a public trial, the right to an impartial jury, the right to confront one's accuser, and the right to have a lawyer actively assist in defense.

I am no Constitutional historian, but it is my understanding that the Sixth Amendment was not intended as a means to further embarrass or persecute the accused, but rather to protect them. In fact, these rights protect each of us from what would otherwise be tyranny.

I challenge each actuary to step back and take a hard, objective look at what the U.S. actuarial profession has done with its disciplinary process. Ostensibly to "protect" the accused we have implemented a secret system of investigation, trial, sentencing, and ultimate disposition.

Without public review, there can be no assurance that our judges always render decisions that are impartial and free of personal biases. There can be no assurance our judges are enforcing the Standards of Practice and Code of Professional Conduct either as written or as intended. There can be no assurance our judges are not sometimes creating and imposing new standards of practice and conduct. Having the judges say "trust us, we will treat you right" is no substitute for public review.

If we are to have a secret process with no public review of the judges' actions, proceedings, and decisions, then it is absolutely imperative that the ABCD have in place clear and unambiguous guidelines to be followed in enforcing our standards of practice and

"Having the judges say 'trust us...' is no substitute for public review."

conduct. These guidelines must be submitted for discussion and approval by the actuarial profession. It is frightening to know that no such guidelines exist. Yes, it is true that procedural rules are set forth (although it should be noted that these rules clearly limit lawyer participation in all disciplinary proceedings), but there are no guidelines for interpretation of the standards of practice and code of conduct. For example, in terms of deciding what constitutes a material violation, it was reported to the CAS Board that "no specific guidelines as to materiality exist." It is my understanding that no specific guidelines for interpreting *any* of our code of conduct precepts or standards of practice are in place. It is unacceptable to have a secret trial where the basis for the judges' decision is neither subject to specific guidelines nor public review.

The dangers of such a secret trial are further compounded by the fact that we are not guaranteed the right to confront, or even know, our accuser. Can you imagine the potential damage to an accused if an accuser enters a baseless complaint and the ABCD, for its own reasons, proceeds to investigate? Even if they eventually exonerate the accused, damage has been done. An accused who values confidentiality is in

a "Catch-22"—unable to expose the complaint's falsity and judges' prejudices without also exposing the fact that he or she was subject to a professional investigation. I contend that this "Catch-22" situation is the definition of tyranny.

How would you feel about being tried for a crime if the police and prosecutor worked for the judge? That is exactly what happens in our disciplinary process. The investigator/prosecutor is retained by our judges. Don't you think the judges might sometimes be inclined to give their prosecutor the benefit of the doubt? Without public review, there can be no protection against these subtle but persistent procedural biases.

If I were ever accused of violating any standard of practice or any precept of our code of conduct, I would refuse to participate in this secret trial process. Due to the particulars presented here, my preference would be to be convicted in absentia by this secret tribunal and then defend myself in an open, public court. These secret, inherently unjust, trials can only survive if we professionals continue to acquiesce. It is absurd to suggest that secret trials with no guidelines are the only way to go when the opposite approach has been successfully tested for over 200 years.

The president of the American Academy of Actuaries, Lawrence A. Johansen, responds: The issues raised in Mr. Miller's article will be addressed in several articles on the U.S. disciplinary process to be featured in the March issue of The Actuarial Update. Academy members are encouraged to read the March Update; interested actuaries who are not Academy members but wish to read the articles may request a complimentary copy by contacting the American Academy of Actuaries at (202) 223-8196. ■

Gannon Calls on CAS to Keep Focused

WASHINGTON, DC.—CAS President Alice H. Gannon challenged the CAS to “to keep the main thing the main thing” during her presidential address, delivered here during a luncheon that was part of the 2000 CAS Annual Meeting, held November 12-15.

“There has always been a statement of purpose in our constitution,” said Gannon. “But what is really important, is that a large number of active CAS members have frequently engaged in discussion about the meaning and implications of the CAS’s purpose such that...the CAS’s purpose...has been well understood by most of the active members.”

Gannon acknowledged that in recent years knowing and understanding the Society’s purpose and keeping focus has become more difficult. “My advice to all future leaders of the CAS is to be mindful of the importance of keeping the CAS’s purpose defined and well understood by the membership and keeping that purpose at the center of the CAS’s activities,” said Gannon.

More than 600 attendees gathered for the meeting, which featured two



Clockwise from left, new Fellows Andrea Wynne Malyon, left and Shu C. Lin listen intently; Alice Gannon presides over the meeting; Gannon congratulates Rodermund Service Award winner, “Chap” Cook; Charles C. Hewitt addresses new members; LeRoy Boison, right, presents the Hachemeister Prize to Uwe Schmock.

Proceedings paper presentations and numerous educational sessions. At the annual business session on November 13, the CAS honored 31 new Associates who were inducted as new members and 135 new Fellows (see photos, pages 14-15).

Former CAS president **Charles C. Hewitt** (1972) addressed the new members, challenging them to pursue excellence and to give back. “With all that

you have been given, now is the time to rise and to give of yourselves,” said Hewitt. “My second challenge is this—that some time during your careers or your lifetimes, you will stop and, figuratively speaking, plant a tree under whose shade you will never sit.”

Several award winners were also honored during the business session. **Charles “Chap” Cook** was awarded the Matthew Rodermund Service Award. For the second year in a row, **Stephen J. Mildenhall** was awarded the Woodward-Fondiller Prize. Mildenhall’s prize-winning paper is a discussion of **Michael G. Wacek’s** paper, “Application of the Option Market Paradigm to the Solution of Insurance Problems.” The paper will be published in the 2000 *Proceedings* and can be found on the CAS Web Site under publications. Uwe Schmock of ETH Zurich was awarded the 2000 Hachemeister Prize. Schmock later presented his paper, “Estimating the Value of the WINCAT Coupons of the Winterthur Insurance Convertible Bond: A Study of Model Risk.” ■

Politics, Baseball, Addressed in Will’s Annual Meeting Session

by **Andrew K. Chu**

Nationally syndicated columnist George Will’s keynote speech at the 2000 Annual CAS meeting focused on the extended presidential election. Those in attendance were treated to his insights on the unfolding drama, as well as his bold prediction: a Gore victory predicated on hand-recounted ballots, much to Will’s displeasure.

Will discussed electoral college benefits as well as practical reasons why the electoral college is unlikely to change in the near future. In addition to commenting on the unwillingness of smaller states to diminish their relative voting power, Will asked the audience to consider the logistics nightmare of recounting ballots for all 50 states in an election as close as the 2000 campaign.

During a question and answer session, Will lamented the impersonality of Internet and mail voting. Aside from their greater fraud potential, such methods would eliminate the collective American exercise known as voting. The U.S. already has precious few collective activities; to dismiss yet another one would be unfortunate in Will’s eyes.

After sharing his political insights, Will fielded some questions on baseball. The author of several books on the sport and a member of an ad hoc Major League Baseball committee, Will addressed the impact of the widening payroll gap on America’s national pastime. Will did not go into great detail about potential solutions, but hinted that his committee’s report to Bud Selig proposed some changes.

One CAS member found a topic on which Will had absolutely no opinion. When asked about the merits of potential federal insurance regulation versus the current state regulatory environment, his response was a quick “No comment.” ■



George Will

What is Wrong with a Comprehensive Exam?

by Howard C. Mahler

In spring 2000, the joint CAS, CIA, SOA Task Force on Academic Relations exposed for discussion the establishment of “a single comprehensive examination option to obtain credit for all of the examinations jointly sponsored by the CAS and the SOA, available to students at accredited actuarial science programs.” This proposed comprehensive examination would give credit for joint Exams 1 through 4, and would be an option available to students at “accredited” actuarial science programs at certain universities. This is a terrible idea: unfair, unnecessary, ill conceived, impractical, and a waste of valuable effort.

What problem is this comprehensive exam intended to solve? Presumably the typical student at an “accredited” actuarial program would be passing courses covering the material needed to become an actuary and taking the current separate exams available to everyone. Why would a student in an actuarial program wait until his final year to take a comprehensive exam?

For example, Exam 2 covers theory of interest, economics, and finance. Do the university courses cover the same material as the CAS/SOA syllabus? Is the mate-

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Strengthening the Profession

by Beth Riczko

We seem to think that we can stake out our territory by broadening the definition of our profession and changing our exam syllabus. I think it is the wrong approach. Neither the CFA program nor the actuarial exams prepare an individual to be a financial engineer, an investment analyst, or an actuary. The exams provide the basic knowledge needed to become proficient, but proficiency is not achieved by exams alone. Few people would argue this point, but our focus on the examination process, its difficulty and the time required to complete the syllabus, suggest otherwise.

By concentrating on trying to strengthen the profession through a rigorous examination process, I wonder if we have not limited our opportunities to compete in the future. People outside our profession often know of the rigors of our examination procedure, yet know little of the overall knowledge we possess. We are often viewed as myopic and ill equipped for the broader business issues. Our colleagues admire our intellectual abilities, but question our ability to help them solve daily business problems. Is this a fair criticism of our skill set or is this the result of our fascination with the difficulty of the examination process?

I am a Level 2 CFA candidate. I also have three of the four parts required for the Certified Financial Manager and Certified Management Accountant designations. I have the CPCU, AIM, AIS, ARe, and ARP designations. None of these programs has been as difficult as the actuarial exams. That does not suggest, however, that these programs are any less educational or less applicable to my professional duties. Depending on the audience, each designation is given different weight in assessing my skills and qualifications. Yet only my FCAS designation comes with the

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Why We Are Leaving

by Gil Student

In the ongoing debate over the relevance of an actuarial degree, my viewpoint is one that might add to the dialogue. I was an actuarial student for four years before I left the profession. For the past year and a half, I have been working in the credit risk department of a major credit card issuer and I am currently pursuing a CFA degree (I still read *The Actuarial Review* out of nostalgia, nerd that I am).

I strongly agree with Sholom Feldblum. While I am not able to judge my actuarial capability without bias, all indications were that I was at least an average actuarial student. However, my growing family was more important to me than my exams and I was therefore passing them very slowly. The frustration of failure combined with the knowledge of the many years it would take to finally finish exams led me to my current path.

Don Mango and Thomas Struppeck hit the nail on the head and confirmed every actuarial student’s sneaking suspicion when they wrote: “Every profession puts up barriers to entry. If the goal isn’t difficult to attain, it is typically not highly valued—the two are inextricably bound together...Members have a stake in the exams’ staying difficult—maintaining the value of the designation.”

The only reason that there are so many exams, and the only reason that they are so difficult, is to protect the jobs of already certified actuaries. To students who spend hundreds of hours poring through poorly written study material with the knowledge that every irrelevant footnote may be tested, that reason is not sufficient. If extra knowledge was gained by the added difficulty, maybe we could understand. Maybe. But the material can be learned to a working knowledge without being

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In My Opinion

From page 4

issues. More specifically, an actuarial issue that the Florida election has brought into sharp focus highlights the need for casualty actuaries to double and redouble their efforts to reduce the size and import of caveats in reserve analyses or to clarify the caveats by quantifying the potential errors of estimation. The Florida problem had to be resolved because the clock was ticking and a resolution was needed by a certain date. The system did what it could to move to a resolution. In the actuarial case, we do not have a ticking clock forcing the profession into action. But we do have the opportunity, as well as ample time, to improve our estimation procedures and our ability to describe the potential estimation errors to the benefit of all participants: the casualty actuary, the user, the regulator, the investor, as well as the casualty actuarial profession at large. Are we up to the challenge? ■

Discipline Committee Issues Report for 1999-2000

Chairperson **Al Beer** submitted the annual report of the CAS Discipline Committee at the November 12, 2000, Board meeting.

During the 1999-2000 CAS year, one report was received from an investigatory body, the Actuarial Board for Counseling and Discipline.

A Discipline Committee Panel was formed and a hearing was conducted in accordance with the CAS Rules of Procedure for Disciplinary Actions as amended in November 1998. Legal counsel was engaged by the CAS to advise the Discipline Committee Panel.

The Discipline Committee Panel decided that a private reprimand was in order, after consideration of all the relevant evidence presented. The subject actuary was advised of the right to appeal within 45 days. There was no appeal and the CAS president issued a private letter of reprimand to the subject actuary to comply with the final order.

The revised CAS Rules of Procedure for Disciplinary Actions were thus tested for the first time with this case, and in general were found to be complete and very helpful.

There are no pending cases before the Discipline Committee referred by the investigatory bodies (e.g., ABCD, CIA, etc.). **Irene Bass** was appointed as the Discipline Committee chairperson for 2000-01 by the Board of Directors. ■

2001 Research Conference Set For Columbus

Ohio State University and the Nationwide Insurance Enterprise are jointly hosting the 36th Actuarial Research Conference, August 9-11, 2001, in Columbus, Ohio. The conference traditionally has been the central meeting for North American academics and researchers interested in actuarial science.

The conference is cosponsored by the CAS, the Actuarial Education and Research Foundation, the Society of Actuaries, and the five other actuarial organizations in North America. To ensure a spot on the program, participants who would like to make presentations must submit an electronic copy of their title and abstract by June 1, 2001. Each year the papers presented at the conference are published in the Actuarial Research Clearing House (ARCH). Additional information about the conference can be found at www.math.ohio-state.edu/ARC2001. ■

Actuarial Science Position Available

The School of Actuarial Science at Laval University seeks French-speaking applicants for a tenure-track faculty position to be filled starting June 2001. Duties include teaching and counseling students, conducting actuarial research, and academic, administrative, and professional activities. Applicants must either hold (or be near completion of) a Ph.D. in actuarial science or a related discipline, be well engaged in actuarial research, be (or be close to being) a member of a recognized association of actuaries, or be (or be close to being) a Fellow of a North American actuarial association, have research experience or hold a master's degree in an area related to actuarial science, or demonstrate at least five years of professional experience. Laval University intends to hire women for half of its vacant positions. Canadian citizens and permanent residents have priority. For more details visit www.act.ulaval.ca. Submit a CV and three reference letters to Michel Jacques, Chair, École d'Actuariat, Pavillon Vachon, Université Laval, Ste-Foy (Québec), Canada G1K 7P4, before March 1, 2001. Candidates with an academic background, please submit course evaluations. Candidates from the profession, please submit an appropriate evaluation of any communication experience. ■



Actuaries Abroad

Birmingham to Glasgow via the U.S.!

by Kendra M. Felisky-Watson

In October, 350 members of the Institute and Faculty of Actuaries braved storms, floods, rail crashes, and other natural disasters to attend the annual gathering of property and casualty insurance actuaries, colloquially called GIRO. While Birmingham, England probably is not at the top of most people's "must visit" lists, the adjacent U.K. Motor Show might have been a strong inducement to attend, in addition, of course, to the excellent programme.

A working party studying the interaction of insurance, games, and psychology, constructed a game in which approximately 150 people participated in 36 teams. The objective was to run an insurance company selling three products: private passenger auto, home owners, and sheep insurance (a new and immature market that is bleating for attention). The game was run over five years, with decisions required for every year as to the premiums to charge, marketing expense, and claims expense. Some decisions also had to be made on investment opportunities or acquisitions. The game was highly entertaining and very informative. Participants really enjoyed trying to influence the market by talking to competitors late at night in the bar. The eventual winners went into the sheep market in a big way. Team names also presented an outlet for creativity: Woolly Jump-

ers, Clone Re, and my personal favourite, BLEAT.com.

Plenary sessions were packed full of interesting presentations that touched on underwriting cycles and business strategies, distribution channels, shareholder value, capital allocation, financial condition, and stochastic reserving.

The winner of the Brian Hey Prize was our own **Sholom Feldblum**. He gave an interesting presentation of his paper, "Underwriting Cycles and Business Strategies." A copy of his paper can be found in the book of papers for the conference, available from the Institute of Actuaries, and also in the 1990 *CAS Forum*.

Many workshops were presented on a variety of interesting topics including Bayesian networks and data mining, alternative risk transfer, risk-based capital at Lloyd's, and new developments in catastrophe modelling.

Local CAS members had the opportunity of hearing one of our own members, **Lisa Walsh**, who works in Dublin. She provided an interesting discussion of stop loss contracts and other financial reinsurance products. Then **Alice Gannon**, then CAS president, discussed current issues in the CAS. It was nice to talk with Alice and also to share experiences with other CAS members who are working overseas.

Just a reminder that next year's GIRO conference will be a joint one

with the CAS in Glasgow from October 3-6, 2001. Working groups are being formed on the following topics:

- Reliance on Advice from Other Professionals
- State-of-the-Art Pricing Methods
- Measuring Customer Value
- Calculating Premium Monitoring/Rate Change Indices (to measure changes in rate levels)
- Investment Strategies
- Structured Settlements (The Value of Rehabilitation)
- Extended Warranty Insurance
- Professional Malpractice and D&O—Pricing and Current Issues
- Asbestos, Pollution and Health Hazards Update and Issues
- European Weather Derivatives
- European Influence on the U.K. Market

The Institute and Faculty of Actuaries as well as the CAS encourage CAS members to participate on these working parties. The goal of the working parties is to present a paper at the conference. The views of CAS members are desired in the preparation and discussion of these papers.

It should be an interesting conference in Glasgow next year, and remember: you don't need to wear a kilt, you will drink some real Scottish whiskey, and I can definitely promise some rain!■

The Brian Hey Prize

The Institute of Actuaries' Brian Hey Prize is available for the best paper submitted in response to the call. Prizes will be announced and presented to the authors at the 2001 GIRO meeting.

The Brian Hey Prize is part of the joint call for papers on the topic of "New and Innovative Uses of Technology and Globalization of General Insurance (otherwise known as Property and Casualty in the U.S.)" by the CAS and the General Insurance Research Organising Committee (GIRO) of the Institute and Faculty of Actuaries.

Submissions can be drawn from (but not limited to) these topic suggestions: 1) Innovative uses of technology in the pricing, marketing, underwriting, and reserving for general insurance products; 2) The impact of globalization on the methods and techniques used by actuaries; 3) New products, procedures, methods, and techniques created in response to advances in technologies or the globalization of insurance; and 4) Issues surrounding the valuation and integration of foreign insurance operations. Send papers to the CAS or to Barbara Beebe at the Institute of Actuaries by July 1, 2001. Advance notification is appreciated but not required.■

Leaving From page 7

able to pass the exams. That is the ultimate frustration—knowing the material well enough to be able to teach a course on it but still being unable to pass an exam. And the only reason, and one that I have never seen admitted until now, is that some Fellows fear the competition of younger and more energetic colleagues. Evidently, decades of actuarial experience is not enough job security for the Fellows so they had to legislate their job security by requiring insurance companies to have certified actuaries sign off on their reserve opinions and then manipulate the supply of certified actuaries.

It certainly is not the case that successfully completing exams is a sign of good actuarial behavior. We all probably know actuaries who readily passed the exams, who are not very good. Yet there are many who would make exemplary actuaries but cannot because of the exam burden.

The question that every actuarial student asks is whether it is worth it. Coming out of college, everyone thinks that they can pass exams quickly. Sure we hear the warnings, but we figure that we're probably smarter than the rest. After we finally realize how hard these exams are, and everyone eventually does, we start to wonder whether all of the time we spend studying is being wasted. We are spending our youth studying for exams. Will it pay off?

We all have friends who are making more money in other careers without having to take exams. But can we do it? Are we to believe the often repeated mantra that passing actuarial exams is a guarantee of job and salary security? The average salaries for Fellows that I have seen range between \$90,000 and \$120,000. While that seems low, I view that as the guarantee that the letters FCAS offer. Is that kind of salary worth all those years of intensive study?

Mango and Struppeck wrote: “[An actuarial degree’s] market value is to some extent a result of the difficulty.”

But only “to some extent.” Similar balances of salary and security are available elsewhere with less difficulty so an actuarial degree is not worth its

purported value. Since passing actuarial exams is harder than getting a masters degree in statistics or business, actuarial salaries should be much higher than in other industries. But they aren't. So why bother? I see statisticians and MBAs making over \$100,000 just because they stayed in one company and put up with the bureaucracy for ten years. Others finesse their way up the corporate ladder to much higher salaries.

**“You Fellows are
probably smiling to
yourselves. It
worked! You still
have your job
security.”**

I've posted my experience of leaving the actuarial field on actuarial message boards a few times and have been inundated with questions and private e-mails. The general feeling that I have gotten is that many students do not think that the actuarial path is worth the struggle. The same salaries (or more) can be made with similar work conditions and without any exam requirements.

You Fellows are probably smiling to yourselves. It worked! You still have your job security. But think about who leaves the profession. Those who are daring enough to leave their comfortable surroundings—the risk-takers. Those smart enough and presentable enough to be able to convince businesses to take a chance and hire someone without industry experience. After years of trying to shed the pocket-calculator, back-office image, you create adverse selection that will bring it back.

Mango and Struppeck wrote: “Actuarially inclined students considering actuarial careers must first ask, ‘Insurance, yes or no?’”

How many students really care whether they work in insurance or another similar mathematical or risk-related field? Why should it matter? Try asking some of those actuarial students who are cranking out rate filings whether they are married to the insur-

ance industry. They probably hate insurance.

I analyze a different kind of contingent liability with a different cash flow. It took a while to get used to it, but I am using the same skills I was always using in a slightly different context. I am using the same spreadsheet skills, the same programming languages, and I still have the occasional obscure theoretical discussion about the statistical behavior of losses and premiums. The only difference is that we discuss loss rates instead of loss ratios and my colleagues are statisticians and MBAs instead of actuaries.

There are many different areas where an actuarial student's skills can be used and, particularly for those with only a few years of experience, there is very little practical difference. And the need for talent is very real. My company is dying for anyone with mathematical skills and I have recruiters calling me all the time for other companies with similar needs.

Mango and Struppeck also wrote: “Exams 3 and 4 teach the fundamentals of the ‘actuarial approach,’ unique to our profession. We have both worked with financial engineers and capital market quantitative professionals, at firms such as Center, RiskMetrics, and Goldman Sachs, who expressed great interest in learning these actuarial techniques.”

I agree. Actuarial techniques have not yet made it to mainstream economists or statisticians. So what? A colleague of mine, with a Ph.D. in econometrics, was undertaking the equivalent of a trend analysis. It was a grand experiment for the department which held much hope for slightly more accurate forecasts (the cash flows are extremely quick, so forecasting can be done with very recent data which mitigates the inaccuracies of untrended analyses). He was starting from scratch so I gave him some actuarial readings to help. He quickly picked it up and did a job that would make any actuary proud. All this, and he never passed a single actuarial exam! Can it be that someone can learn actuarial techniques without memorizing inane lists and

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Wang Paper Provides Tools for Modeling and Combining Correlated Risks

by James C. Sandor

Every actuary who does any kind of modeling for multiline contracts should be aware of "Aggregation of Correlated Risk Portfolios: Models and Algorithms" by **Shaun S. Wang** published in the 1998 *Proceedings*. This paper, which is a practical and theoretical guide to modeling dependent risks, is the result of a research project commissioned by the CAS Committee on Theory of Risk.

Wang's paper is an outstanding introduction to aggregate modeling, and it also (as the title suggests) provides models and algorithms to model correlated aggregate loss distributions. Correlation and the more general topic of dependence are also explained in this paper. As the author points out in the introduction, they are not the same.

Section 2, Probability Generating Function and Fast Fourier Transforms (FFT), and Section 3, Aggregate Loss Models and the FFT Method, are essential reading. The FFT method is an extremely flexible and powerful tool for generating aggregate loss distributions. This method has not enjoyed widespread use to date, largely because a concise, understandable explanation has been absent from the actuarial lit-

erature. Actuaries who have shied away from the FFT method because it is too difficult to explain to others should read Dr. Wang's description.

Section 3 also contains a simple, innovative method for calculating the sum of multiple lines of business with correlated frequencies. This method can be implemented quite easily in a spreadsheet or statistical package via the FFT procedure or through simulation.

Dr. Wang devotes the center section of the paper to measures of dependence and copulas. These two topics may not be familiar to many actuaries; however, they are critically important to the understanding of dependence modeling beyond simple correlation. Kendall's Tau and Spearman's Rank correlation are two of the alternate measures of dependence that are discussed.

Anyone doing dependence modeling should be aware of what copulas are and how they work. Simply stated, copulas *are* dependence models. Although they are not covered on the CAS *Syllabus*, they are a valuable tool for creating dependence structures beyond simple Pearson linear correlation.

The final sections of the paper cover alternate sources of dependence, in-

cluding Common Mixture Models, Component Models, and the Distortion Method. Also included is a second method for modeling the sum of multiple risk portfolios with correlated frequencies, based on the characteristic function of the multivariate negative binomial distribution. This method can also be easily programmed into a spreadsheet or statistical package. The paper concludes with an example using the two methods assuming correlated frequency.

Dr. Wang has given the CAS an exceptional paper on topics and algorithms related to the modeling of dependent risks. Actuaries who are doing any type of aggregate modeling should read it and apply the principles to their real-world problems. The paper is available in the 1998 *Proceedings*, on the CAS Web Site at www.casact.org under publications.

Interested users can find a downloadable spreadsheet *FFTCalc*, built by **Glenn Meyers**, that demonstrates Dr. Wang's methods. Look in the "Downloadable Programs and Spreadsheets" section of the CAS Web Site at www.casact.org/library/dablprog.htm. ■

Leaving From page 10

studying obscure footnotes? It didn't even take him five to ten years to be able to do it.

Mango and Struppeck very wisely stated "Is our rigorous training a net benefit to our employers, after recognizing the costs?"

Perhaps the good old days are over. Maybe the time has come to shorten the study time and number of exams so that employers won't have to pay for

so much "vacation" time. To employers, that is what study and exam time is. For five to ten years, they are annually paying for employees to have hundreds of hours for themselves. Multiply that by a few dozen employees and that is a cost of hundreds of thousands of dollars. Add to that all of the travel expenses of the frequent actuarial "seminars" in extravagant places like Bermuda. Wake up! If high salaries are most important for actuaries then reduce the other expenses that go along with an actuarial department because

artificially inflating your worth is not working. The statisticians with whom I currently work would be glad to try their hand at insurance scoring. ■

Editor's Note: The Actuarial Review encourages the publication of opinion pieces. If you would like to respond to a published opinion or express a new one, please send your article to the CAS Office or send it by e-mail to esmith@casact.org. All submissions should be in electronic format with 500 words or less.

2000's Top Stories for Casualty Actuaries

How They Ranked and Why

Rank	News Story	Actuarial Significance	# Votes		
			Sum	Total	#1
1	Major carriers founder (Reliance, Superior National, Fremont, Australian reinsurers)	How effectively has actuarial input influenced past management decisions? Will actuaries be given, and effectively take, the opportunity to improve future decisions?	352	44	10
2	Underwriting results deteriorate; especially workers compensation		330	44	15
3	Market hardening—Commercial lines and Reinsurance		291	42	7
4	Industry watchdogs pronounce “loss reserves deficient”		283	40	4
5	Leading corporations move to enterprise-wide integrated view of managing risk	Vast new arena for the application of actuarial skills	232	40	5
6	Internet is transforming distribution; players collaborate (InsWeb & AOL; AIG & Priceline)	Accelerates the time frame for pricing decisions; calls for new methods of pricing based on new types of information	216	38	3
7	Acquisitions and divestitures (AIG to buy Hartford Steam Boiler, Berkshire buys U.S. Liability Insurance Group; St. Paul sells nonstandard to Prudential; CGU & Norwich Union merge, sell off some pieces; Humana sells off workers compensation unit; and others)	Effect on markets and jobs; involvement in due diligence	131	32	0
8	Ninety-six percent hurricane rate increase in Florida, based on models	Actuarial modeling techniques increasingly acceptable to regulators	119	26	0
9	Regulators working on privacy rules for personal financial data per Gramm-Leach-Bliley	May limit the availability of certain data items for pricing and underwriting	106	19	1
10	Health sector pressures: medical cost inflation, Medicare lawsuits, Patients' Bill of Rights	Effect on performance of all injury-related insurance products	101	22	1
11	Commercial lines deregulation gathers momentum	Increased product/pricing flexibility demands nimble actuarial skills	94	23	0
12	Slowdown in economy	Actuarial forecasts to reflect direct and indirect effects on business volume, claims	74	17	3
12	Codification to change booking of loss reserves and other financial statement items	Actuarial estimates given greater weight; may come under greater pressure	74	20	0
14	Asbestos claims up sharply; pursuing additional layers of coverage	Actuarial modeling and analysis is needed	71	16	0
15	NAIC seeks actuaries' help evaluating CAT options; amends Schedule F to recognize securitization	Actuaries given an opportunity to weigh in with creativity, research, and analysis	64	11	1
16	Stock market cools	Underwriting performance more visible. Also, may reduce appeal of alternative careers for quantitatively oriented college students	58	11	0
17	NAIC devises national “one-stop” clearinghouse for new product filings	Changes dynamic of product design and filing process	32	10	0
17	Adverse loss development covers become more common	Calls for actuarial analyses, including DFA analyses	32	7	0
19	Uncover reverberations continue	Participants continue to need help; contributing to market cycle in workers compensation	30	10	0
20	Banks buy regional brokers; IIAA gets OK to launch new bank	New players in insurance, new markets, and products for insurers	26	5	0

Top Ten

From page 1

- many of the troubled companies) and in the Australian reinsurance market.
- Deterioration of underwriting results, particularly for workers compensation and other commercial lines.
- The long-awaited hardening of the

insurance market, at least with respect to commercial lines and reinsurance.

- Widely published opinions by industry observers that the industry's loss reserves are, in the aggregate, deficient.

Most respondents identified one of these stories as the number one story of the year for casualty actuaries, and many placed all four of these in the top

ten. Of course, the underlying causes and effects of these four stories are closely intertwined, not independent factors.

The importance of these four stories lies in the opportunity for casualty actuaries to be part of the solution—or not. What was the role of casualty actuarial input to company management

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Discounting Reserves with Insufficient Assets

by David J. Otto

Editor's Note: This article is part of a series written by members of the CAS Committee on Professionalism Education (COPE) and the Actuarial Board of Counseling and Discipline (ABCD). The opinions expressed by readers and authors are for discussion purposes only and should not be used to prejudge the disposition of any actual case or modify published professional standards as they may apply in real-life situations.

The Lack of Surplus Fund (Fund) was established five years ago to provide a medical malpractice self-insurance program for participating members of the Hospital Association. John D. Actuary, a consulting actuary, has been hired by the Fund to provide an actuarial estimate of the Fund's liabilities. The Fund intends to book John's loss reserve estimate in its financial statement.

Over the past few years, the Fund has operated in a deficit position (i.e., assets are insufficient to cover liabilities). As of the end of this year, John estimates the Fund's undiscounted loss reserves at \$100 million. The Fund's corresponding assets are only \$35 million.

Fund management has asked John to provide his loss reserve estimate on a discounted basis. John is concerned about discounting the loss reserves to present value because the Fund clearly does not have enough assets to generate the investment income needed to cover any projected investment return.

Can John produce a report to management presenting the needed loss reserves on a discounted basis?

Yes

Actuaries providing loss reserve estimates are not required to incorporate an analysis of assets. According to comments contained in the transmittal memorandum of Actuarial Standard of Practice (ASOP) No. 20, *Discounting of Property and Casualty Loss Adjust-*

ment Expense Reserves, page vii, the subcommittee "agreed that valuation calculations may be unrealistically burdensome in a reserving context." Since the scope of John's assignment did not include an analysis of assets, he is not in the position to opine on the Fund's financial condition.

John intends to include a disclaimer in his report stating: "I have not examined the assets underlying the liabilities and have formed no opinion as to the validity or value of those assets."

John believes disclaimers such as this allow him to accommodate the client's request and provide adequate warning to the reader of the report regarding discounting issues.

Reserve estimates also should be able to stand on their own, regardless of the Fund's retained assets. Reserve estimates are often presented in terms of a "market value" by using a risk-adjusted discount rate independent of the unique characteristics of the Fund's assets. According to ASOP No. 20: "The selected interest rates may reflect the time value of money without particular reference to assets (see 5.4.1) or may be based on the investment return from a particular portfolio (see 5.4.3)."

No

It would be inappropriate for John to discount the loss reserves. Principle 1 of the *Statements of Principles Regarding Property and Casualty Loss and Loss Adjustment Expense Reserves* states: "An actuarially sound loss reserve...is a provision based on estimates derived from reasonable assumptions and appropriate actuarial methods..." It is unreasonable to assume the Fund's liabilities are backed by valid assets and there is no cash flow problem—especially since John is aware this is not the case.

This position is further supported in the ASOP No. 20, Section 5.1, which states: "The actuary should be aware of the context in which the discounted

reserves are to be used. The actuary should use assumptions and methodology in the discounting process that are appropriate for that context."

Also, John should not discount reserves for use in the financial statement because the Fund's financial condition would be presented in a manner that is misleading. Precept 8 of the *Code of Professional Conduct* states: "An Actuary who performs Actuarial Services shall take reasonable steps to ensure that such services are not used to mislead other parties."

Finally, the disclaimer suggested above, in favor of discounting, is unacceptable because it will warn only the most informed reader. Besides, a disclaimer's intended use is not to allow the actuary to perform services known to be inappropriate. Actions such as this do not help the actuarial profession fulfill its responsibility to the public.■

Revised Code

From page 1

background for the revision and summary of comments. The revised Code is also published in the 2001 CAS *Yearbook*, replacing the version CAS last amended in September 1996.

An original exposure draft had been circulated in May 1999. More than 60 comments were received at that time, leading to the release of the second exposure draft in April 2000, which resulted in 37 additional comments.

The CAS Board of Directors has expressed its gratitude to the members of the Joint Committee and, in particular, Chairperson Jack Turnquist, for their contribution to the U.S. actuarial profession. Other members of the committee include **Mike Fusco**, Bill Falk, **Sam Gutterman**, Ken Kent, Howard Phillips, and liaison representatives Mo Chambers (Canadian Institute of Actuaries) and Luis Huerto (Colegio Nacional de Actuarios).■

New Fellows and Associates Honored

New Fellows, first row, from left: Chingyee Teresa Lam, Todd Bennett Glassman, Nathalie Ouellet, Kari A. Nicholson, **CAS President Alice H. Gannon**, Amy Louise Hicks, Lewis Y. Lee, Jerelyn S. Boysia, Ernest C. Segal. **Second row, from left:** Sophie Duval, Kevin M. Dyke, Leonid Rasin, Kendall P. Williams, Michael William Barlow, Michael J. Tempesta, Charles Letourneau, Rebecca Ruth Orsi, Steven A. Cohen. **Third row, from left:** Martin Vezina, Gregory J. Poirier, Jonathan Stanger Woodruff, Brandon L. Wolf, Jay T. Hieb, Philippe Jodin, Louis Durocher, Todd Harrison Hoivik.



New Fellows, first row, from left: Tobe E. Bradley, Ricardo A. Ramotar, Michael C. Tranfaglia, Kuei-Hsia Ruth Chu, **CAS President Alice H. Gannon**, Walter L. Jedziniak, Ain Milner, Mark Paykin, Lori E. Julga. **Second row, from left:** Christopher David Randall, Paul D. Miotke, Kin Lun (Victor) Choi, Qing He, Joseph G. Cerreta, Kevin T. Murphy, Richard A. Olsen, Jonathan Garrett Taylor, Hugh E. Burgess, Jason Thomas Sash. **Third row, from left:** Jane Eichmann, Robin M. LaPrete, Jeffery Tim Hay, Emmanuil Theodore Bardis, Seth Wayne Myers, Roman Svirsky, Richard Matthew Pilotte, Chester J. Szczepanski.



New Fellows, first row, from left: Nancy Michelle Hoppe, Michele S. Arndt, Michael J. Bluzer, Andrea Wynne Malyon, **CAS President Alice H. Gannon**, David A. Rosenzweig, Vicki A. Fendley, Sean R. Devlin, Amy L. Hoffman. **Second row, from left:** Carl Xavier Ashenbrenner, Laura Markham Williams, Susan I. Gildea, Neal M. Leibowitz, Hugo Fortin, Jonathan Scott Curlee, Chauncey E. Fleetwood, Elina L. Koganski, Alex A. Hammett. **Third row, from left:** Rebecca L. Roever, Larry Kevin Conlee, Carol A. Stevenson, Patrick Beaudoin, Michelle Lynne Harnick, Nicolas Beaupré, Michelle Luneau, Michael J. Toth, Shu C. Lin, Kathleen T. Cunningham.



New Fellows admitted in November 2000 who are not pictured: John Scott Alexander, David Steen Atkinson, Keith M. Barnes, Erik R. Bouvin, Stephanie T. Carlson, Wei Chuang, Kris D. DeFraim, Tammi B. Dulberger, Gregory James Engl, Kenneth Jay Hammell, Claudia A. Krucher, Ian John McCracken, Michael G. Owen, Julie Perron, Anthony George Phillips, Peter S. Rauner, Laura M. Turner, Kieh Tsung Ty, Nathan K. Voorhis, Claude A. Wagner.

at the 2000 CAS Annual Meeting

New Fellows, first row, from left: Sherri Lynn Border, Veronique Bouchard, Stuart A. Schweidel, Andrew S. Becker, **CAS President Alice H. Gannon**, Daniel B. Perry, Ellen J. Respler, Andrew K. Chu, Christopher M. Steinbach. **Second row, from left:** Dengxing Lin, Romel G. Salam, Mary Elizabeth Cunningham, Sanjay Godhwani, Igor Pogrebinsky, Richard D. Olsen, William B. Westrate, Travis J. Lappe. **Third row, from left:** Charles B. Jin, Varsha A. Tantri, Loren Rainard Danielson, Robert F. Brown, Patrick J. Charles, Christopher Kent Perry, Benoit Morissette, Kenneth D. Fikes, James C. Santo, Allison F. Carp.



New Fellows, first row, from left: William Harold Scully III, Mihaela Luminita O'Leary, Rebecca N. Hai, **CAS President Alice H. Gannon**, Kari S. Mrazek, Yuhong Yang, Noelle C. Fries. **Second row, from left:** Michael Brad Delvaux, Glen-Roberts Pitruzzello, Karrie Lynn Swanson, Robert M. Thomas II, Ronnie Samuel Fowler.



New Associates, first row, from left: Peter R. DeMallie, Susanlisa Kessler, Amy L. Gebauer, Kathleen T. Logue, **CAS President Alice H. Gannon**, Patrick J. Gilhool, Felicia Wang, John R. McCollough, Jing Liu. **Second row, from left:** Christopher S. Throckmorton, Patricia A. Hladun, Sylvain Nolet, Mark D. Heyne, Derek R. Hoyme, Kurt D. Hines, James J. Matusiak, Jr., Sean R. Nimm, Mark A. Verheyen, Maura Curran Baker. **Third row, from left:** Craig D. Isaacs, Dustin W. Gary, Neil M. Bodoff, Brian C. Neitzel, William M. Finn, David R. Kennerud, Sean M. Kennedy, Julie Martineau, Jeremy T. Benson, Rodney S. Morris.



New Associates admitted in November 2000 who are not pictured: Katherine H. Antonello, Gregory K. Jones, Rodrick R. Osborn, Shaun S. Wang, Eric Zlochevsky.

Comprehensive Exam

From page 7

rial covered at the same level of comprehension and with the same emphasis? After taking and passing these courses at the university, wouldn't a typical student at an accredited program take and pass our Exam 2? If not, then clearly something is wrong with the student, the university's actuarial program, the CAS/SOA syllabus, or the CAS/SOA exam. If Exam 2 is difficult for full-time students who have recently passed courses covering this material, wouldn't it be even more difficult for actuarial students who are working full-time and have no university professor to help? If the CAS/SOA exams are too difficult and/or too long, the solution is to reexamine the length and difficulty of our actuarial exams and change them for everyone.

If our current exams and syllabus are driving too many good people away from our profession, then the solution again is to make a change that applies to everyone. The proposed comprehensive exam will not be available to everyone. This is unfair, and it would (rightly) undermine confidence in the CAS/SOA examination process.

Moreover, it is inconceivable to me that the CAS/SOA could maintain any consistent relationship between a comprehensive exam and four separate exams. It is difficult enough to maintain the same length and difficulty level for a single exam from sitting to sitting. Vast amounts of energy would be wasted arguing over which version of the exam was easier. I suspect that the intent is to make it easier to pass the comprehensive exam than the four separate exams. This would just add to the unfairness of this proposal. It would provide an easier route to membership that is not available to everyone.

Presumably, to take advantage of this unfair situation, students would want to gain admission to "accredited" actuarial programs. Those not admitted would feel discouraged, and they would likely refrain from entering our profession. The CAS/SOA should neither encourage nor discourage attendance at particular universities. Rather, if students from an "accredited" actu-

arial program at XYZ University are more valuable to certain employers, let the market adjust accordingly. Those students will get better and/or more jobs offers, which, in turn, will give other students an incentive to attend XYZ University and take its actuarial program.

Actuarial training is more than an academic program; it is an apprentice-

**"Students might
earn a passing score
by totally ignoring a
topic."**

ship program. I believe the CAS has benefited from the diversity of its members' backgrounds. While some have majored in actuarial science, most have majored in mathematics, statistics, physics, computer science, or economics. I know fine actuaries who have majored in history or music.

The comprehensive exam would cause very significant testing problems for the exam committees. Currently, Exams 1 through 4 total 15 examination hours. Even with a total of 15 hours, it is a difficult task to test fairly and adequately what is on the current syllabus. The comprehensive exam would be significantly shorter (or why bother to have it in the first place) with fewer questions on each syllabus topic. Therefore, the comprehensive exam will not tell us whether a student has, in fact, learned the material at the desired level of comprehension.

The students would, however, face an awful endurance challenge, assuming that the comprehensive exam must run well over four hours. Exams longer than four hours, even with a break for lunch, put too much emphasis on endurance.

If the comprehensive exam is six hours long (three hours in the morning and three hours in the afternoon), there will be time for only four credibility questions, rather than the normal ten questions. If a student's knowledge of credibility (or any other subject) is spotty, then four questions rather than ten increases the influence of pure luck

on the student's ability to answer correctly.

Students might earn a passing score by totally ignoring a topic. For example, economics is currently about 40 percent of Exam 2, so it is extremely difficult to pass Exam 2 knowing absolutely nothing about economics. On the other hand economics would be only about 10 percent of the proposed comprehensive exam. A student *could* pass the comprehensive exam knowing absolutely nothing about economics.

Economics is one of many important topics that would each account for 10 percent or less of the comprehensive exam. Many students would pass having learned absolutely nothing about one or more of these important topics. The *Syllabus* must contain inessential material, then, if students need not demonstrate knowledge of it. Drop this material from the *Syllabus* rather than create a comprehensive exam.

In summary, significant harm would result from the proposed comprehensive exam. We should focus our valuable resources on improving our current *Syllabus* and exams. In every respect, the proposed comprehensive exam is unfair, unnecessary, ill conceived, and impractical. ■

CAS Continuing Education Calendar

**Bookmark the online calendar at
www.casact.org/coneduc/cal.htm.**

March 11–13—Seminar on
Ratemaking, The Mirage, Las
Vegas, NV

April 2–3—Understanding the
Enterprise Risk Management
Process, Sheraton Fisherman's
Wharf, San Francisco, CA

May 6–9—CAS Spring Meeting,
Fontainebleau Hilton, Miami
Beach, FL

June 7–8—Seminar on Dynamic
Financial Analysis, Boston Park
Plaza Hotel, Boston, MA

July 8–12—ASTIN Colloquium
and Seminar on Reinsurance, JW
Marriott, Washington, DC

A New Look for the CAS Web Site

by Janet L. Dauber

The Committee on Online Services recently unveiled a new design for the CAS Web Site, now in its fifth year online. The primary focus of the redesign was to establish a more professional identity for the CAS Web Site. Several elements were added to achieve this desired effect, including color branding, simplified navigational tools, and a unique online logo.

One of the more noticeable changes to the CAS Web Site is the transition from very bright "rainbow" colors to more subtle, rich colors. In addition to producing a more professional image, the colors are used to "brand" the main sections of the Web site. Each color cor-

responds to a main group of similar sections, and then the color scheme is carried throughout each page within those particular sections.

The navigation on the home page was simplified by consolidating some of the menu items. This eliminated the need for left-right page scrolling. The home page now contains a simple left navigation bar, where all of the main sections of the Web site are listed. In addition, a top navigation bar provides links to user tools, such as a searchable database of external links. Some menu items were renamed to help users identify and locate desired informa-

tion more efficiently. For instance, job postings and commercial advertisements now reside in the "Classifieds" section, formally known as the "Advertisers Exhibit Hall."

Finally, a "CAS Online" logo was created. The logo was designed to give the Web site an identity distinct from other CAS publications and products.

This redesign is the second major revision since the Web site's launch in October 1996. The previous redesign was completed in November 1998.

Comments about the redesign can be sent to the webmaster, at webmaster@casact.org. ■

VFIC Publishes Materiality Note and Completes Acquisitions Report

The CAS Valuation, Finance, and Investments Committee (VFIC) has released its new study, *Materiality and ASOP No. 36: Considerations for the Practicing Actuary*. VFIC wrote its study to aid the actuary who must evaluate materiality in the course of preparing a statement of actuarial opinion (SAO). VFIC recommends that its note be read in conjunction with ASOP No. 36.

As background, VFIC notes that Actuarial Standard of Practice No. 36, *Statements of Actuarial Opinion Regarding Property/Casualty Loss and Loss Adjustment Expense Reserves*, became effective on October 15, 2000. Among other things, the new ASOP requires the actuary to use the concept of materiality in a number of important ways, including:

- determination of whether or not to issue a qualified opinion;
- determination of the need for disclosure of significant risks and uncertainties;
- consideration of factors likely to affect the actuary's reserve analysis; and

- determination of the need for a number of other possible disclosures.

There is no formulaic approach to determining the standard of materiality the actuary should use for a given SAO. The ASOP instructs the actuary to evaluate materiality based on professional judgment, any applicable guidelines or standards, and the intended purpose of the SAO.

The CAS asked VFIC to prepare a note that would aid the actuary considering materiality in the context of ASOP No. 36. The note includes discussion of the accounting concept of materiality as discussed by the NAIC and the SEC, but emphasizes that the accounting discussions do not directly apply to the actuary preparing an SAO.

Now available on the CAS Web Site, the note will also be distributed as an appendix to the Practice Note prepared by the Committee on Property and Liability Financial Reporting of the American Academy of Actuaries.

VFIC recently completed a second report entitled *Use of Actuaries In Acquisitions*. The report is based on a survey of the role played by actuaries in

recent mergers and acquisitions. Questions addressed include how the actuary was perceived as a member of the mergers and acquisitions team, what additional roles actuaries are able to fill, and what training and development programs are needed to accomplish this expanded role for the actuary.

Preliminary findings were provided at the April 2000 Valuation Seminar. The final report is currently being reviewed by the CAS vice president-research and development and should be available to members shortly. ■

What's Your Story?

Do you or someone you know participate in an interesting hobby or activity outside of actuarial work? *The Actuarial Review* seeks subjects for our Nonactuarial Pursuits column. Please e-mail your leads to esmith@casact.org.

From the President

From page 1

about twenty people who carry out tasks under the direction of members (and do so very well in my observation). Although my focus here is mainly CAS members, the casualty actuarial profession is broader; it certainly includes the many professionals who work in this field and are taking the exams required for CAS membership.

The CAS has been very successful to date in my view. A few of the signs of success that I would point to are:

- The number of CAS members has more than doubled in the past ten years and nearly quadrupled in the past twenty. There is clearly strong demand for the knowledge and skills of CAS members.
- Large numbers of CAS members are active in its committees, write papers, and contribute to the profession in other ways. Many are also active in CAS Regional Affiliates, Academy committees, and other professional groups. I believe they do this because it is of value to them, whether directly in their jobs or indirectly by helping their profession.
- Employers place significant value on the ACAS and FCAS designations, and on the exams passed by those who are not yet members.
- CAS committees organize many, well-attended continuing education seminars.
- The CAS publishes a large volume of papers and articles on subjects of interest and practical importance to its members and others. In many cases, the work is sponsored or encouraged by CAS research committees.

Is the CAS perfect? No, but the imperfections have not resulted from any lack of good intentions or efforts. Will the CAS continue to be this successful or more so in the future? I believe this is likely, but only with ongoing efforts comparable to those by past genera-

“Our expertise will need to become more portable across geographic and political boundaries.”

tions of volunteers. They (including many of you readers) have given us a strong legacy to build on but a lot needs to be done.

The CAS has a great deal of important work in progress in all of its functional areas, which can be thought of broadly as basic education, continuing education, research, and public communication. However, I would cite three broad trends as needing particularly large amounts of solid, creative thinking and work in order for our profession to meet the needs of its members in the next few years. These trends have implications for all of the CAS functional areas. There isn't space here to go into details, but I'll say just a few words about each in the hope that you might be interested in contributing in some way.

First, globalization of the business world is in progress and is almost certain to continue. Our expertise will need to become more portable across geographic and political boundaries. We will also benefit from sharing knowl-

edge with actuaries based in other countries, both by developing global best practices and by making it easier to work together for our common employers and clients.

Second, the skills needed by our employers are shifting, creating new opportunities and possibly decreasing demand for some traditional actuarial skills, narrowly defined. A few examples of the skills needed and forces at work are enterprise risk management, dynamic financial analysis, asset/liability management, risk securitization, and deregulation, as well as reducing barriers between financial services companies. The exam syllabus changes in 2000 were designed in part to reflect the changing skill needs. The CAS will continue to work to make the syllabus as good as possible. This will be an iterative process to some extent as illustrated by the recent adjustments to Exams 3 and 4.

Third, there is an increasing amount of competition for people with the aptitudes and interests that lead to good actuarial work. We need to make sure the opportunities in our profession are well known to such people and that the qualification process is no more of a barrier than necessary in assuring adequate knowledge.

If you would like to get involved in a CAS committee, a good way to do this is to complete the participation survey that CAS members receive each June. I encourage you to read the committee descriptions attached to the survey and volunteer for the ones that most interest you, since those are probably the ones you will find most rewarding as well as the ones in which you are likely to contribute the most.■

CORP-Accepted Papers Posted on Web

The CAS Committee on Review of Papers has released its quarterly update of recently accepted papers. Electronic versions of the accepted papers are located on the CAS Web Site at www.casact.org under “Publications.” The CAS Editorial Committee will be editing these papers for inclusion in the *Proceedings of the Casualty Actuarial Society*. As of January 11, 2001, CORP has accepted the following paper: “A Flexible Framework for Stochastic Claims Reserving” by Richard J. Verrall and Peter D. England.■

25 Years Ago in *The Actuarial Review*

While comparing old issues of The Actuarial Review to new issues, two quirks consistently jump out. First, the same actuarial concerns are still being discussed. For example, the January 1976 issue has an article arguing the merits of loss reserve discounting and an article regarding the fairness of classification systems. Second, the old publications make it clear how much the CAS has grown in the last 25 years, as illustrated below:

(From **Ronald L. Bornhuetter's** column)

From the President

"No matter how much we may hate to see it happen, the CAS is growing rapidly. For many, many years we have been a small close-knit group knowing each other quite well and now, soon, virtually overnight, we will become a Society 1,000 members strong."

(From an opinion piece by **Norman J. Bennett**)

Bennett was discussing the fact that there were then 36 women in the CAS.

Maunderings

"Dropping my pose as an actuary and adopting a bent that is more familiar to me, I instead wondered about these women and who they are. I know so few by name and face. A full 25 of the 36 have become Associates since 1971. My itinerary is typical of many actuaries but I guess I have so far crossed paths with fewer than 10 of these younger members. I am more familiar with those whom I must refer to—for comparative purposes only—as older members. Of all those I've met or worked with, however, the only common characteristic I've discovered is that they're women. From my limited sample, their range in talent, personality, and sense of humor is typically actuarial and peculiarly casualty actuarial.

"But again I'm falling back on statistical jargon. It's easier for me to talk for instance about **Ruth Salzmänn**, the doyenne of the Schedule P crowd, than about random variables. One of my wisest decisions was made some years ago when I refused to follow one of my macho friends onto the tennis courts with Ruth. Or of **Carole Banfield**, the sloe-eyed corps commander at ISO, who has so intimidated me since the early days at the MLIRB that I've never really dared to address her as other than *Mrs.* Banfield. Or of **Anne Kelly** from the redoubtable New York Department with all that tradition to follow and uphold."■

Strengthening

From page 7

automatic reputation in some circles as identifying me as a "math nerd." I was recently involved in a discussion over which credential should be listed first on my letterhead. One individual made the comment that the CPCU designation should be listed first since I need to appear well rounded and several others in the room (insurance professionals with years of experience) agreed. I think it is a sad commentary on our profession that so many people know how hard the exams are to pass, but know so little about the breadth of knowledge covered in the process.

What can we do to strengthen our profession and improve our image?

First we should stop concentrating on the exam process and start concentrating on building skills. Do the exams really need to be as comprehensive, difficult, and time-consuming as they currently are to achieve our educational objectives? We could learn a lot from programs such as the CFA program. It is competitive, thorough, and

very well managed. It certainly appears to achieve its educational objectives. Additionally, it is attracting many of our students.

"...we should stop concentrating on the exam process and start concentrating on building skills."

Second, I think we should find ways to encourage actuaries to become qualified in another field. Can we redesign the program to encourage multifunctional learning that benefits our profession? I firmly believe that the individuals who will add the most value in the future are those operating on the edges of the traditional professions—those who can synthesize material from several distinct professions to address complex business issues. Yet, our current exam program does not encourage learning from other professional arenas. I have had several discussions with students torn by their desire to finish

the exams or expand their knowledge in another professional area. Invariably, these individuals feel they must choose a single profession—how sad.

Third, we need to encourage Fellows, the ambassadors of our profession, to think about how they speak about the profession. Do we need to debate publicly whether the exams were more difficult when you took them or when I took them? Let's spend less time talking about how hard it was to get our Fellowship and more time expanding our skills. Let's encourage more Fellows to seek out additional learning opportunities.

In the long run, the letters behind our names will make little difference to the success of our profession—how we are perceived and what we deliver will define our future role.■

**CAS Welcomes New
Affiliate Member**

Eduardo Esteva Fischer
Tillinghast-Towers Perrin
Mexico
Colegio Nacional de Actuarios

A Pianist in Our Midst

by Marty Adler



Brian Haney, who initiated this column and remained the author for a number of years, is himself a fitting subject. Brian has a significant musical talent that has developed from years of practice. He was born into a musical family: his father played the guitar, his mother the violin. Of his seven siblings, one brother plays the guitar, all others played the piano. One sister is also a church organist.

The youngest in his family, Brian has been playing piano since he was ten years old. At 14 he also began to play the organ. Displaying his talent, at 15, Brian entered regional piano competitions. Twice he finished third—but that just missed qualifying for the next level. The last time he competed he played Chopin's *Military Polonaise*, which went very well until the last eight bars. Forgetting what he was playing, he improvised. It was probably a good ending, for the judges commended his unique rendition, although they suggested that he should have relied more on Chopin. Brian thinks that this was a subtle hint from the Fates that improv was his forte. Temporarily discouraged, he focused on the organ until he entered the University of Virginia.

While at college, Brian met a rhythm-and-blues player, who played with a well-known local R&B band. Fascinated, Brian took lessons from the musician. He moved on to writing his own R&B and jazz, and played keyboard at a restaurant bar in Charlottesville.

He also played at college events. One time he accompanied a sorority woman who sang a very moving piece for "prefs." This is the event before "bid night." Brian did not know in advance what "prefs" were (preferences?), but after having performed he considered it the best gig a musician could get—he was the only male among 100+ attractive women. He would have *paid* for the opportunity.

Another time he played a massive, beautiful pipe organ at a wedding. The organ was situated directly behind the altar. Twice during the ceremony notes came from the organ without his having touched the keyboard (so he insists). He looked around to find the minister, the bride and groom, and the entire congregation staring at him in something between horror and amusement.

Brian considers himself basically shy, and at a party or in a public place, such as a bar, he needs much cajoling to sit at the piano. But he finds it a lot of fun—"a blast"—once he gets going. It is also a great way to meet people. While traveling in Ireland several years ago he was at a sing-along piano bar called *Durty Nelly's*, possibly the oldest bar in Ireland, dating back to the early 1600s. After a few drinks his friends tried to coax him to play. At first he resisted, not wanting to infringe on the turf of the bar's own piano player, knowing how touchy musicians can be. Late in the evening they convinced the piano player and Brian to play together. They had an R&B duet improv session

for about twenty minutes. The crowd loved it and his friends were pleased that they had convinced him to play. At the end, the bar's piano player was surprised to find out that Brian was not a professional piano player. Brian told him that he couldn't possibly give up the glamour and excitement that comes with being an actuary.

On another trip to Ireland, he was at Hamilton's Pub, one of only two pubs in the small town of Leenane that had an old piano. After the usual coaxing he played every night for about a week. The crowd especially loved Kenny Rogers's songs and Brian accommodated them.

Despite the demands from his position as corporate actuary for the Front Royal Group, studying to complete his Fellowship exams, and his recent marriage, Brian finds time to play in public from time to time. He has played piano at a Borders Book Store in a mall in suburban Washington, D.C. and occasionally at weddings, funerals, and wakes.

Playing the piano is a great stress reliever for Brian. He takes much pleasure in playing Bach, and in listening to the Brandenburg concertos. He also sings in the Gospel choir at his church, sometimes accompanying them on the piano.

It has been said that there is a distinct correlation between musical and mathematical ability. Brian provides one more piece of supporting evidence. ■

Las Vegas and Ratemaking Beckon

There is still time to register for the CAS 2001 Ratemaking Seminar, which will be held March 11-13 at The Mirage in Las Vegas. Two general sessions are planned. On Sunday, a thought-provoking mock ABCD hearing will be presented. Monday's general session is a round table discussion of regulatory current events, including commercial lines deregulation, NCIC changes, data privacy, and financial services.

A revamped group of concurrent sessions features many new topics, such as: retention modeling, lifetime customer value, and nonstandard auto ratemaking. Call papers from the Ratemaking and Data Management Research Committees will also be presented. Log on to the CAS Web Site at www.casact.org under "Continuing Education" for more information. ■

FINANCIAL REPORT FISCAL YEAR ENDED 9/30/2000

OPERATING RESULTS BY FUNCTION

FUNCTION	INCOME	EXPENSE	DIFFERENCE
Membership Services	\$1,218,006 (a)	\$1,366,188	(\$148,182)
Seminars	921,739	1,030,025	(108,286)
Meetings	767,087	807,849	(40,762)
Exams	2,984,072 (b)	2,861,526 (b)	122,546
Publications	39,594	30,424	9,170
TOTAL:	\$5,930,498	\$6,096,012	(\$165,514)

NOTES: (a) Includes gain of \$17,766 to adjust marketable securities to market value (SFAS 124).

(b) Includes \$1,865,955 of Volunteer Services for income and expense (SFAS 116).

BALANCE SHEET

ASSETS	09/30/1999	09/30/2000	DIFFERENCE
Checking Accounts	\$134,490	\$30,029	(\$104,461)
T-Bills/Notes	3,537,154	3,511,251	(25,903)
Accrued Interest	51,708	43,006	(8,702)
Prepaid Expenses	72,451	90,789	18,338
Prepaid Insurance	16,871	16,719	(152)
Accounts Receivable	11,255	2,980	(8,275)
Textbook Inventory	8,174	3,499	(4,675)
Computers, Furniture	286,873	406,702	119,829
Less: Accumulated Depreciation	(256,384)	(307,174)	(50,790)
TOTAL ASSETS	\$3,862,594	\$3,797,801	(\$64,793)

LIABILITIES	09/30/1999	09/30/2000	DIFFERENCE
Exam Fees Deferred	\$500,444	\$325,339	(\$175,105)
Annual Meeting Fees Deferred	29,355	44,605	15,250
Seminar Fees Deferred	27,441	42,750	15,309
Accounts Payable and Accrued Expenses	263,779	349,159	85,380
Deferred Rent	9,018	2,652	(6,366)
Unredeemed Vouchers	19,800	14,400	(5,400)
Accrued Pension	37,896	50,016	12,120
TOTAL LIABILITIES	\$887,735	\$828,921	(\$58,814)

MEMBERS' EQUITY

Unrestricted	09/30/1999	09/30/2000	DIFFERENCE
CAS Surplus	\$2,727,393	\$2,561,879	(\$165,514)
Michelbacher Fund	105,861	110,185	4,324
Dorweiler Fund	1,911	0	(1,911)
CAS Trust	36,616	63,628	27,012
Research Fund	133,207	160,972	27,765
ASTIN Fund	52,046	54,910	2,864
Subtotal Unrestricted	\$3,057,034	\$2,951,574	(\$105,460)

Temporarily Restricted

Scholarship Fund	\$6,738	\$6,610	(\$128)
Rodermund Fund	11,087	10,695	(392)
Subtotal Temporarily Restricted	17,825	17,305	(520)
TOTAL MEMBERS' EQUITY	\$3,074,859	\$2,968,879	(\$105,980)

C. Gary Dean, Vice President - Administration

*This is to certify that the assets and accounts shown in the above
financial statement have been audited and found to be correct.*

CAS Audit Committee: Charles A. Bryan, Chairperson; Anthony J. Grippa; Frederick O. Kist; and Richard W. Lo

during the prolonged soft market of the latter 1990s? Perhaps actuaries were not vigilant in forecasting the outcome of the marketing, underwriting, pricing, reinsurance, and reserving actions being taken by management. Or, maybe actuarial indications such as price increases were dismissed as being inconsistent with other objectives such as market share. Perhaps actuaries were not sufficiently clear and persuasive in communicating their insights to management. Or, perhaps management chose not to ask for, or chose not to heed, the advice of their actuaries. Any combination of these possible explanations has the potential to weaken the public's confidence in the actuary's ability to help guide the sound managing of an insurer.

Thus, these stories represent a challenge to casualty actuaries:

- Get engaged actively in key management issues;
- Conduct analyses that carefully address an increasingly complex set of objectives, constraints, and dynamics;
- Present results clearly and persuasively; and
- Articulate the potential implications of alternative strategies and tactics being contemplated by management.

Other top stories expand the potential for actuarial influence and involvement. The number five story in this year's survey is the move by leading corporations towards an enterprise-wide, integrated view of managing risk. Enterprise risk management is gaining a foothold in a wide variety of industries, including, but by no means limited to, the insurance industry. This trend offers actuaries the opportunity to analyze risks far afield from the usual hazard risks insured by traditional property/casualty insurance products, and to do so for nontraditional types of employers. Within the insurance industry, actuaries have the opportunity to help develop products that respond to the enterprise-wide risks of policyholders, and to assist insurers themselves in adopting enterprise-wide perspec-

tives on their own business risks, using DFA-type models to analyze and quantify these risks and their implications.

The use of complex models by actuaries was acknowledged, at least implicitly, in the eighth leading story: the implementation of a 96 percent increase in Florida hurricane insurance rates, based on models. We anticipate that the acceptance of other complex

“Perhaps actuaries were not sufficiently clear and persuasive in communicating their insights to management.”

actuarial models will follow, as the profession demonstrates the effectiveness of such models.

The sixth leading story is the continued growth of the Internet as an important distribution channel for insurance products. This trend requires that actuaries quicken their pace to “Internet speed,” and challenges them to develop underwriting and pricing methods and algorithms that can operate with the types of information available during a real-time interaction with a customer.

The number nine story also involves information, but concerns regulatory constraint on the use of personal financial data in the diversified and blurred financial services industry evolving in the wake of the 1999 Gramm-Leach-Bliley Financial Services Modernization Act. Interestingly, considering that the passage of GLB was far-and-away the top story in our survey a year ago, the development of privacy rules for the use of personal financial data was the only related story in the top ten this year. Clearly, respondents anticipate that the ultimate implications of GLB will be a long time emerging.

A recurring selection for the top ten list has been the transformation of the insurance industry through acquisitions and divestitures. Actuaries are involved in analyzing these transactions, and the jobs and markets in which actuaries

work are being affected by them. This story was ranked seventh this year.

Rounding out the top ten list is a combination of factors pressuring the health sector, including medical inflation, Medicare-related litigation, and the development of a Patients' Bill of Rights. All insurance products that include coverage or compensation for the cost of injury-related medical care may potentially see claim, coverage, and other changes as a result of these factors.

As in prior years, this year's candidate stories were culled from the trade press to be externally oriented, and not intended to review CAS internal actions. In the first round of the survey, participants, drawn from the Board, Executive Council, committee chairs, and past presidents, narrowed and consolidated an initial list of approximately forty stories. The first round of this Delphi study also highlighted reasons for number one selections by various voters. The second round invited voters to review their initial selections. The final scores were tallied using the NCAA sports polling methods (10 points for first place down to 1 point for tenth place).

Continuing this year are the prizes for the best predictors of the final consensus of all participants. **Ralph Blanchard** won the Consistency Award because his original ten picks came closest to the final consensus ranking, with unweighted scoring. **Ramona Lee** finished second in this category, and finished on top for the Insight Award. Lee's original picks came the closest to matching the final Top Ten consensus, with weighted scoring. **Rob Walling** placed second in this category. **Phil Ben-Zvi**, **Tom Myers**, and **Walling** were in a dead heat for third place in the Consistency Award.

Finally, the overall Bellwether Award goes to Ramona Lee, who had the best combined score in both of the above categories.

Thanks to all the actuaries who participated in this survey. This result also serves as an important input to the Long Range Planning Committee on potential future directions of the actuarial practice. ■

Exams 3 and 4

From page 1

cluded Fellows who are past and current members of the Syllabus or Examination Committees, Fellows in academia, and a Society of Actuaries liaison.

The task force reached five conclusions:

- Some action should be taken because a significant number of CAS candidates fared poorly on the Spring 2000 Exams 3 and 4. While the results may be attributed to the newness of the exams, the Task Force did not expect sufficient improvement in exam results.
- A significant number of learning objectives are beyond the needs of casualty actuaries, particularly on Exam 3.
- An excessive amount of material is contained on both exams, especially Exam 3.
- Much of the current readings should be replaced; the overall presentation of the study materials should be more practical and actuarial, and less theoretical. Until new study notes are available, Exams 3 and 4 should be published for their educational value.
- Current exams appear to be much more difficult for those now working than for those in college. The most significant of the factors contributing to the difficulty are the current readings. Although the task force did not study whether the difficulty is new with respect to joint exams, it was not a problem on the old CAS Parts 3B, 4A, 4B, 5A, and 5B exams.

The task force recommended:

1. Carefully monitoring the examination results for CAS candidates on joint exams and the number of such candidates in the near future.
2. Cutting a significant amount of material from the current syllabus. Removing some learning objectives and reducing the level of detail and comprehension required by some of the remaining objectives would accomplish this.

→ page 24

Brainstorms

Loss Ratio Models

by Stephen W. Philbrick

One of the first things I learned about insurance was the “law of large numbers.” I learned that it justified the existence of insurance—explaining why an individual would transfer risk to a company that itself was risk averse—because the combination actually reduced the total risk. (Glenn Meyers stated it well in his 1982 paper when he said, “One of the main pillars of insurance theory has been the Law of Large Numbers.”)

In general discussions about insurance companies, we tend not to get explicit about the mathematics of the law. We say risk tends to decrease as business volume increases. We might elaborate and explain the loss ratio of a larger business volume is expected to be “tighter” (all other things being equal). If we wanted to be more formal, we would say we expect the loss ratio’s standard deviation to decrease for larger business volumes.

At the individual account level, we have analyzed the situation in great detail. Simon’s Table M is effectively a distribution of loss ratios for individual risks. Hewitt explicitly modeled the loss ratios of individual risks. We have been less likely to model the loss ratio of an entire company.

With the advent of DFA, that is changing. One of the key components of a DFA model is the formal modeling of a company loss ratio.

For any specific company, we probably model the loss ratio based upon an explicit analysis. I wanted to create a more general model; a loss ratio model that would apply to any sized company. I decided to start with first principles.

Roughly speaking, we expect the loss ratio’s standard deviation to drop with the square root of the size. If there were no such thing as parameter risk, we might expect (as Simon suggested in the Table M paper) the standard deviation would ultimately go to zero. However, we know parameter risk does exist (as Meyers and others have pointed out), so we might refine our statement to assume the standard deviation drops to some level representing industry parameter risk.

It seemed reasonable to me, but data can often be stubborn. With trepidation, I calculated standard deviations of accident year loss ratios for a number of companies (over a ten-year period) and plotted the results. To my pleasant surprise, the data for many business lines followed my expected pattern reasonably well. I was particularly interested in aggregating all casualty lines and property lines together. The casualty model worked acceptably. Setting a “floor” standard deviation at the industry aggregate level, and fitting the companies so the “excess” standard deviation dropped with the square root of the volume produced a reasonably fitting model.

The results for property were much different. The plot of standard deviations against company size looked more like a random pattern. Our working hypothesis is that catastrophe influence on property results overwhelms the reduction in standard deviation due to the law of large numbers.

One colleague noted the time frame selected (latest ten years) largely excludes the impact of asbestos and pollution claims. The use of a longer period might simply increase the “constant,” that is, the overall level of the parameter risk, or it might totally change the results. As usual, if anyone else has examined this question, I would be interested to hear the results. ■

“I wanted to create a more general model; a loss ratio model that would apply to any sized company.”



It's a Puzzlement

Lights Out

The diagram below uses x marks to denote 10 lights out of 25 that are turned on in a five-by-five grid. You want to turn all the lights off. The switch for any light turns it on or off, and also changes the state of the (up

		X	X	
X			X	
X				X
	X	X		X
			X	

to) four lights that are horizontally or vertically adjacent. For instance, if you operate the switch for the light in the very center of the diagram, it would turn that light on, it would also turn on the two lights to either side and the one above, and would turn off the one below it (which is now on). How do you

turn the lights off? Optional: If all the lights were out, how would you turn a given one on?

Loaded Die

In the last puzzle, the problem was to select numbers at random from 1 to 6 using a die known to be "loaded." Chris Yaure suggested the following technique. Make a table giving a one-to-one correspondence between each of the six permutations of Medium-Low-High and the six digits. Throw the die, and note the number that comes up. Throw the die a second time. If this number is the same as the first, forget what has been thrown and start over. But, if the second toss gives a number that is different from the first, toss the die again. If this third toss is the same as either of the previous two, start over. If it is different from the previous two, use the ranking of the three numbers

that have come up and the table to find a random digit.

Other solutions are possible, but I think Chris' solution minimizes the expected number of tosses per random digit. Another method is to toss the die six times. If all six tosses give a different number, then take the last number (or the first, or ...). If two or more are the same, toss another six times. Note that it is not sufficient to toss until you have three (or six) in a row that are different.

Donald Behan noted that this problem is an Exam 3 problem and is similar to one found in Sheldon Ross's *Introduction to Probability Models*.



Bob Conger, John Herder, and Sebastien Millette also solved this problem.■

Exams 3 and 4

From page 23

- Replacing many current readings as soon as practical. Provide funding for commissioned study notes.
- Continuing to release Exams 3 and 4 for the next few years.

Joint Sponsorship

While the task force had no specific recommendations with respect to joint sponsorship of Exams 3 and 4, they

noted that the CAS must consider the potential impact on joint sponsorship in implementing any of the task force recommendations. Joint sponsorship has advantages; compromises may be necessary in order to retain joint sponsorship of Exams 3 and 4. The task force considered a number of possible frameworks for implementation. The options with substantial support among task force members, in order of such support, were:

- Keep joint sponsorship of both exams; fix what we have.
 - Have one joint exam and one CAS-specific exam.
 - Rearrange the current material into two jointly sponsored exams.
- The options with little support were:
- Replace both exams with two CAS-specific exams.
 - Have one basic exam. Spread the remaining material across other exams, keeping nine exams in total.
 - Negotiate joint exams with the Institute of Actuaries.■

Call For Papers

The *Journal of Actuarial Practice* is inviting authors to submit papers for possible publication on any subject related to actuarial science or insurance. Submissions do not have to contain original ideas. The journal also accepts commentaries and book reviews. All papers are refereed (peer reviewed) and must have some relevance to actuarial practice. Please send an abstract of the paper as soon as possible. Electronic submissions via e-mail are preferred, provided they are in Microsoft Word or WordPerfect. The deadline for submission of completed papers is March 1, 2001.

Direct all correspondence to: Colin M. Ramsay, Editor; *Journal of Actuarial Practice*; P.O. Box 22098; Lincoln, NE 68542-2098, USA; Phone: (402) 421 8149; Fax: (402) 421 9190.■

In Memoriam

Norton "Doc"

Masterson

(FCAS 1927)

December 22, 2000

Henry C. Schneiker

(ACAS 1957)

Date of Death Unknown