



The Actuarial Review

Volume 24, No. 3
August 1997

Published by the
Casualty Actuarial Society

From the President

What Now?

by Robert A. Anker

In the last issue of the *Actuarial Review*, I discussed some of the issues surrounding the new publication of the SOA, *The North American Actuarial Journal*. I concluded by suggesting we would come to better relationships with the SOA through a position of strength, which the CAS expresses through the strategic plan.



Robert A. Anker

In the same issue of the *Actuarial Review*, a letter written to the CAS Board by Sholom Feldblum and an editorial by Stan Khury also appeared on related subjects. The three pieces strongly affected the SOA Board. As a result, Dave Holland, President of the SOA, wrote to his membership and submitted the same letter to the editor of the *AR*. We clearly have a serious organizational strain between the CAS and the SOA. Mavis Walters' article "What is Independence?" in this issue of the *Actuarial Review* provides some additional background and superb perspective in the context of one of the key elements raised in the strategic plan.

I would like to provide some additional thoughts tied to our strategic plan. The plan identifies the expectation for the CAS to be a significant contributor to the worldwide actuarial profession. This, in my opinion, is another ingredient of the mix defining what it means

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CAS Task Force Releases Report on Exam Restructuring

A CAS Task Force recently released a 44-page report regarding restructuring the examination process. The report discusses strengths and weaknesses of our current education system, educational principles that guided the restructuring effort, core competencies for future casualty actuaries, and a proposed restructuring of the examinations. The report was approved by the Board of Directors for implementation beginning in the year 2000.

The following are the major features of the restructuring proposal:

- Exam Parts 1 and 2 will be combined into a single exam. The statistics portion of Part 2 will be reduced and moved to Exam 3 of the revised *Syllabus*.
- Nation-specific material will be combined and placed onto a single exam (Exam 7). This will facilitate development of a more international syllabus.
- Increased emphasis will be placed on assets, investments, valuation, and dynamic financial analysis.
- Numerical analysis (Part 3C) will be deleted.
- Material emphasizing memorization of facts will be deleted or reduced.
- There will be nine exams instead of ten.
- Partitioning will be eliminated.

A complete description of the revised exam structure and transition rules are set forth in the report.

The Task Force included a cross-section of the membership, including one new Fellow, Canadian members, current and former admissions committee members, and Fellows representing the general membership. A liaison representative from the Society of Actuaries also participated.

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Committee on Online Services to Host Online Discussion Forums

The CAS Committee on Online Services (COOS) is diligently working on a variety of initiatives to help bring the CAS up to speed with our electronic world. A critical element of this plan is the CAS Web Site at <http://www.casact.org>. We are adding features and information to this site on a regular basis.

We currently provide a forum for open discussion in the Web site, but we want to provide the capability to focus on specific, timely issues.

We are planning to create organized discussion forums, where we would:

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Servant Leadership

by C.K. "Stan" Khury

In April of this year, I attended the 1997 CAS Leadership Meeting, a one-day conference. The agenda consisted of reviewing and discussing the CAS Strategic Plan, which was more than two years in the making. The format of the proceeding was particularly effective. After a brief plenary session, the gathering of approximately fifty persons was divided into three groups, each of which discussed an assigned aspect of the strategic plan. Afterwards, the entire gathering was reconvened to hear the conclusions of the various breakout groups. This process was repeated three times. At the end of the day, it was quite clear to all conferees that a very thorough and thoughtful review and confirmation of the CAS Strategic Plan had taken place.

"...the term
'volunteer' masks
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volunteer: that of
servant."

Attendance at this meeting was determined mostly by formula: those who are currently holding positions of leadership in various CAS activities were invited. At the conclusion of the meeting, I began to wonder just how these people got to those positions wherein they were invited by "formula" to this gathering?

The answer was not long in coming—and it is best illus-

trated by a little story. In Herman Hesse's *Journey to the East*, a band of men embarked on a mythical journey. The needs of this band of men were attended to by a servant named Leo. Leo did all the menial chores and he also sustained the weary men with his spirit and song. He was a person of extraordinary presence. All went well until, one day, Leo mysteriously disappeared. Then the group fell into disarray and the journey was abandoned. The narrator of the story, who is one of the men on the journey, reports that years later Leo is found and is immediately inducted into the Order of the men who had sponsored the journey. Leo, who was first known as a *servant*, later became the titular head of the Order and its guiding spirit—a great and noble *leader*. Well-known, nonfictional examples of servant leaders include Mahatma Gandhi and Mother Theresa.

What then, is the formula for attending the Leadership Meeting? The invitees are those who serve the CAS. It is not a surprise. Nor is it surprising that the language used to recognize *servants* gives them titles of *leadership*: chairperson, task force leader, CAS representative, president, vice president, director, etc. These titles do an effective job of masking the true mission of these people: *servants* of their fellow members and the casualty actuarial profession at large.

One of the more interesting points in the CAS Strategic Plan is the identification of volunteerism as one of the keys to the vibrancy and success of the CAS. Once again, the term "volunteer" masks the true identity of a volunteer: that of *servant*. In fact, a quick review of the *CAS Yearbook*, reveals that approximately 50 percent of the Fellows are involved in one or more activities of the CAS. This is nothing if not astonishing.

With participation in the affairs and the governance of the CAS at such exalted levels, it is difficult to imagine anything but a glorious future for the CAS as a prominent member of the worldwide community of actuarial societies. ■



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

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The *Actuarial Review* (ISSN 10465081) is published four times each year by the Casualty Actuarial Society, 1100 North Glebe Road, Suite 600, Arlington, Virginia, 22201-4798. Telephone: (703) 276-3100; Fax: (703) 276-3108; E-mail: office@casact.org. Third class postage is paid at Arlington, Virginia.

The amount of dues applied toward each subscription of the *Actuarial Review* is \$10. Subscriptions to non-members are \$10 per year. Postmaster: Send address changes to: The *Actuarial Review*, 1100 North Glebe Road, Suite 600, Arlington, Virginia, 22201-4798.

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Copies of articles or issues are available on microfilm from University Microfilms International, 300 North Zeeb Road, Ann Arbor, Michigan, 48106-1346, phone: (800) 521-0600.

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CAS Members To Hold Annual Gathering at California Desert Resort

Dry Desert Locale Belies Lush Variety of CAS Meeting Sessions

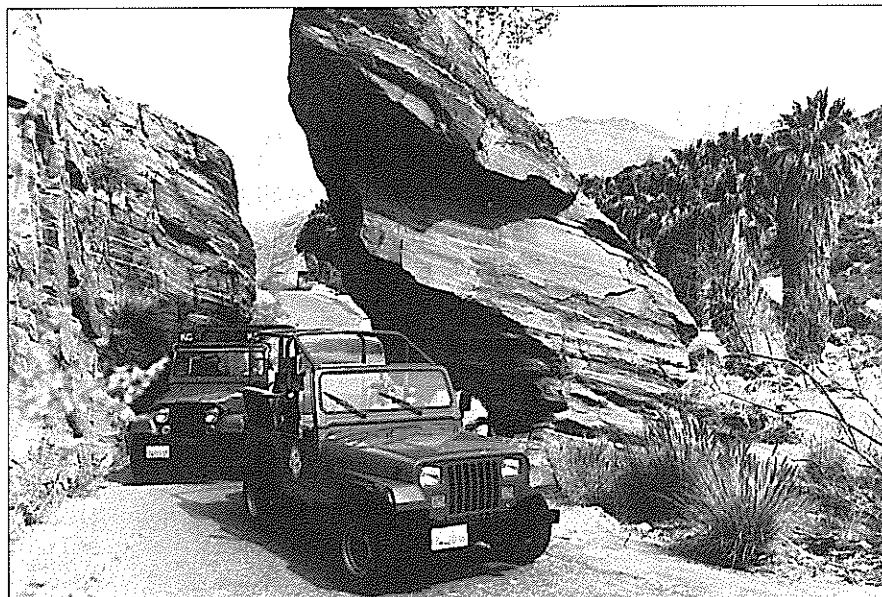
by Daniel A. Crifo

The 1997 CAS Annual Meeting will be held November 9-12 at Marriott's Desert Springs Resort and Spa in Palm Desert, California.

The featured speaker for the meeting is the renowned management consultant Oren Harari, who will offer provocative perspectives on competitive advantage, organizational change, and transformational leadership. Mr. Harari spent more than 12 years with The Tom Peters Group, and he co-wrote the best-selling *Jumping the Curve: Innovation and Strategic Choice in an Age of Transition*.

Highlights of the meeting include four general sessions—one each on Monday and Wednesday, and two offered concurrently on Tuesday. "Banks in the Insurance Business" will review banks' expansion into the risk-taking arena and insurers' moves to start up their own banking operations. Another general session will analyze "The Effects of Mergers in the Insurance Brokerage Industry." Panelists will discuss why mergers have occurred, how insurance buyers as well as insurers have been affected, and how antitrust issues have been resolved.

The Tuesday general sessions will have an international flavor. "Actuarial Work Around the World" will provide a forum for actuaries who have pursued business opportunities outside North America. Panelists will explain the work that actuaries do in finance and strategic planning in foreign corporate and regulatory environments.



An off-road jeep tour provides the perfect opportunity to experience, first-hand, the Desert's rugged terrain and beautiful oases. (Photo courtesy of the Palm Springs Desert Resort Convention and Visitors Bureau.)

"Catastrophe Handling Around the World" will focus on how actuaries deal with *megacatastrophes*. The panel will discuss models of such events, financial structures, reinsurance techniques, and regulatory mechanisms.

Concurrent sessions have been scheduled to discuss insurance risk related to the year 2000, emerging insurance markets in the Pacific Rim, and recent efforts in property loss mitigation and anti-fraud activity. Attendees will also be able to participate in sessions on quality assurance, dynamic financial analysis, and merger/acquisition situations. Other sessions will cover the recent activity by the Com-

mittee on Theory of Risk, and the continuing evolution of opportunities and responsibilities that challenge the members of the Casualty Actuarial Society.

An optional golf tournament will be held Tuesday afternoon, November 11. That same evening, surf's up! Members, guests and accompanying persons can make a splash at the "beach party" bash at the Resort. Plan on good food, excellent music and great fun for all.

The preliminary program for the 1997 Annual Meeting, with registration information and tentative meeting agenda, will be mailed to members in September. ■

Web Site

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- identify a topic;
- provide some relevant material;
- select a moderator to focus the discussion;
- set a time limit for input; and
- organize and save the resulting dis-

cussion for posterity (either electronically or by other media).

We are interested in your feedback, particularly regarding potential topics, but also on how the structure of the forums could be improved. Please send an E-mail to office@casact.org or call Stephen Philbrick at (860) 843-7070.

We are discussing with SCOR, the international reinsurance firm, the possibility of using the recent SCOR prize papers on solvency and capital allocation as a possible first topic. Details have not yet been worked out, but watch the CAS Web Site for an announcement. ■

AR Readers Respond to Numerous Issues

From the Editor:

This issue contains an exceptional number of letters to the editor, the first fifteen of which are somewhat related:

- We start with nine letters written in response to Stan Khury's editorial in the May AR. The last of these is the letter that David Holland, President of the Society of Actuaries, sent to all SOA members.
- Next come two letters written in response to David Holland's letter.
- We then show four more responses to Bob Anker's February 24 letter to members, regarding the CAS's decision not to participate in the North American Actuarial Journal (NAAJ).

Following these are two additional letters, one responding to a letter in the May issue about the cost of obtaining National Council on Compensation Insurance, Inc. (NCCI) filings, and the other about the difference in actuarial credentials between the U.S. and Canada.

The AR recognizes that the letters to the editor are the most widely read feature of the AR, and our policy has always been to print virtually all letters that we receive, with a minimum of editing. We added the professional designations (other than MAAA) of the authors in those instances where they were not included by the author. We encourage all readers to make their views known through letters to the AR.

Walter Wright
Managing Editor

Readers Respond to May Editorial

Dear Editor:

There has been a great deal of discussion about the prospect of the SOA swallowing up the CAS, but this really represents two issues, not entirely dependent. The first is organizational: whether we are members of the SOA or the CAS or both. The second and more important issue is who controls the granting of casualty credentials.

Who grants credentials need not depend on the organizational structure. The pension actuaries control enrollment with their own exam(s) and their own recommendation requirements, despite generally being members of the SOA, as well. A strong argument can be made for the Casualty Actuarial Society (or its successor group) as credential-granters. Casualty practice is quite different from life practice, much more so than pension practice. A life actuary who passed parts 6 and 7 would not be as qualified as a casualty associate unless he had casualty experience.

The CAS already requires a recommendation to become a member. I propose that the requirement be expanded to state that the candidate has at least two years of relevant casualty experience, as recognized by a recommender who is himself experienced with casualty work (preferably a member of the CAS). This is parallel to the pension situation, which requires three years of responsible pension experience in addition to enrollment exams. If a few rapid exam-passers are slowed by this requirement, it is probably for the good. It makes it clear that we, as an organization, recognize that casualty practice is not (and cannot be) entirely covered by the exams. It emphasizes the primacy of casualty actuaries in certifying new casualty practitioners. It is consistent with the apprenticeship paradigm of actuarial certification. It would also place an entirely legitimate and appropriate barrier in the path of an ASA or FSA who wanted to go into the casualty business with nothing but a couple of extra exams under his belt.

Would this prevent the SOA from certifying a new breed of "casualty actuaries?" I don't know, but it would lend credence to our cries of "malpractice" if we require experience in our own.

Ginda Kaplan Fisher, FCAS

Dear Editor:

I would like to second the thoughts expressed by Mr. Van Slyke in the May issue of the AR in which he explains

"The CAS and SOA have much in common, and it is imperative that we work together for the betterment of the profession."

that the NAAJ is designed to appeal to actuaries of all disciplines, whereas the *Proceedings* are primarily directed at casualty actuaries. I believe these two journals will complement one another rather than compete with one another. Most disciplines have a number of refereed journals, each with a somewhat different orientation. I believe that the casualty specialty within actuarial science is vital enough to support more than one journal with casualty content.

I do find it disturbing that the CAS leadership found it necessary to protest the solicitation of members of the CAS for articles for the NAAJ. When I have a paper to contribute to an actuarial journal, my decision as to where to submit it will be based on where I believe it will reach the largest audience to which it would be of interest, not on political considerations.

I also find it disturbing that Mr. Van Slyke's letter was buried on pages 10 and 11 of the May issue of the AR whereas Mr. Khury's opposing view was prominently displayed on page 2. I believe it would have been appropriate for Mr. Khury, as Editor-in-Chief, to place Mr. Van Slyke's letter adjacent to his own editorial to preserve some sense of balance. This is especially true in light of the articles by Mr. Anker and Mr. Feldblum on page 1.

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Letters

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Finally, I would like to express my consternation over the inflammatory rhetoric used by Mr. Khury in his editorial. I have worked with SOA members and staff for over five years on one of the joint CAS/SOA examination committees. I have always found them to be very forthright and professional, bearing no resemblance to the conniving trapper in Mr. Khury's editorial. The CAS and SOA have much in common, and it is imperative that we work together for the betterment of the profession. Given the widely varying views on important issues within both the CAS and the SOA, this is going to be a difficult process. I urge the leadership of the CAS (and SOA as well) to stick to the substance of the issues at hand and to resist the temptation to engage in counterproductive attacks when things do not go smoothly.

Clive L. Keatinge, FCAS

Dear Editor:

As an active and proud member of the CAS, I read the May AR with disappointment and dismay.

I don't have any more appropriate response than to quote Pogo: "I have seen the enemy and it is us."

Robert L. Brown, ACAS, FSA, FCIA

Dear Editor:

I just read the editorial of the May AR and just have to let you know how much I admire and appreciate the courage of the AR to say in clear and unambiguous language what many members of the CAS have felt for a long time. I served for seven years on the AERF Board and in the process heard, on numerous occasions, how the SOA leadership was plotting and spoiling to eliminate the AERF since it is a rival organization to the research activities of the SOA. The members of the AERF Board, most of whom were SOA members, were alarmed and incredulous at the attacks since the SOA was one of the founding organizations of AERF!

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Random Sampler

What Is Independence?

by Mavis A. Walters

"The CAS has historically placed great value on its identity and organizational independence and on its success in educating casualty actuaries"—CAS Strategic Plan

In today's increasingly interdependent world we should ask ourselves the question, "What does independence mean?" The CAS Board of Directors recognizes that independence does not require severing all relationships and joint activities with other actuarial organizations. In fact, the strategic plan says that the CAS "should become or remain involved with joint activities or cooperative efforts, including exams with other organizations." The plan also outlines the criteria that should guide the CAS Board in addressing cooperative activities for the good of the CAS and the actuarial profession.

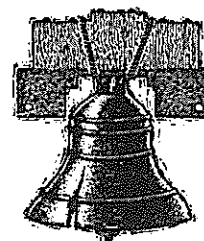
The May editorial of the *Actuarial Review* cast an extremely negative shadow over some recent attempts at cooperative activities and attacked the professionalism and the leaders of the Society of Actuaries. While the editorial reflects the opinion of the editor, the editorial reflects neither my view nor, I am confident, that of the CAS Board of Directors.

I believe that independence with respect to the education and examination process means being guided by what should be the core competencies of casualty actuaries. The CAS has much to gain by jointly sponsoring early associateship exams with the SOA. But joint sponsorship works only if both the CAS and SOA want to test the same material and concepts with the same level of intensity. While our new exam structure for the year 2000 contemplates joint sponsorship of only two exams, we may, if appropriate, be able to move beyond that in future years.

Independence also means being responsible for our own governance, with casualty actuaries exclusively as officers and Board members of our own organization. Previous ecumenical discussions about reorganizing the profession into one actuarial body with several practice area specialties have been received with a dull thud and while those proposals resurface periodically, they certainly do not constitute a threat to the continued viability of the CAS.

Independence means having publications dedicated solely to casualty topics of interest to casualty actuaries. But that is not to say that the publication of papers on property/casualty topics in other scientific journals is a violation of the principle of independence. So long as those articles are written by compe-

"...independence with respect to the education and examination process means being guided by what should be the core competencies of casualty actuaries."



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I want you to know that I agree unreservedly with the views articulated in your editorial and support the effort to again stave off the wolf from our door. My wife is Lithuanian, and when I told her about the editorial, she quickly pointed out the similarities between this situation and the treatment of Lithuania by the former Soviet Union. And this reminded me that the SOA sent a contingent of SOA members to Russia to offer their assistance in forming a Russian actuarial society. The CAS, to the best of my knowledge, was not consulted nor was it referred to as having anything to offer the Russians in the way of actuarial education. I know about this as I was teaching at Moscow State University that summer.

I am nauseated by the crass arrogance of a group that would be the first to wail and froth as the mouth of a rival organization tried to step on their "turf." Can we ever rest? I think not—or we'll all be speaking Russian!

J. Gary La Rose, FCAS, FCA

Dear Editor:

The beat goes on. When I first served on the CAS Board of Directors, more than ten years ago, the beat was "Strengthening the Profession." It was common to refer to this as "unification," but analogies to the Moonies and references to the likely true nature of the activity caused selection of a more elegant moniker. Although at that time it was decided that restructuring the American Academy of Actuaries and a few other changes would serve to strengthen the profession without the immediate need to join together the CAS and the SOA in a single learned society, the beat continued as one sees from the facts contained in the May 1997 editorial.

Recently a joint committee of the SOA/CAS released a draft of "General Principles of Actuarial Science," an item not listed in the editorial, but which runs with the nature of the listed items. (My comments on these principles are contained in a letter to the CAS Committee on Principles and are not contained in this letter in any de-

tail.) The genesis of these principles was a similarly titled (and later withdrawn) draft work written by the SOA that was intended to cover all actuarial science. I am not aware of any membership force within the CAS that cried

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out for the creation of these general principles. The SOA invited the CAS to participate in its second attempt at general principles.

Of course, these SOA actions may be just so much paranoia on the part of the CAS unless one can identify a possible motive. That motive may just lie in the implications of the formation of the International Forum of Actuarial Associations. At its organizing meeting, a common code of conduct was presented as the unifying basis for the formation of the IFAA. Now, however, it seems that the basic education of actuaries is part of the agenda of the IFAA and, since the U.S. stands alone among nations as having a separate actuarial organization for each basic area, the SOA may be more interested in unification.

The draft principles together with the items listed in the editorial may be interpreted by some as attempts simply to organize better the actuarial profession as a whole—a benefit to the CAS and SOA alike. But there are too many individual comments that make me concerned about the nature of the activities. In the early 1990s, an SOA president, in his presidential address, spoke of a desire to have a single actuarial society. Another SOA president suggested at a meeting of the Council

of Presidents in 1992 that the SOA should co-sponsor *all* the CAS seminars and meetings, including the CAS Annual Meeting.

Each separate action seems somewhat well-intended, and each comment taken individually seems like the opinion of just one SOA member. But I am reminded of the Hungarian communist leader Rakosi who coined the phrase "salami tactics" to describe how almost any political aim can be achieved if one does not greedily swallow the sausage whole, but slices off one bit after another.

If, in fact, the CAS leadership decides to go down a joint path with the SOA, I am hopeful that it will do so only because we *members* believe we will be better served this way. I sincerely hope that any lack of comment or action by CAS members is not interpreted as implicit sanction for continued activity in this direction.

Irene K. Bass, FCAS, FCIA

Dear Editor:

In the May 1997 AR, CAS President Robert Anker again addresses the issue of the NAAJ. He notes that one of the events leading the CAS Board to protest to the SOA was a direct telephone solicitation of papers for the NAAJ from "CAS authors."

The NAAJ has not solicited me, though I would be flattered to receive a call. No doubt they are soliciting papers only from the best known, highest quality CAS members. But the apparent attitude underlying Mr. Anker's comments is a greatly disturbing commentary on the leadership's attitude towards CAS members. CAS members are not owned by the Society. We are not "CAS authors" who are under contract to work only for the CAS. Authors have chosen to advance casualty actuarial science by publishing in CAS journals. This does not mean they have pledged to restrict their work to CAS journals.

The CAS is a professional organization that exists to serve its members and to advance casualty actuarial science. If we are concerned about advancing our profession, we should be delighted to have an additional outlet

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for our work. Instead, we are concerned that the new journal will be so successful that no one will read our journal.

Stan Khury's accompanying editorial claims the SOA could be accused of professional misconduct because the *NAAJ* represents an intention "to practice in an area in which it has **no qualification, training, or experience.**" [Emphasis in the original.] Alas, Mr. Khury overestimates what it takes to run a journal. The editors of academic journals are rarely experts on all the papers in their journals. All they need is to be able to find expert reviewers for articles, and in the case of the *NAAJ*, it's pretty clear where they should look.

This whole saga seems to me to smack of fear of competition. We preach the virtues of competition in the marketplace, but we don't want competition for our Society. Let us remember the virtues of competitive marketplaces—the rivalry that leads all parties to improve the quality of their products, the weeding out of the inefficient, the growth of knowledge. If we care about advancing our discipline, competition is what we need.

Mr. Khury, in his February 1997 *AR* editorial, pointed to the principal functions of the CAS, as articulated by our Board of Directors: 1) Education; 2) Membership services; 3) Research; and 4) Public interface, which is delegated to the AAA. None of these has anything to do with avoiding competition, or shying away from other actuarial bodies. Indeed, even the Board's definition of a "Casualty Actuary" as a professional skilled in certain areas says nothing about a casualty actuary necessarily being a member of the CAS.

So why don't we embrace competition? Yes, competition is tough. Maybe we'll have to tighten our standards; maybe our service to our members will need to improve; maybe the quality of our education system will have to rise. But shouldn't we welcome improvement?

Gary Blumsohn, *FCAS*

Dear Editor:

The May *AR* presented a very unbalanced view of the CAS/SOA relationships. In addition to the "Editorial" and the "From the President" columns, the editor chose to include three items on the topic of CAS/SOA relations—the Feldblum article and two letters to the editor. Two of the three items had a perspective consistent with the editorial. The third item, the Van Slyke letter, was inconsistent with the editorial, and, even there, the editor inserted

"In thirty years of
'corn spreading' they
[the SOA] haven't
yet fenced us in."

a 'correction,' which I believe to be only partially correct, to deflect some of the points of that letter.

CAS members may know that the *AR* is controlled by the editorial staff without oversight by the CAS Board or officers. However, the *AR* is the newsletter of the CAS. We must expect that our publics will interpret editorials and the overall tone of the newsletter as being consistent with the policies of the CAS. The view presented in your May editorial and the overall tone of the May *AR* were totally inconsistent with the position of the CAS.

The *AR* is read not only by CAS members, who might understand the distinction between the *AR* and the CAS, but also by others who will not have that background—students already working as actuaries, students still in university, regulators, actuaries in other societies, and (through the Web site) the entire world.

I encourage the CAS Board to take the action required to make sure that the editorials in the CAS newsletter are not used to express views that are inconsistent with the views of the CAS Board. Free speech belongs to the members and can be expressed in many other parts of the *AR*.

Next, let me consider the content of the editorial.

Metaphors are powerful rhetorical devices. Reference to trapped hogs led to the slaughter is an effective rhetorical device. However, it is not a realistic analogy to relationships between casualty and non-casualty actuaries.

The actuarial organizations in the U.S. are more like Siamese twins. We work for the same employers, we attract students from the same pool of candidates, we interact with the same state and federal regulators, we "compete" for employment with the same groups of non-actuarial professionals, etc. None of the organizations can do anything to "hurt" another organization (or its members) without at the same time harming itself.

Your description of events surrounding the *NAAJ* and the SOAF was necessarily abbreviated, but looked only on the "dark side" of events. I saw those events quite differently.

The SOA you criticize is the same organization that helped establish the AAA, giving the CAS disproportionate control, helped establish the first CLRS through the AAA when the CAS barely had the capabilities to do so, founded and supported the AERF, again giving the CAS a disproportionate role, provided much of the energy to fight the battle against making accountants loss reserve specialists, and so on. In thirty years of "corn spreading" they haven't yet fenced us in.

Obviously, the organizations will not do the right things all of the time. The organizations will annoy each other, disagree, and quarrel with some degree of regularity. The point is to recognize that in the end common sense will prevail and in the meantime keep the rhetoric and global "attacks" under control. Let's leave negative campaigning to the politicians.

Allan Kaufman, *FCAS*

Dear Editor:

I was recently sent a copy of the May 1997 issue of the *AR*, and was distressed at what I read, particularly the editorial by Stan Khury and the article by Sholom Feldblum. I also read the article on the CAS leadership meeting held in Philadelphia, and that

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did not give me any additional comfort.

I am a past president of the Canadian Institute of Actuaries, and as such served on the Council of Presidents from 1988 to 1990. I practice in the pension and benefits area, and qualified through the U.K. Institute of Ac-

"One of the major weaknesses of the actuarial profession is lack of integration and cohesiveness of the profession in the U.S."

tuaries. I am an Associate of the SOA, but never wrote any of its exams, and feel no strong attachment to it. I am also a Fellow of the Conference of Consulting Actuaries, and served on its Board from 1991 to 1994.

I have served with casualty actuaries on the CIA Council and committees, the Council of Presidents, the CCA Board, and in consulting firms in which I was formerly a principal. I have a great deal of respect for casualty actuaries, but I am afraid that their leadership is doing them a disservice. Mr. Khury uses the example of wild hogs, but, to be blunt, what I saw in the May 1997 issue was much more akin to ostriches with their heads in the sand.

The strength of the profession in Canada lies, among other things, in the fact that it is a united profession. This is true of the profession elsewhere in the world, including the U.K. (the Faculty and Institute have always cooperated well with each other and are moving very close to each other), Australia and South Africa. The major weakness of the U.S. actuarial profession is that it is divided, and to the outside world no one really knows who the actuarial profession is in the U.S., or who represents it. I suspect this is even true of people in the U.S.

The actuarial world is moving towards a system where to be an actuary will require knowledge in all areas of practice, including casualty work. One then relies on the integrity and professionalism of the individuals involved as well as the discipline process to ensure individuals do not practice in areas in which they are not qualified to practice. The only professional organization that seems to be resisting this trend is the CAS.

With respect, much as I have empathy with your desire for independence, I think it is naive, misplaced and short-sighted. In the end, the world is going to pass you by.

I think casualty actuaries in the U.S. can be a significant force within the profession and throughout the world by joining with the profession. (My own view is that the SOA should adopt the purpose of the Foundation as its sole purpose, CAS should become a section of the SOA, and the CCA should merge into the Pension Section of the Society. I argued for the latter when I was on the Board of the CCA, with the encouragement of a number of the then leaders.) I believe that, by doing this, casualty actuaries in North America will retain the status and significance that they should have. I believe that failure to do this will see the world leave you behind, and you will thereby lose status and significance. That would be a real shame.

Why is this any of my business? The worldwide actuarial profession is too small to be divided, and it is only as strong as its weakest part. One of the major weaknesses of the actuarial profession is lack of integration and cohesiveness of the profession in the U.S. Not only does this weaken the profession in the U.S., it weakens the profession everywhere. Simply stated it saddens me to see you doing this to yourselves, and in the end I believe we will all be the losers because of it.

I sincerely hope that the CAS will reconsider its position.

I wish you well.

Peter C. Hirst, FCIA, ASA, FCA, FIA

[Editor's note: The following letter was sent to the SOA membership on June 4, 1997.]

The May 1997 issue of the AR published by the CAS included some strident articles on the relationship between the CAS and the SOA. I consider it most unfortunate that our good faith efforts to work together with the CAS are being misinterpreted by some individuals. We consider the accusations serious, even if farfetched.

NAAJ. Originally, we invited the CAS to be joint sponsors of the NAAJ. The CAS decided not to participate because of concerns that the NAAJ would be in competition with the CAS's own scholarly journal. We feel it would be beneficial to CAS authors to publish in the NAAJ because of the NAAJ's wide circulation and promotion within the international actuarial community, to academia and to allied professionals in finance and economics. We hope that CAS members will find articles of benefit, especially in such areas as health, disability, finance and investment where there is an overlap in topics of interest. In fact, in the first issue there was an article on the use of derivatives by insurance companies that included data from both life and P&C companies.

In his May '97 editorial "How to Catch a Wild Hog," C.K. "Stan" Khury, Past President of the CAS and Editor-in Chief of the AR, calls into question the SOA's professional integrity because of our intention to include articles on all aspects of actuarial science, including casualty. However, the NAAJ was intended to include coverage comparable to other world class actuarial publications such as *The Scandinavian Actuarial Journal*, the *British Actuarial Journal* published by the Institute of Actuaries and the Faculty of Actuaries, and the *IAA Quarterly Journal* of the Institute of Actuaries of Australia. The ultimate basis for judging the NAAJ will be the articles we publish. There is casualty expertise on the editorial board of the NAAJ, and I have every confidence that our review process will meet the highest professional standards.

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The AERF and the SOA Foundation. Khury also questions the role and intent of the SOA in the possible merger of the Actuarial Education and Research Fund (AERF) and the SOA Foundation. The AERF was organized by the North American actuarial organizations in 1976 and the SOA Foundation was established in 1994. The SOA's contribution to the AERF over the years has been the provision of administrative services and staff support, including the Executive or Administrative Director.

The AERF has not been generally successful at large fund raising efforts. As of December 31, 1994, the AERF had unrestricted assets of about \$25,000 and total assets of about \$480,000. After nearly 18 years, this cannot be considered spectacular growth by the AERF. (Note that as of December 31, 1996, the AERF had unrestricted assets of about \$53,000 and total assets of about \$1,150,000; the increase being primarily due to the new Memorial Fund for the late James C.H. Anderson which was principally negotiated by the SOA liaisons to the AERF.) Approximately 95 percent of the AERF's assets at the end of 1996 have been contributed by or on behalf of eight specific individuals.

The AERF has been a noble experiment and has done many good things within the bounds of its limited resources. The actuarial organizations that sponsor AERF have provided limited funding for some excellent education and research projects, but it was not done on a scale comparable to what was intended for the SOA Foundation. The lack of organizational support and critical mass were undoubtedly factors in the SOA decision to establish its own foundation in 1994 rather than just make a large grant to the AERF. The SOA Foundation was established with a grant of \$500,000, a matching grant pledge of an additional \$500,000 and a commitment to contribute administrative and fund raising support. The SOA Foundation is a separate corporation from the SOA; it has an independent Board of Trustees and its own Bylaws. Whether or not there

should be a merger is between the AERF and the SOA Foundation rather than the CAS and SOA.

Examinations. A key element in the relationship between the CAS and SOA is the joint sponsorship of examinations. In January, we believed we had reached an agreement to establish a framework for joint sponsorship of four of the first six exams on the new syllabus. This was based on a syllabus mix that was a compromise for both organizations; there was more on contingencies than the CAS wanted, more basic statistics than the SOA wanted, and probably more of both than the students wanted. As detailed development of the courses progressed, the CAS became unwilling to accept the terms of the January agreement; they wanted more basic statistics than agreed upon and much less on contingencies than we could accept. Unfortunately, it appears that there will be joint sponsorship of the first two exams only.

The Outlook for the CAS. In his May '97 article "Cassandra of the CAS," Sholom Feldblum, a CAS Board Member, discusses the concern that one day the SOA will decide to "graduate casualty actuaries." However, such pressures come not so much from the SOA directly as from the fact that the world outside the U.S. perceives casualty as a practice area rather than a separate science. The Institute and Faculty of Actuaries in Great Britain and the Institute of Actuaries of Australia include general insurance practice as a routine part of their actuarial syllabus. The Canadian Institute of Actuaries insists that all FCIA's study both life and casualty topics as part of their education. The most serious challenge comes from the International Forum of Actuarial Associations (IFAA). The IFAA is discussing standards for qualifying actuarial education programs, which will ultimately require that actuarial education cover both life and casualty topics. It is inconceivable to me that the SOA will have an education syllabus which is not in compliance with IFAA requirements; if we are not able to provide

this material through jointly sponsored examinations, we will be forced to seek other alternatives.

By nature, I am a consensus seeker, and I suspect that the vast majority of

"...the world outside the U.S. perceives casualty as a practice area rather than a separate science."

CAS and SOA members think there is more to gain by cooperation than confrontation. However, the articles in the May 1997 issue of *the AR* are clearly confrontational. The CAS leadership's declaration of independence in its new strategic plan may force the SOA to act independently to implement its goals, even though we would prefer to act more cooperatively. As Khury claims, a fence is being built, but it is being built by the CAS.

David M. Holland, FSA
President, SOA

Responses to Holland's Letter to the SOA

Dear Editor:

David Holland, President of the SOA, was kind enough to respond to "Cassandra of the CAS," laying to rest the uncertainties in that column. In his June 4, 1997, letter to all members of the SOA, Mr. Holland writes in regard to life and casualty topics: "if we are not able to provide this material through jointly sponsored examinations, we will be forced to seek other alternatives."

Yes, the SOA will soon be offering casualty exams, as part of a unified syllabus covering all parts of actuarial education. This makes sense, of course. The SOA syllabus already has separate tracks for five different practice areas: individual life and annuities, pension, group and health benefits, finance, and investments. SOA candidates choose a track, much as

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college students choose a major; there is no expectation that every new actuary be an expert in all of these fields. Adding a "property and casualty" track would strengthen this educational system.

"...do we wish to be one practice area within a larger actuarial society, or do we wish to remain an independent organization?"

Cassandra thought that the slow but inexorable movement of economic forces would propel the incorporation of a casualty track into the SOA syllabus. That is not all, corrects Mr. Holland. International actuarial education requirements, which will "require that actuarial education cover both life and casualty topics" may have a far swifter effect, since it is "inconceivable that the SOA will have an education syllabus which is not in compliance with IFAA requirements."

Some voices on the casualty side cry foul, alleging duplicity on Mr. Holland's part. Has the SOA not vouchsafed to us that they deal with life contingencies, while the CAS is the casualty organization? Is there not an eternal covenant between us that they sponsor the life actuarial exams and that we sponsor the casualty actuarial examinations?

On the contrary: the SOA leadership has moved boldly, rapidly, and openly to further the interests of their members. They have co-opted the pension actuarial society into the SOA, they have expanded into finance and investment areas, they have set up scores of test centers in foreign countries. Each expansion has been discussed widely throughout their organization, often preceded by "white papers" outlining these initiatives.

The expansion into the casualty field is equally open, equally rapid,

and equally bold. Life actuaries with interest in these matters discuss them freely and honestly. (Most life actuaries, of course, have little concern with casualty issues.) The conversion of the *Transactions of the SOA*, a journal focused on life contingencies, to the more encompassing *NAAJ*, which deals equally with life, casualty, health, pension, and investment topics, is the natural counterpart to this transition. That some members of the CAS recoil in shock at this development elicits only a smile on the SOA countenance.

How different it is on the CAS side! "Hush, Sholom," I was told, "lest our membership get wind of what is happening. You must not let Cassandra appear in the AR."

Cassandra is but one voice in a large debate. CAS members must decide: do we wish to be one practice area within a larger actuarial society, or do we wish to remain an independent organization? The CAS has listed "independence" as a key priority in its strategic plan. One hears various views among our membership about what independence entails, and how we ought to ensure our independence. These voices must not be muted; we must listen to them thoughtfully.

Sholom Feldblum, FCAS, ASA

Dear Mr. Holland:

This is in response to your June 4, 1997 letter to the SOA membership regarding "our" relationship with the Casualty Actuarial Society, and specifically "our" reaction to Stan Khury's editorial in the May, 1997 issue of the *AR*.

You state in your letter that "there is casualty expertise on the editorial board of the *NAAJ*." While it is true that Professor Hickman is an ACAS, although his CAS credentials are not noted in the *NAAJ*, it is not clear that he is qualified to issue Public Statements of Actuarial Opinion on casualty topics under the AAA Qualification Standards. Given the fact that there are over 100 SOA members who are also members of the CAS, it would seem that your confidence that "our

review process will meet the highest professional standards" places a great responsibility on a single ACAS.

The SOA publication *Directory of Actuarial Memberships* describes the SOA as "an international research, education and membership organization for actuaries in the life and health insurance, employment benefits, and pension fields." This same SOA publication identifies the CAS as "an international research, education and membership organization for actuaries in the property and casualty insurance, workers' compensation and liability coverage fields." This distinction is recognized by the AAA as well in its Qualification Standards.

Yet the Mission Statement of the SOA describes its members as actuaries who "currently practice primarily in the areas of life insurance, health and retirement systems and investments..." (emphasis added). Remembering advice once given me to the effect that "you can be paranoid and still have someone out to get you" this strange choice of wording in conjunction with the scope of the *NAAJ* certainly produces the appearance of an organization intent upon expanding its horizons into an area which I believe is already being ably served by the CAS.

While I share your belief that all actuaries should have exposure to life, health and casualty topics, if only to understand when a specialist from another discipline should be called in, my concern is that exposure to casualty topics may be viewed by some as the equivalent of an education in casualty actuarial science. The educational value of CAS membership is generally well recognized by the insurance and reinsurance industries, as evidenced by the number of CAS members who have been recruited to work in the U.K. But the public is not so knowledgeable. If a member of the SOA holds him or herself out as qualified in the field of casualty actuarial science, can the SOA be depended upon to protect the public? Or will casualty actuarial science be viewed by the SOA as a natural extension of basic actuarial principles?

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You are correct when you state that "there is more to gain by cooperation than confrontation." But cooperation cannot be at the expense of professionalism. The purposes of the CAS "are to advance the body of knowledge of

"...cooperation cannot be at the expense of professionalism."

actuarial science applied to property, casualty and similar risk exposures, to establish and maintain standards of qualification for membership, to promote and maintain high standards of conduct and competence for the members, and to increase the awareness of actuarial science." What you seem to be proposing is an educational structure in which actuaries are inadequately grounded in the basics of both life and casualty actuarial science. While this may well evidence a cooperative spirit among the learned societies, it will not produce better actuaries.

To view the Khury editorial and the Feldblum article as the "CAS leadership's declaration of independence" is, I believe, a grave error. Our declaration of independence was in 1914. Just as Great Britain failed to recognize the value of its colonies, the American actuarial organizations failed to appreciate the future of the property and casualty business. While I believe the CAS and SOA can be noble allies, the "fence" you believe the CAS to be building is actually a solid wall which has been erected brick by brick over the past 83 years and is held together by the mortar of education, experience, and dedication to casualty actuarial science.

Charles L. McClenahan, FCAS, ASA, MAAA

More Responses to Anker's February Letter to the CAS

Dear Bob:

Your letter of February 24 reminded me of the good times we had when we were serving on the CAS Board together, and how long ago that has been. I admire how active you continue to be.

Your letter about the new publication of the SOA arrived the day before I received the inaugural issue of the *NAAJ*. I don't understand why you would have protested about the inauguration of a new actuarial

journal or why you would think it would compete with the *Proceedings* of the CAS. An actuarial journal that would attract wide readership from both actuaries and non-actuaries is something we would all benefit from.

The latest annual volume of the *PCAS*, for 1995, contains one paper and five reviews. At last count, we have 2,706 members. That suggests that the vast majority of the publication activity of our members, probably about 99 percent, takes place in other journals already.

The 1997 *Syllabus of Examinations* for the CAS contains about 293 "Materials for Study," of which only 37 come from the *PCAS*. That suggests that most of the materials read by our members, even on subjects covered by our *Syllabus*, already come from other sources.

The *PCAS* has become a residual publication for papers that are often technical, narrow in scope, that can afford to wait a year before publication, and that attract relatively little readership interest among non-actuaries, "lay" actuaries, and even many "pure" actuaries. I scanned the titles in the 1995 *PCAS* when it came out and found none of interest to me. Many others, possibly including yourself, may have had similar experience.

When I served on the CAS Committee on Review of Papers for the *Proceedings*, we tried to guard against being a residual publication for papers that lacked readership interest. The CAS Board backed us up when our

rejection of a very actuarial paper for no other reason than that it "lacked sufficient readership interest" was appealed to the Board. But that was long ago.

I have published a number of articles in the past 15 years on insurance financial subjects. I offered a few of them to the *PCAS* first, but they were all rejected. The reason given was "not sufficiently actuarial." They were published by other publications of wider readership.

The new *NAAJ* clearly indicates its aim to publish articles that appeal to a broader range of readers than actuaries, or "pure" actuaries. All of the articles in its first issue would have been rejected for publication in the *PCAS* if they had been offered, although some would be of interest to many casualty actuaries, and at least one has an author whose work appears on our *Syllabus*.

I was pleased to note that the editor of the new *NAAJ* is Sam Cox, FSA. He was head of the insurance program at Michigan State University in East Lansing until he moved to Georgia State University a couple of years ago. I enjoyed working with him both at MSU and at our office. I also have enjoyed working with his brother, David Cox, FCAS, who has helped substantially in applying actuarial science to the regulation of title insurers in practical and constructive ways. Sam may be the next Matt Rodermund in actuarial publications. If he is, or could be, we should be helping him. We actuaries need another Matt Rodermund.

Shouldn't we encourage our members to participate in this new *NAAJ*? We have little to lose and much to gain.
Robert A. Bailey, FCAS

From a voice message left with Mr. Anker:

I would like to reaffirm my support for the CAS maintaining independence at this junction. I am concerned about adopting the new SOA exam process. I feel that it is important that we maintain our independence.

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My recommendation is that when they stop offering Parts 1 & 2 we offer them ourselves. The SOA proposal is generating a lot of bad publicity with math departments around the country. The CAS would get a tremendous

"NCCI's affiliates have embraced competition, but they are not willing to subsidize their competitors...."

boost if we were to maintain the current exam process rather than shifting over to the new SOA proposal.

Thank you for continuing to work for our independence. Thanks for sending the letter out.

Steve D'Arcy, FCAS

Dear Bob:

I just read your February 24, 1997 notice to the CAS membership concerning the NAAJ. I was very disappointed to learn that the SOA was involved in active solicitation of CAS members for their journal.

I wanted you to know that I strongly support the CAS's efforts to convince the SOA to stop this.

Good luck.

Edward W. Ford, FCAS

From a handwritten note to Mr. Anker:

I'm sympathetic with the SOA's problems (unemployed members; no creative new life insurance products since universal life was introduced years ago; declining numbers of defined benefit pension plans; etc.). However, under no circumstances should we let them do what your letter describes. Their actions impact the CAS and our livelihood. Yes, you have my support.

John Pierce, FCAS

NCCI Responds to Charge of High Prices for Rate Filings

Dear Editor:

Will Peacock's letter to the editor that was recently printed in the May AR was so laden with inaccuracies and omissions that I felt it was imperative to set the record straight. For example, Mr. Peacock asserts that he requested four rate filings from the National Council on Compensation Insurance, Inc. (NCCI) and was quoted a price that he felt was too high. What he fails to note, however, is the fact that he has refused to provide information that would enable

NCCI to license the use of the filings at a price that is commensurate with his intended use of the products. Furthermore, he also neglects to point out that he is a competitor of NCCI who clearly seeks to make use of this valuable product for commercial purposes. Perhaps Mr. Peacock does not feel he should bear the fair costs of his use of NCCI's intellectual property, but believes he should be subsidized by NCCI's member companies.

Contrary to the inferences raised by Mr. Peacock in his letter, the price charged by NCCI for the licensed use of rate filings by outside consultants is rational and appropriate. For example, an actuarial consulting firm doing work on behalf of an NCCI affiliate may be licensed to use the related rate filing, **at no additional charge**, and will be asked to protect the filing from additional distribution. Alternatively, if a consultant wishes to use a filing on behalf of an insurer that is not an NCCI affiliate, the consultant is charged a premium based charge that is the same as that charged an NCCI affiliate plus 25 percent. The difference reflects the lack of affiliate investment and commitment that non-affiliates do not provide to NCCI. Only if the consultant refuses to disclose the intended use of the rate filing will NCCI charge the consultant a fee based on the premium of the affiliate with

the highest premium in that state plus a 10 percent administrative fee. In the instant case, Mr. Peacock has refused to disclose his intended use of this valuable intellectual property.

Mr. Peacock also goes to great lengths to deny the existence of NCCI's intellectual property—somehow inferring that these valuable property rights don't exist because of regulatory and actuarial involvement in the ratemaking process. Apparently Mr. Peacock does not understand federal copyright law, but he also fails to recognize that the loss cost filings prepared by NCCI represent the culmination of substantial investments in technology, countless hours of human effort, and the application of techniques developed over many years at great expense. It should also be noted that Mr. Peacock ignored the fact that the Florida court decision was a response to a motion to dismiss and is currently on appeal to the Circuit Court of Appeals.

Finally, Mr. Peacock incorrectly suggests that NCCI has not made necessary data available when, in fact, a myriad of data products are offered to our members and customers at reasonable prices. For example, our actuarial customers regularly purchase the highly valued NCCI Annual Statistical Bulletin, Economic Conditions Report, Schedule Z Summary Data, Circular Services, and other key data products and services. Unlike Mr. Peacock, our customers' responses to these products are overwhelmingly positive and negative comments on our pricing are infrequent. Interestingly, when we have asked Mr. Peacock if some of the products identified above might be appropriate for his professional needs (in lieu of the full rate filing), he has failed to respond.

NCCI welcomes competition and we believe we have made many efforts to accommodate Mr. Peacock and his business needs, despite the fact that he is a competitor of NCCI and our affiliates. As a result, we are perplexed by his continuing written diatribe against NCCI. NCCI is not a governmental entity. NCCI is a not-for-profit

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corporation, owned by affiliate members who have agreed to support the organization through financial support and data contributions. NCCI's affiliates have embraced competition, but they are not willing to subsidize their competitors or others who are unwilling to pay the contributive costs of doing business. Although Mr. Peacock indicates that he is willing to pay a reasonable price for NCCI's products and services, in fact it appears that what he really wants is either free or subsidized access to products and services that are not only valuable intellectual property, but are costly to produce. We don't think that's appropriate or fair.

William D. Hager

Chief Executive Officer, NCCI

[Editor's note: Look for more discussion between Will Peacock and the NCCI in the November AR.]

Membership Requirements: U.S. Versus Canada

Dear Editor:

Exams 7 and 8 have alternatives: the U.S. specific exams, 7 (U.S.) and 8 (U.S.), or the Canadian specific exams, 7 (Can) or 8 (Can). A student who passes the U.S. specific exams (in addition to all the other parts) becomes an FCAS; but a student who passes the Canadian specific exams instead of the U.S. specific exams (and completes 18 months of Canadian specific experience) gets one more designation—in addition to becoming an FCAS, they become an FCIA (Fellow of the Canadian Institute of Actuaries).

An FCAS who passes the U.S. specific exams cannot get their FCIA status even if they move to Canada and

work for many years. They must pass the Canadian specific exams. But an FCAS/FCIA can move to the U.S. and practice his profession and sign important reserve opinions, although he has not mastered the vital areas of U.S. accounting and U.S. regulations. This is not equitable.

The position taken by the CIA is laudable and sound. The position of the CAS is not sound, in that it puts its

"The position of the
CAS...puts its
members in a
disadvantageous
position."

members in a disadvantageous position.

This can lead to inequities and games played by smart students:

- Students may decide (I know of one who has) to take the Canadian specific exams even though they have never lived or worked in Canada. They may do this "just in case" they decide to move to Canada in the future.
- An FSA/FCIA studying to become a property/casualty actuary could take the U.S. specific exams rather than the Canadian specific exams, if for some reason he thought they would be easier, even if he never worked in the U.S. and never intended to. (There is a rumour that an FSA/FCIA is doing this.)

I suggest four alternative solutions:

- Grant the FCAS designation only to those students who pass the U.S. specific exams, and only issue tran-

scripts to other candidates, so that they can be granted the FCIA designation by the CIA. (This is my preference.)

- Persuade the American Academy of Actuaries and the insurance regulatory authorities to specify that only those actuaries with the U.S. specific exams are qualified to render any actuarial opinion regarding U.S. insurance companies.
- Break each of the exams 7 and 8 into a general subpart (for which all candidates would be graded together) and a country specific subpart. Then grant FCAS or FCIA designations depending on which subparts were passed. An FCAS would be permitted to take the Canadian specific exams at a later date, to become an FCIA (assuming an appropriate experience requirement, also); similarly, an FCIA would be able to take the U.S. specific exams at a later date to become an FCAS (assuming an appropriate experience requirement, also).
- Use Alternative 1 shown above, but also allow an FCIA to become an FCAS if the actuary has demonstrated five years of U.S. experience in a responsible position, as certified by another FCAS. Similarly, allow an FCAS to become an FCIA if the actuary has demonstrated five years of Canadian experience in a responsible position, as certified by another FCIA.

This approach is more humane, plus it will bring the two societies together under one umbrella and will eliminate the inequity that currently exists.

I am willing to present my views in any CAS forum or committee. Let me hear from you if you think I have a point or if you don't agree with me [(770) 951-2782].

Sri Ramanujam, FCAS, FCIA ■

Quarterly Review

A Review of: *Loss Models: From Data to Decisions*

by Stuart Klugman, Harry Panjer, and Gordon Willmot (John Wiley & Sons, 1998)

by Glenn G. Meyers

In the late seventies, Bob Hogg was serving as an academic advisor to the committee that prepares Parts 1 and 2 of the actuarial examinations. As was typical of Bob, he took an active interest in possible applications of statistics and out of his interactions with the committee, he began writing a book called *Loss Distributions*. Back at the University of Iowa he enlisted the aid of Stuart Klugman, a Fellow of the Society of Actuaries teaching actuarial science, and together they completed the book that has been studied by many students in the Casualty Actuarial Society.

Loss Distributions was only the beginning of Stuart's contributions to actuarial science. He has also made significant contributions to credibility theory. Although not a member of our Society, he has been invited to speak at many CAS meetings and seminars. In addition he is serving as an academic advisor to the CAS Committee on the Theory of Risk.

Harry Panjer and Gordon Willmot, professors at the University of Waterloo, have played similar roles in the SOA affairs. Harry is well-known among research-oriented casualty actuaries for his work on the theory of risk.

Together, Stuart, Harry, and Gordon have written a book entitled *Loss Models: From Data to Decisions*, which covers loss distributions, credibility theory, and risk theory in a coherent manner. Because of their long involvement in the affairs of both the CAS and the SOA, they are well qualified to write such a book for an actuarial audience. Following modern marketing principles, they recruited the CAS Committee on the Theory of Risk as a focus group. The committee provided the authors with several real-world examples including a case study that is followed throughout the book. The book will be published in January 1998.

Following the introduction in the first chapter, chapter 2 deals with claim severity distributions. This chapter provides a fairly complete inventory of claim severity models, and gives a variety of methods for fitting these models to data. In addition, it provides methods of quantifying the uncertainty inherent in fitting these models to limited amounts of data. The chapter also provides applications of these models for analyzing the effects of limits and deductibles.

Chapter 3's focus on claim frequency distributions starts with the classic three distributions widely known to most actuaries: the Poisson, binomial, and negative binomial. It then goes on to introduce a whole new class of frequency distributions called the compound distributions. One way to think of these distributions is to consider a two-stage process where one picks a random number of "accidents" from one distribution and for each "accident" one picks a random number of "claims" from another distribution. The compound distribution describes the total number of "claims" generated by this process. The chapter then describes a recursive algorithm for calculating the probability of any given number of claims. It turns out that many of these distributions can also be described as mixtures.

In time, these compound distributions could become a significant addition to the modeling tools available to the actuarial profession.

Chapter 4 describes three main ways of calculating aggregate loss distributions in terms of the underlying frequency and severity distributions. Com-

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Journal of Reinsurance Offers IRU Awards

The Intermediary and Reinsurance Underwriters Association, Inc. announces an annual awards program to recognize and honor three authors whose articles have been published in the *Journal of Reinsurance*.

Each year, an awards panel will select what they judge to be the best article in each of three categories from the four consecutive issues of the *Journal* beginning with the Fall issue.

Three prizes of \$1,000 each will be awarded. The awards will be presented at the September meeting of the IRU.

Award Categories

1. Technical

Articles describe and explain ratings, terms and conditions of specific treaties; underwriting authorizations and claims handling; and case studies of specific reinsurance placements. Articles are usually accompanied by tables, graphs, and charts for clarification of text.

2. Regulatory and Judicial

Articles describe state regulations and case law from a historical perspective as well as their significance for the future of reinsurance.

3. Overview

Articles summarize or describe a reinsurance venture, project, enterprise, scheme, or operation of a specific geographic or niche market, or new products and services.

Generally, articles should advance the understanding of reinsurance and the industry in an informative, persuasive and clear manner. Articles cannot have been previously published and should be 2,000 to 4,000 words in length. For additional information and requirements about submitting an article, write to the *Journal of Reinsurance*, IRU, P.O. Box 1850, Canton, Georgia 30114 or fax (770) 479-0267 or call (770) 479-0265. ■

CASE Celebrates Its 10th Anniversary

by Gregory T. Graves, President of CASE and Robert G. Blanco,
President-Elect of CASE

Casualty Actuaries of the Southeast (CASE) is proud to announce its 10th anniversary meeting. The meeting will be held October 1 at the Westin Peachtree Plaza in Atlanta and will directly follow the Casualty Loss Reserve Seminar being held in the same facility on September 29 and 30.

For the 10th anniversary meeting, we are planning some special activities in addition to a strong educational content. We will be holding a reception to celebrate the occasion. We plan to invite all past CASE presidents to join us. In addition, we expect to have some current and former CAS officers on hand. If you plan to be in town for the CLRS and would like to join the festivities, please contact Rich Moncher at (561) 997-4369 for details. Also, non-CASE actuaries are very welcome to register for the meeting.

CASE's first meeting was held on September 29, 1987 with a total of 46 individuals in attendance. Attendees were addressed by Michael Walters, then President of the CAS, about the critical role regional affiliates could play in the CAS. This was followed by two panels, one on windstorm and catastrophic losses, and the other on the effect of reinsurance on insurance company solvency.

Membership in CASE has nearly doubled from 68 in 1987 to 132 today. Associates and Fellows of the CAS working in the Southeast are eligible for membership in CASE, while students with four CAS exams are eligible to become subscribers.

CASE serves members in the states of Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Ten-

nessee, and Virginia. CASE holds two meetings each year, and typically draws 60 or more in attendance. Meetings generally consist of four presentations of a technical or professional nature, and speakers are drawn largely from our membership.

In addition, "special" events such as the screening of *The Billion Dollar Bubble* (complete with popcorn) and presentations by well-known speakers such as Georgia State University economist Donald Ratajczak supplement our actuarially oriented meetings.

We would like to take this opportunity to thank our membership for their support over the years, and for making CASE the success that it has been. We look forward to the next ten years!■

Plan to Attend the Fall Seminar for the Appointed Actuary

This September, the Canadian Institute of Actuaries and the Casualty Actuarial Society are once again co-sponsoring the popular Seminar for the Appointed Actuary. Reserve September 18 and 19 to attend two days of joint and concurrent sessions focusing on life and property and casualty insurance topics at the Queen Elizabeth Hotel in Montréal, Québec.

Designed to provide practical advice to all appointed actuaries in dealing with their responsibilities, the sessions include such topics as

- The Role of the Actuary and Accountant in Financial Reporting
- Par and UL Valuations
- Cash Flow Management and Valuation
- Dynamic Solvency Testing for Property and Casualty
- Plus sessions on asset modeling, Canadian catastrophe models, earthquake exposure, regulator concerns, and many other issues near and dear to the hearts of appointed actuaries.

A seminar program will be available in August. If you would like one, please call Nancy Jenkinson at the CIA Secretariat, (613) 236-8196, ext. 101.■

Quarterly Review

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puter simulation is the easiest way to calculate aggregate probabilities. Its drawback is that it can take a great deal of computer time. This is becoming less of a problem as computers get faster, but actuaries are also getting more ambitious. As we move into dynamic financial analysis (DFA), simulators could well be asking for the services of Deep Blue.

The Panjer recursive algorithm is a very elegant way to calculate aggregate loss probabilities and it is very fast when the expected number of claims is small. One major drawback is that it does not handle multiple lines of insurance. The multiple line problem can be solved either by brute force convolutions or by the mathematically complex (in other words, magic) procedure known as Fourier inversion.

The Panjer recursive algorithm can handle compound frequency distributions, but it requires more computer time. Following a formula given in the book, I was able to use compound frequency distributions in a Fourier inversion method with a minimal increase in computer time.

Chapter 5's coverage of credibility theory includes classical credibility, Bayesian estimation, Buhlmann credibility, and empirical Bayesian credibility. The earlier sections provide a mathematically rigorous treatment of the material in our current Part 4B exam. I hope that at least some readers master the empirical Bayesian credibility material, which I feel is underutilized.

Chapter 6, which covers conventional ruin theory, takes simple models of loss generation and premium collection and attempts to solve the mathematically difficult problem of calculating the probability that an insurer will exhaust its surplus. This subject has held the attention of risk theorists for several decades and probably should be included in any text on risk theory. But I suspect that much of this will eventually be replaced by DFA.

My favorite part of the book is the collection of appendices, which will

be very valuable to those who are charged with implementing this material. Here we have a reference for all the distributions discussed in the text, along with formulas for various quantities of interest such as the density functions, moments, *limited* moments, probability generating functions and the like. In addition, the notation is standardized, in other words, the same letters are used for the scale parameter, the shape parameter and so on. The appendices also have a bunch of goodies such as a formula for the incomplete gamma function, the simplex algorithm for maximizing functions and formulas for adjusting the frequency distributions when the severity distribution is affected by a deductible.

Wiley will also distribute software related to the book through its Web site. The programs included will be: 1) FIT, for fitting severity distributions; 2) DFIT, for fitting frequency distributions; 3) CR, for calculating aggregate probabilities using the Panjer recursive algorithm; and 4) a shareware version of CRIMCALC, for calculating aggregate probabilities by the Heckman/Meyers algorithm, a Fourier inversion method.

I believe this book will become a major text and reference for actuaries. All actuaries will benefit by mastering some of this material, and a large employer of actuaries should have someone on board who has mastered all of this material. ■

CAS Trust Receives \$15,000 Contribution

The Trustees for the CAS Trust (CAST) are pleased to announce that D.W. Simpson & Company donated \$15,000 to the Trust on May 9, 1997.

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

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

CAS Continuing Education Calendar

August 21, 1997	Seminar on Reinsurance (Limited attendance) New York Marriott East Side New York, New York
September 29-30, 1997	Casualty Loss Reserve Seminar Westin Peachtree Plaza Atlanta, Georgia
October 13-14, 1997	Special Interest Seminar on International Issues Charleston Place Charleston, South Carolina
November 9-12, 1997	1997 CAS Annual Meeting Marriott's Desert Springs Resort Palm Desert, California

How DFA Can Help the Property/Casualty Industry, Part 3

by Susan T. Szkoda, FCAS

Editor's Note: This is the third in a series of articles on Dynamic Financial Analysis (DFA).

In my previous DFA article on pricing, I noted the importance of being realistic about the fundamentals and the importance of having a "true compass" as to what your real costs are. Nowhere is this more true than in reserving.

Sound reserves form the bedrock of financial stability. In addition to being important to the balance sheet, sound reserves provide that true compass for your real costs and true pricing needs.

As we get drawn further into the current cycle we need to be careful to separate fact from wishful thinking. If we look back on the last cycle in the early-mid 1980s we will note that industry reserve adequacy deteriorated sharply—more or less in line with the deterioration in rate level adequacy.

It is possible that a component of this deterioration was due to overly optimistic assumptions about companies' ability to control costs through judicious underwriting or claims practices. Part of it may have been due to the belief that investment income would more than offset any shortfall in pricing. Part of it may have been due to management pressure.

I came upon an old *Actuarial Review* letter from the 1984 CAS President Carlton Honebein. I was struck by how timeless his comments were:

"Insurance results are horrendous. Reinsurance results are even worse... We had the forecasts and we believed them; why weren't we more forceful in demanding actions that would have avoided an unsavory situation that profoundly affects ourselves, our employers and the insuring public."

The mantra of the last cycle was that high interest rates would bulletproof all pricing and reserving deci-

sions. The mantra of this cycle is that low inflation rates will bulletproof all pricing and reserving decisions. Time will tell.

Are we currently at the point where insurance results are horrendous? No, of course not! Reported results today are in fact extremely favorable. Could we get to this point within the next few years? It would certainly seem to be possible.

How can DFA help a company avoid or minimize a bad outcome?

Let's focus on a single line of insurance—workers compensation—and walk through some specific considerations in a DFA-style reserve analysis.

Assume the actuary has available the basic data elements of premium, exposure units, claim counts, paid losses, case reserves, type of claim (permanent total vs. permanent partial vs. temporary total) and type of loss (medical vs. indemnity vs. allocated loss adjustment expense).

What are some of the items that separate a DFA-style reserve analysis from a "traditional" reserve analysis?

- The item being analyzed can be viewed as the hub of a wheel. The spokes of the wheel are all other relevant areas/considerations that interact with the hub. There are many actions and reactions based on the flow of information between the hub and spokes.
- The reserve analysis itself is multivariate. It is explanatory in nature. The highly summarized "triangle" approach will generally not be considered sufficient.
- The analysis is scenario-based and range-based. Major variables are examined as ranges rather than absolutes. The impact on the "wheel" and strategic actions are determined at a *minimum* at the major points of the range (low, medium, high scenarios).

Our DFA workers compensation reserve analysis for Hypothetical Company X considers the following items:

Nature of Book of Business/Premium

- Assume 50 percent of the voluntary book is National Account business. Over the past three years this book has converted almost fully to the High Deductible Product. As a result premium for this segment has dropped from \$1 billion in 1993 to \$250 million in 1996.
- Assume 50 percent of the voluntary book is Guaranteed Cost. Rate levels peaked in 1993 and have fallen by 10 percent per year in each of 1994, 1995 and 1996. In addition to this schedule credits increased from 0 percent in 1994 to five percent in 1995 to 10 percent in 1996. Therefore premium for this segment dropped from \$1 billion in 1993 to \$625 million in 1996.
- Assigned Risk Servicing Carrier premium decreased by 70 percent between 1993 and 1996 due to the depopulation of the assigned risk pool. Assume 1993 premium was \$1 billion while 1996 premium was \$300 million.

Exposures

- Assume underlying payroll unit growth in National Accounts decreased by 15 percent between 1993 and 1996 due to restructurings and layoffs in the Fortune 500 client base.
- Assume underlying payroll unit growth in the Guaranteed Cost segment increased by 8 percent over this period as smaller businesses added staff and grew.

Geographic/Industry Presence

- Assume the bulk of business is traditional manufacturing exposure in the Northeast, Mid-Atlantic (NY & NJ) and Midwest. There is little presence in fast growing South,

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DFA

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Southwest and High Tech Silicon Valley/ Pacific Northwest regions. The mix of book by state and industry group is generally stable.

Renewal Retention Rates

- There is high retention (90 percent) on National Accounts.
- Smaller Guaranteed Cost business has average retention (70 percent).

Expenses

Company X has slashed its expenses by \$350 million over the past three years but finds the expense ratio has actually increased from 25 to 34 percent, due to lower premium levels and change in product mix of business.

Investment Income

The 30 Year Treasury yield was around 6.5 percent at year-end 1996. It now appears to be 7.0 percent. Will it head north to 8.0 percent?

The portfolio is 80 percent bonds, 10 percent stocks and 10 percent cash. The bond maturity distribution is:

30 percent	0-5 years
20 percent	5-10 years
10 percent	10-30 years
40 percent	⊕ 30 years

Inflation

- Wage inflation over the past few years has been approximately 0-2 percent per year. Historical wage inflation has been approximately four percent per year.
- Annual medical inflation over the past few years has been -5 to +5 percent based on where you are in the managed care cycle. Historical medical inflation has been approximately 7 to 12 percent per year.

Mortality

- The current table used is the Standard 1980 Table. Lifespan has since lengthened by 5-10 percent.
- Impaired Mortality on Permanent Totals is used where appropriate.

Law Reforms

- Significant historical reforms occurred over the 1992-96 period with significant rate reductions relative to reforms. Pricing is uncertain on many reforms. The impact on claim

department case reserves is also uncertain.

Claim Department Changes

- Significant staff downsizing has occurred, including the loss control unit.
- The claim department reports no significant change in case reserving procedures. However, review of data indicates:
 - Average paid claim inflation running between 0 and +5 percent.
 - Average outstanding claim inflation running at -10 percent.
 - Claim settlement rates appear to be flat to perhaps a modest slowdown.

Reinsurance

Cost of excess of loss and stop loss reinsurance has decreased significantly and is now widely available. In 1993 this coverage was expensive and difficult to obtain.

Summary

The precise impact of many of these variables on the final reserve need is unknowable at the time of the reserve review. Therefore it is necessary to construct scenarios using plausible *ranges* for these variables. Judgment comes into play. DFA helps us understand and articulate the impacts of the many judgments we routinely make as actuaries.

Our enhanced understanding of the impact of many of these variables helps us to feed back meaningful information to the marketing, underwriting, claims, reinsurance, investment and pricing areas of the company (spokes and hub concept).

CLRS Tie-In

Come see how this workers compensation DFA reserving problem is solved at the Casualty Loss Reserve Seminar, September 29-30 in Atlanta, GA. The solution will be published in the *Winter Forum*. ■

1997 Schloss Memorial Scholarship Awarded

The CAS awarded Rane Thiagarajah the 1997 Harold W. Schloss Memorial Scholarship. Each spring, Trustees of the CAS Trust select a student recipient based on recommendations of the departmental chair at the University of Iowa.

The CAS established the Schloss Memorial Scholarship in 1984 to honor Mr. Schloss, a past president of the Society. Mr. Schloss' wife, Frances A. Schloss, and his children initiated the \$500 stipend to benefit deserving and academically outstanding students in the actuarial program of the Department of Statistics and Actuarial Science at the University of Iowa. ■

AMS and SIAM Develop Mentor Program

A joint project of the American Mathematical Society (AMS) and Society for Industrial and Applied Mathematics (SIAM) has asked for the CAS/SOA Joint Career Encouragement Committee's help in securing nonacademic actuaries as mentors for recent graduates and for students in a master's or doctorate program in mathematical sciences. Volunteer mentors are matched with appropriate students and stay in touch for one year answering E-mail messages on the work, environment in actuarial science, job and internship opportunities, interview and résumé tips, and recommended course work.

According to the project director, several students have expressed interest in actuarial science, but few actuaries are involved in the program at this time.

For more information on how you can encourage a future actuary through this project, contact Mike Boa at the CAS Office at mboa@casact.org or (703) 276-3100. ■

The Peter Principle Proven

In case you've ever wondered why ignorance rises to the executive level, here is a simple explanation that is also a mathematical proof:

Knowledge is Power.

Time is Money.

And, as every actuary (with some physics training) knows:

$$\text{Power} = \frac{\text{Work}}{\text{Time}}$$

So, if

$$\text{Knowledge} = \text{Power}$$

and

$$\text{Time} = \text{Money}$$

then through simple substitutions,

$$\text{Knowledge} = \frac{\text{Work}}{\text{Money}}$$

Solving for Money, we get:

$$\text{Money} = \frac{\text{Work}}{\text{Knowledge}}$$

Thus, If Work is held constant as a positive number (no matter how small!) Money approaches infinity as Knowledge approaches zero.

What this means is:

All else being equal, the less you know, the more you make.■

Incommensurable Powers

He who'd stretch his analogies
Fit 'em round the tightest corners
To make 'em square equalities
Will force upside-down conclusions
From pataphysical substitutions!

—Daniel F. Kligman, ACAS

Brainstorms

Compensation for Risk: ROE and Capital Seesaw!

by Stephen W. Philbrick

Several recent columns have focused on the following theme: given an opportunity to write an additional insured with above average risk, should the insurance company reflect the increased risk by allocating more capital, requiring a larger rate of return, or some combination of the two?

Mark Shapland added thoughts of his own. His words are in italics.

In the November issue, you ended with the "tentative conclusion that we should adjust for risk using a combination of higher equity and a higher required return." I have supported this conclusion for some time now and would like to add a few points in support of this option.

In my experience, the discussion of this topic often seems to focus on a question of "either/or," as if these two options should be mutually exclusive. Since required capital AND expected rate of return are BOTH related to risk, why wouldn't we relate both of them to risk? It may seem appealing to adjust only one variable instead of two, but this process would then require that (for whichever variable is being adjusted) the adjustment should account for the fact that the other variable is not being adjusted. For example, if we choose to only increase capital (for an increase in risk), then we would need to increase it further to compensate for the lack of increase in required rate of return. If there is a theoretically correct solution for both capital and expected return, then the process of balancing our capital and return requirements by overcompensation in one variable makes this issue more complex than it needs to be.

In the November issue, you pointed out that the two "either/or" approaches "will necessitate differing profit margins in the premium," which lead you to state that "we must determine which is correct."

I see now that my statement could be construed as asking how to choose one of two extremes. If I may clarify, I was attempting to head off a response such as "it doesn't matter, because either thought process leads to the same premium." My point was that the alternatives implied different premiums, thus we cannot avoid the issue.

Mr. Shapland then went on to construct an example to show what might happen if BOTH the capital requirements and the required rate-of-return were increased. He made an interesting observation that I wish I had thought of myself. Given a fixed capital requirement, if we wish to double the compensation for risk, we do not simply double the ROE value. A 15 percent return on equity value should be viewed as the sum of a risk-free component and a risk component. Thus, 15 percent may be a six percent risk-free return plus a nine percent return for risk. Doubling the risk should double the risk component, so that the resulting return with a compensation for risk is 6 percent + 2 x 9 percent = 24 percent (reemphasizing the assumption that we do not change the capital requirement.)

Mr. Shapland concludes:

The real value to this discussion is in understanding and applying adjustments for future variability to both capital and ROE.

I strongly concur that the proper response to virtually all realistic situations with an increase in risk is an adjustment to BOTH the capital and the required ROE. What is not clear to me, is how much of an adjustment to each element is appropriate.

I have been doing some thinking in this area, and have reached some tenta-

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New Fellows Honored at '97 Spring Meeting



New Fellows: Row 1: Eric J. Gesick, Andrew J. Doll, Marlene D. Orr, Raleigh Skaggs, Kathleen M. Pechan, Jean-Denis Roy, James M. MacPhee, Mark Joseph Moitoso. Row 2: Timothy Atwill, Steven Boyce White, Robert Emmett Quane III, Margaret Ann Brinkmann, Dale Steven Porfilio, CAS President Robert A. Anker, Mark L. Thompson, Alessandra Corinne Handley, Floyd M. Yager, James F. Tygh.

CAS Spring '97 Meeting Focuses on Catastrophes

SAN ANTONIO, Tex.—At the CAS Spring Meeting in San Antonio, a panel of chief executive officers agreed that excess capital in the property/casualty insurance industry overall and capital available for catastrophe risks is insufficient.

Ramani Ayer, chairman and chief executive officer, The Hartford, observed there is tremendous capital strength in the business today that is driving the competitive environment, but at the same time, capital for catastrophe exposures is not adequate.

Gen. Robert T. Herres, USAF Ret., chairman and chief executive officer, United Services Automobile Association, said that investors have to be as creative as possible in packaging investment instruments that provide an opportunity to share the risks and generate investment returns.

Ronald L. Bornhuetter, chairman, president and chief executive officer, NAC Re Corporation, reported that following recent reinsurer consolidations, 80 percent of the business in the United States is written by a handful of companies. Most of his company's clients say security is the first issue that is looked at in purchasing primary coverage, so the concentration of capital is the number one concern.

Brian Duperreault, chairman, presi-

dent and chief executive officer, A.C.E. Insurance Company, Ltd., said that in the reinsurance business consolidation is here to stay, primarily driven by the buyer. For example buyers concerned with the financial strength of their reinsurers don't want to see a slip with 20 to 30 reinsurance companies, many of which are unfamiliar.

In a panel discussion on catastrophes, experts agreed that a private sector solution may be the key to reserving for the mega-catastrophe of the future.

Vincent Laurenzano, assistant deputy superintendent and chief examiner with the New York State Insurance Department, said that if Hurricane Andrew had hit downtown Miami, the losses could have totaled \$50 billion to \$75 billion. With total industry surplus estimated at \$250 billion, such a disaster would have been a crippling event for the industry.

According to Ross J. Davidson, Jr., vice president of corporate finance, USAA, a \$50 billion industry catastrophe could leave up to 36 percent of insurers insolvent, and reinsurance and guaranty funds would be inadequate.

Phillip N. Ben-Zvi, principal-in-charge, Coopers & Lybrand, L.L.P., said that Congress has not heeded the insurance industry's calls for a mecha-

nism to provide federal or other backup despite the fact that insurance industry capital is insufficient to respond to mega-catastrophic losses.

While acknowledging that there are excellent public policy arguments for a catastrophe reserve program, Wayne Upton, senior project manager of the Financial Accounting Standards Board, said that from a GAAP accounting standpoint, catastrophe reserves are a bad idea, because they aren't liabilities and don't belong in the liability section of balance sheets.■

CASNET Offers Two Subscription Options

CASNET, the CAS E-mail mailing list, now offers subscribers two options for receiving CASNET E-mail. The standard option distributes every message posted to CASNET as a separate E-mail. The new digest option sends one E-mail nightly containing all CASNET messages sent that day.

To subscribe to either version, send an E-mail to the List Manager at caslists@lists.casact.org. In the body of the message type the command **join casnet** for the standard version or type **digest casnet** for the digest version.■

Members Share Views, Concerns on Professionalism

by Roger A. Schultz, Chairperson
CAS Committee on Professionalism Education

Professionalism Supported, Education Needed

Based on a recent survey, professionalism education was found to be widely supported by the membership. A majority (66 percent) of survey respondents thought that ALL members of the CAS should be required to have professionalism education. About the

"there was...strong support for the present professionalism requirements."

same number (64 percent) said they have attended a general session or break-out session on professionalism at a CAS meeting or seminar. A larger majority (81 percent) supported the provision in the recent Qualification Standard exposure draft enabling up to 25 percent of continuing education to be earned through professionalism education.

A significant minority of members (31 percent) do not believe this education should be required. About the same number (34 percent) indicated they had never attended a professionalism session at a convention or seminar. Some felt that, if there was an educational requirement, it should be a one-time only requirement and not subject to continuing education.

On balance, however, there was a fair amount of interest in education tailored toward the existing membership and strong support for the present professionalism requirements.

Member Concerns

The members were also given an opportunity to identify the major professionalism and/or ethical issues

faced by the CAS. Based on responses, the single biggest issue for the membership (by a wide margin) relates to conflict of interest. While this takes many different forms, the biggest con-

the context of a client or employer relationship, where the client or employer often has a preferred outcome. The seriousness of this issue was underscored by comments expressing a genuine concern about the quality of work being done to support annual statement loss reserve opinions.

The second significant conflict of interest issue related to the application of our professional guidelines, as embodied in the Standards of Practice and the Code of Conduct. For example, one survey respondent was concerned about the "inability to prove differences between reasonable actuarial 'opinion' and dishonesty."

Future Actions

It is clear that additional education tailored to the practitioner is viewed as useful by a large proportion of members. The CAS Committee on Professionalism Education will take action to provide this needed education.

The CAS recognizes the serious concern expressed in the survey regarding the quality of work of some of our members. The ABCD process is the appropriate vehicle to address practical issues. Yet, despite the fact that the ABCD process is confidential, our survey results suggest that it is underutilized. The latest ABCD annual report indicated that only ten new casualty cases were received in 1996. This number includes requests for guidance, as well as more serious complaints about practice requirements.

Perhaps the ABCD process is not well understood. Additionally, there may be some barriers that prevent the membership from utilizing the present process. Such barriers need to be identified, articulated, and, if possible, addressed. The CAS and AAA will be working together to address these concerns. ■

Standards
Ethics
CONFLICT
ABCD



Professionalism

cern is balancing professional obligation with the interest of others, most often an employer or client.

Two significant conflict of interest issues were frequently cited. The first was with regard to loss reserving work, most notably annual statement loss reserve opinions. The concern related to the actuary's need to fulfill his or her fiduciary responsibilities within

From the President

From page 1

for the CAS to be independent. There are some who do not see the balance in the plan, but rather focus on the fact that the CAS chose to identify itself as an "independent" organization of professionals. While this represents the first time the CAS has used the word "independent" in any official document describing itself (at least to my knowledge), there is certainly nothing new to the concept of the CAS being an independent body. We have always been an independent organization filled with independent individuals. We have always thought independently. We have always talked independently and we have always acted independently. And, we have done all of that in the context of continuing greater cooperation with all other actuarial organizations, including the SOA. The strategic plan is merely an articulate description of who we are and what we believe, not a change in fundamentals.

The CAS Long Range Planning Committee this year, apparently with the gift of prophecy, identified defining independence and its consequences as one of two important issues for the CAS to address.

The second issue identified was dealing with the consequences of growth. The dominant concern about the consequences of growth is the risk of loss by the CAS of our heavy membership involvement and of the sense of commitment to the organization that involvement both represents and fosters. It is worth repeating that volunteerism is the keystone to our organizational character. Another relevant consequence of growth is the incredible boom in international work involving CAS members over the last few years. One piece of evidence: there are today more members of the CAS practicing outside the United States than there were Fellows when I became a member. We are clearly not serving our non-U.S. membership with the same level of service we provided Fellows when I first joined. While simple logistics makes it very difficult to do so, I believe we need to do significantly better in serving that por-

New Associates Honored at



New Associates: Row 1: Alexander Archibold Hammett, Miroslaw Wieczorek, Michael Victor Leybov, William J. Mazurek, Jason Israel, Kara Lee Raiguel, Joanne Emily Russell, Jeremy Michael Jump, Edmund L. Bouchie, Scott Andrew Kelly. Row 2: C. Steven Swalley, Wendy Lynn Witmer, Allison Michelle McManus, Sharon C. Carroll, Benedick Fidlow, Hugh Eric Burgess, Amy L. Hoffman, Rachel Dutil, Kristine Marie Esposito, Robin M. LaPrete. Row 3: Yin Lawn, Margaret Eleanor Conroy, Jay C. Gotelaere, Jeffrey S. Trichon, David Evan Gansberg, CAS President Robert A. Anker, Patricia Therrien, Michelle Luneau, Denis Dubois, Jane W. Hughes, Theresa Anne Christian. Row 4: Andrea Wynne Malyon, Vinay Nadkarni, Richard Joseph Castillo, John Edward Gaines, David E. Heppen, Paul David Miotke, Richard Bronislaus Puchalski, Simon Kai-Yip Wong, Michael A. Nori, Alan M. Speert, Cary J. Breese.

tion of our membership. It is another of the consequences of growth.

Finally, key to the strength of the CAS over the years, as well as key to the current misunderstandings between the CAS and the SOA, is the fact that the *Actuarial Review* has never been an "official" voice of the Board or leadership of the CAS. Most of us in the CAS understand that, I believe, and look elsewhere for official statements of the Board of Directors or leadership. However, not unreasonably, outsiders tend to expect that the editorial column in our "official" publication would represent the policy of the Board of Directors. Should it? This is a subject with some inherent contention built into it.

It seems to me that our particular version of freedom of the press, call it freedom of the *Review*, is well worth saving. I believe it is a major ingredi-

ent to the confidence that the members of the CAS have in the organization. Our willingness to "let it all hang out" guided only by the boundaries of professionalism and good taste, allows each of us the freedom to communicate frankly with one another on those subjects about which we both agree and disagree.

However, I also believe we need to find a way to make it clearer that the *Actuarial Review* is not a source of official policy of the Board. We also may need to institutionalize the current peer review process to assure that the *AR* can sustain its capability to be an open forum of observation and commentary. In this, as in all things, we have an obligation to try to avoid misunderstanding. Good relationships only come from strength. ■

1997 Spring Meeting



New Associates: Row 1: Neal M. Leibowitz, Jerelyn S. Williams, G. Dennis Sparks, Ethan David Allen, Jonathan Everett Blake, Elizabeth Susan Tankersley, Timothy J. Ungashick. Row 2: Christina Link, Kimberly S. Troyer, Karen L  e Krainz, Sandra L. Ross, Bret Charles Shroyer, Rebecca Ruth Orsi, John R. Rohe, Sharon C. Dubin, Darci Z. Noonan, Joseph Gerard Evleth. Row 3: Katherine R.S. Smith, Karen E. Watson, Christopher Edward Olson, CAS President Robert A. Anker, Christopher J. Burkhalter, Wayne W. Edwards, Stephanie T. Carlson, Thomas Edward Hinds. Row 4: Michael James Moss, David Neal Kightlinger, Harry Todd Pearce, Jason Noah Masch, Phillip E. McKneely, William N. Herr Jr., Richard M. Chiarini, Christopher C. Swetonic.



New Associates: Row 1: Alfred Denard Commodore, John D. Deacon, Rebecca J. Richard, Jean-Sebastien Lagarde, Kevin A. Lee. Row 2: Lisa M. Sukow, Kenneth S. Dailey, Janet G. Lindstrom, Martin Vezina, Jennifer K. Price, Deborah M. King, Janice C. Moskowitz, Dave R. Holmes. Row 3: Jennifer R. Ehrenfeld, Michael Shane, Benoit Morissette, CAS President Robert A. Anker, Mark Steven Wenger, Bradley H. Lemons, Marc Shamula. Row 4: David Thomas Groff, Adam Marshall Swartz, John W. Gradwell, Nathan R. Stein, Wayne F. Berner, Daniel J. Henderson, Mark B. Anderson.

CLRS To Be Held in Atlanta This September

The CAS, American Academy of Actuaries, and the Conference of Consulting Actuaries have teamed up once again to co-sponsor the 1997 Casualty Loss Reserve Seminar (CLRS) in Atlanta, September 29-30. Held at the Westin Peachtree Plaza, the CLRS will focus on discussion and presentation of important issues in loss reserving. The Seminar offers basic, intermediate, and advanced topic sessions for those with varying levels of knowledge of loss reserve principles.

Among the new sessions for the 1997 CLRS, Dennis Chookaszian, CEO of CNA, and Robert Steinberg, CEO of Reliance Insurance Companies, will present their views in the general session, "The Property/Casualty Insurance Industry—A View from the Top," and Linda Lamel, Esq., executive director of Risk and Insurance Management Society, will speak at a luncheon on the first day of the seminar. "Personal Auto Reserving in a Changing Claims Environment," "Neural Networks," and "Data Quality, Emerging Technologies, and the Loss Reserving Actuary" are just a few of many new sessions offered at this year's CLRS.

Other CLRS session topics include reinsurance reserving, environmental/mass tort, dynamic financial analysis, and workers compensation. CLRS special topics sessions offer a wide range of subjects of interest to a general audience, including reserve analysts at all experience levels.

In addition, the CLRS will feature four sessions devoted to the Call Paper Program on measuring the performance of reserving methods. Call paper authors will present their work, which compare traditional and nontraditional techniques. The Call Paper Program submissions were published in the 1997 CAS Summer *Forum*, Volume 1, which was mailed in August.

Registration fees are \$500 (\$694 Canadian) for members and students of the three sponsoring organizations

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The Ethical Issues Forum

Editor's note: This article is the third in a series written by members of the CAS Committee on Professionalism (COPE) and the Actuarial Board for 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 Professional Standards as they may apply in real-life situations.

"...questions of confidentiality of information or legality of disclosure are legal questions that depend on the circumstances."

The case presented in the previous article concerned an insurance department actuary, Barbara Seville, who had discovered apparent violations of professional standards by Robin Banks, a company actuary. The question raised was whether Seville was obligated to file a complaint with the ABCD regarding Banks' conduct. The case also cited examples of Banks' questionable practices regarding reserve calculations (truncation of loss development at 5 years and no provision for IBNR) and ratemaking (no provision for expenses).

One reader correctly cited the Precept 14 requirement placed on actuaries to disclose knowledge of "apparent, unresolved material violation(s)" of the Code of Conduct to the appropriate counseling and discipline body. The reader was quick to note, however, that there are exceptions to this rule "where the disclosure would divulge confidential information or be contrary to law" and where "the actuary is acting in an adversarial environment involving another actuary."

The questions of confidentiality of information or legality of disclosure

are legal questions that depend on the circumstances. However, circumstances may change as an audit or regulatory examination proceeds, especially after an examination report becomes a public document.

The "adversarial environment" exception to the reporting requirement is more difficult to grasp. A reader suggests that there would always be disagreement when one actuary sees an apparent violation by another actuary. He suggests that an adversarial environment exists only when the two actuaries represent clients who are opposing each other. In principle, he believes that the insurance department isn't an opponent, but a referee.

While this may be true generally, regulators are not immune from assuming an adversarial role for political or personal reasons and, in actuality, become a party in opposition. In such circumstances, actuaries like Seville could well find themselves in an adversarial relationship under the reader's guidelines. However, the actuarial profession is likely to consider an environment "adversarial" if the actuary is in court or perhaps a regulatory setting, but not simply because two actuaries disagree.

Questions of confidentiality or "adversarial" environment notwithstanding, Seville has the option of meeting her Precept 14 obligation by discussing the situation with Banks and agreeing upon a course of action to ensure that the apparent violation is resolved.

Precept 14 doesn't distinguish between the obligations of an insurance department actuary, reinsurance actuary, or audit firm actuary as far as the reporting obligation is concerned. A reader suggests that reinsurance and auditing actuaries face a real business cost to their employers if they make it a practice to report clients or brokers to the ABCD for every apparent violation that they face. Such actuaries may decide to document such in-

stances for their own records and cite the reasons such reports were not made for their own protection. Such reasons would include materiality, legality, confidentiality, and any adversarial circumstances that may exist. Such actuaries may also resort to submitting a request for guidance to the ABCD when in doubt, citing circumstances in general terms without revealing names or other identifying information.

Ultimately such actuaries may find themselves in a unique position to do a service for their profession by discussing the apparent breach with the transgressing actuary under the provisions of Annotation 14-2.

The Next Case

The 1997 ABCD Annual Report and Seville/Banks case inspired one of our readers to suggest a subject for the next case.

Minnie Vann, FCAS, MAAA, assistant actuary for the Regressive Casualty Company, submitted a rate filing to the insurance department of South Rampart requesting an 18 percent increase in automobile liability rates for her company. The filing was well documented citing both company and industry experience as well as an analysis of external influence likely to affect insurance costs during the period for which the rates were being proposed.

The department's actuary, Lance Boyle, FCAS, MAAA, told Vann that he could not approve an increase of such magnitude although the proposed rates would still be competitive with other insurers. Boyle further informed Vann that he would approve a nine percent increase and then only if Vann would rewrite her actuarial analysis using factors that Boyle would provide. Vann reluctantly agreed to do so.

What Code violations, if any, are involved here? Again, your comments are requested either by letter to the *Actuarial Review* at the CAS office, E-mail to actuaryjoe@aol.com or fax to (715) 845-6910. Your name won't be used in the article unless you specifically request it. ■

1997 Michelbacher Prize Awarded

The CAS awarded Theresa W. Bourdon, FCAS, Keith A. Passwater, and Mark Priven, FCAS, the CAS Michelbacher Prize for their paper entitled, "An Introduction to Capitation and Healthcare Provider Excess Insurance." Bourdon, Passwater, and Priven were on hand to receive the Prize at the 1997 CAS Spring Meeting in San Antonio, TX. Ms. Bourdon is vice president and consulting actuary for Aon Risk Management Services in Washington, DC. Mr. Passwater is an actuary with Aon Managed Care in Brentwood, TN. Mr. Priven is vice president for Aon Risk Services in San Francisco, CA.

First awarded in 1979, the Michelbacher Prize commemorates the work of Gustav F. Michelbacher and is given to the best paper submitted in response to a CAS call for discussion papers. A specially appointed committee judges papers for originality, research, readability, and completeness. ■



CAS President Bob Anker (second from left) presents the 1997 Michelbacher Prize to (left to right) Theresa Bourdon, Keith Passwater, and Mark Priven at the CAS Spring Meeting in San Antonio, TX.

Actuarial Sightings

Edward C. Shoop has been setting records in his search for actuarial sightings. The following three entries are some of his discoveries.

From Andrew Ferguson's editorial, "Pardon Me If I (Still) Smoke," published in *Time*, June 30, 1997.

CLRS

From page 23

and \$600 (\$832 Canadian) for non-members if received on or before September 2. Fees after September 2 are \$550 (\$763 Canadian) for members and students and \$650 (\$900 Canadian) for non-members. Government actuaries receive a 30 percent discount off the applicable registration fee. Continuing education credit is available for seminar attendees.

For more information, consult the CLRS preliminary program, which was mailed to CAS members in August, or contact the CAS Office at (703) 276-3100 or by E-mail at amalone@casact.org. ■

"They [state attorneys general] are by and large second-tier pols on the make, grasping for the kind of publicity that might boost them to the Governor's mansion or a Senate seat, but they know as well as the nearest **actuary** that smokers save the treasury money by (thoughtful souls that we are) dying young."

From *The Atlantic Monthly*, August 1995.

"'Flood insurance and flood relief have interfered with the normal functioning of the market.' Operating in **actuarial** reality, private insurers refused to issue flood insurance."

From the article "MBAs at Anderson Often Seek Fortunes, Not Just Employment," published in the *Wall Street Journal*, date unknown.

"...Chris Jarvis, 26, cut school for 11 days while pursuing a six-figure deal for his new publishing company. 'Not to sound too cliché,' says the former **actuary**, 'but breaking the rules is where the fun is.'"

F. James Mohl spotted the following

sighting in *Reliquary*, a book by Douglas Preston and Lincoln Child. Mohl suggests that the entry may offer actuaries a new career opportunity.

"'There's a pattern here,' he said at last.

'Really?' Lt. D'Agosta asked, fighting to keep his voice neutral.... 'How do you figure?'

'Simple,' said Captain Waxie. 'The Chief had a talk with the top **actuary** in Human Resources. He looked at the murder locations, did a best-fit linear analysis, and said they were radiating right from this spot. See? The deaths form a semi-circle around this point....'

This time, D'Agosta was unable to keep the incredulity off his face. 'Let me get this straight. Some insurance dweeb in PERSONNEL gave you this tip? Did he try to sell you on the savings plan, too?'

Waxie frowned, his jowly cheeks turning a rich crimson. 'I don't appreciate your tone, Vinnie.'...

'Look, Jack,' D'Agosta said, struggling to keep his patience. 'What the hell would an **actuary**, even a **police actuary**, know about a murder pattern?'" ■

Survey Yields Opinions on Continuing Education

Early this year a survey was sent to all Fellows of the CAS to get their opinions concerning continuing education needs. The survey, which received 387 responses from a mailing to approximately 1,500 Fellows, covers a broad range of topics, including 1) members' preferences for annual meetings, special interest seminars, limited attendance seminars, etc.; 2) seminar topics and timing; 3) desire and possible topics for home study courses; 4) effectiveness of the Discussion Paper Program; and 5) professionalism education needs. The survey response indicates a strong interest in learning more about financial issues, particularly via home study courses which could be Internet-based. Members generally like the Discussion Paper Programs. (Professionalism education responses are covered in a separate article on page 21).

"The Continuing Education Committee was very excited about doing this survey," says Jim Surrigo, chairperson of this year's Committee. "While we've developed an extensive menu of educational opportunities, we wanted direct feedback from the members regarding their degree of satisfaction with education content, or that there were other topics or avenues of delivery that we should be pursuing more vigorously."

"We have been experimenting with focus group sessions," says Alan Hines, chair of the Task Force on Limited Attendance Focus Group Seminars. "But we're not sure of their effectiveness in meeting membership needs."

Forty-seven percent of respondents achieved their Fellowship since 1990, while 41 percent received their designation between 1980 and 1990. The average respondent achieved Fellowship nine and a half years ago. "This was the target we were after—those who have been out of the exam process for some time, and thus have a good feel for the gaps in education they are experiencing," says Surrigo.

Sixty percent of respondents indi-

cated they would definitely or most likely attend semi-annual CAS meetings or special interest seminars during the next two years, such as Ratemaking, CLRS or Reinsurance. Thirty-five percent also said they were most likely to attend special interest seminars such as DFA, Catastrophes and Emerging Technologies. Only 13 percent would likely attend a limited attendance seminar in the next two years, (for example, Principles of Finance). Forty-three percent indicated they were not likely to attend such limited attendance seminars.

Preference for geographic locations was fairly uniform across the country. Fifty-four percent preferred a major city, while fifty percent preferred a resort. (Some obviously "preferred" both.) Only six percent preferred a location outside the U.S., and twelve percent preferred an airport hotel. The most desirable timeframes were March through June, and September through November. Least preferred were December, January, July, and August.

"We've been discussing the need to develop limited attendance focus groups in addition to limited attendance workshops. The former would be a more open discussion format, while the latter would be structured and more intensive," says Hines. Only 11 percent would attend a focus group session, and 43 percent would not likely attend. Comparable numbers for workshops were 22 and 21 percent.

Hines attributes the lack of enthusiasm to the number of alternative educational opportunities offered by the CAS. "All of the CAS continuing education programs are competing for the limited time that members can devote to attending seminars. More than 50 percent of the respondents indicated that the 'time commitment' and 'other educational opportunities available' are very important in their decision to attend these seminars." Hines concludes that while the Continuing Education Committee should encourage and facilitate these workshops, more of the CAS resources should be dedi-

cated to alternative educational opportunities such as home study programs and courses on professionalism.

Home Study Programs

Currently the CAS does not sponsor offerings for home study programs. Thirty percent favored a comprehensive home study program format that facilitates self-paced learning. Thirty-five percent indicated they were not likely to use this approach.

Not surprisingly, topic (98 percent) and time commitment (62 percent) were most important in selecting a home study course. However, only 26 percent felt that the amount of pre-work was very important.

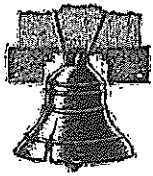
Once a course was developed, two-thirds would definitely complete a course, or use courses to train staff. Forty-two percent would like these courses either on a computer disk or over the Internet. Forty-two percent were more likely to complete a home study program if developed in conjunction with a special interest seminar. Preferred topics include financial modeling (62 percent), rate of return (57 percent), assets and investments (50 percent), dynamic solvency (49 percent), loss distributions (43 percent), managing catastrophe exposure (42 percent) and reinsurance issues (39 percent). These topics follow closely members' desire for limited attendance programs.

What's Next?

The results of the survey will be reviewed by the Continuing Education Committee (CEC) and the Task Force on Limited Attendance Focus Group Seminars. Action plans are now being developed to respond to the needs of our membership. Specifically, the CEC will assume responsibility to facilitate future limited attendance focus group seminars. Members wishing to organize one of these sessions should contact the CEC through the CAS Office. In addition, the CEC will begin working on a course of action to develop home study programs. The CEC welcomes volunteers. ■

Random Sampler

From page 5



tent casualty actuaries, then our reputation can only be enhanced by a wider exposure of our expertise to the broader scientific community. I do not believe that our

Proceedings or the CAS are harmed by having articles on casualty actuarial topics published in any other journal, be it the *ASTIN Bulletin*, *The Journal of Risk and Insurance*, or the *North American Actuarial Journal*.

It is my strongly held belief that the CAS has no need to fear any other actuarial organization. Our members are not naive or innocent hogs waiting to be led to the slaughter. CAS members are strong, intelligent, highly respected professionals whose loyalty and dedication to the CAS are the envy of other professional organizations.

Notwithstanding the fact that some recent SOA activities have left an impression that is troubling to the CAS, I am highly confident that there is no secret scheme or grand design on the part of the SOA or any other organization to "take over" the CAS or to

"graduate casualty actuaries."

The actions that the CAS has found offensive have a benign explanation when viewed from a different perspective. Nevertheless, my confidence is not based solely on the credible assurances given to us by the president and president-elect of the SOA.

Rather, my confidence stems from the recognition that employers of actuaries are sophisticated buyers who cannot easily be fooled into believing they are buying an expert, if that expert had only a superficial survey course on casualty topics. In addition, the insurance regulatory community has become highly sophisticated with separate life and property/casualty actuarial task forces providing advice to the National Association of Insurance Commissioners. The distinction between these two practice areas is not going to be obscured by some fast-talking lobbyist.

If there is a challenge to casualty actuaries and the CAS, that challenge does not come from other actuarial organizations. Rather, it is likely to come from other professions such as

"CAS members are strong, intelligent, highly respected professionals whose loyalty and dedication to the CAS are the envy of other professional organizations."

economists, accountants, financial analysts, and others who may not recognize the distinct and unique contribution that actuaries can make in wider practice areas. These professionals, whose numbers dwarf the entire actuarial community, may pose a threat to the extension of actuarial practice into emerging areas where our particular skills could be very useful but may not be welcome.

I believe that the CAS is an unusually strong organization because it reflects the strength and dedication of its members. As long as those strengths exist, no one can take anything away from us. Long live the CAS! ■

Exam Restructuring

From page 1

The Task Force began by identifying strengths and weaknesses of the current system. The length of the exam process, international issues, and concerns about broadening actuarial education, particularly in the financial area, were of special significance.

The Task Force then developed a list of core competencies that they believe actuaries will need in order to survive and flourish in the future. Of particular significance was a broadened education in investments, asset risk, dynamic financial analysis, and other financial areas. Also identified were communication skills, decision making, business planning, and management skills.

The Task Force began discussions with the Society of Actuaries early in

the process. It quickly became apparent that we had potential for joint sponsorship of at least two, and possibly as many as five, exams. In order to explore joint sponsorship of these exams, the Task Force appointed joint working groups for proposed CAS Exams 1, 2, 3, 4, and 8. The Task Force recommended joint sponsorship if, but only if,

- a. both organizations want to test the same material and concepts, and
- b. both organizations wish to test that material with similar intensity.

The joint working groups were able to develop new Exams 1 and 2 within these principles. With respect to exams 3, 4, and 8, the joint working groups did not recommend joint sponsorship. The difficulty with Part 3 was that the CAS wanted more emphasis on statistics than did the SOA, and the SOA wanted more emphasis on life

contingencies than did the CAS. The CAS and the SOA representatives reached agreement regarding cooperative development of the educational material for the new CAS Exams 3, 4, and the investment portion of Exam 8.

The Task Force encourages you to send any comments and suggestions regarding the restructuring proposal to the CAS office, attention of Kevin Thompson, Vice President-Admissions.

Steven G. Lehmann, Chairperson, CAS Task Force on Education, wishes to thank the members of the Task Force. Task Force members include: Claudette Cantin; Janet Fagan; Wendy Johnson; John Kollar, Vice-Chair; Mike LaMonica; Glenn Meyers; Michael Toothman; and Cecil Bykerk, Liaison Member for SOA. ■

Brainstorms

From page 19

tive conclusions that I hope to clarify soon.

I believe that an increase in riskiness affects the insured and the investor in different ways. Suppose we postulate an aggregate loss distribution, then modify it in different ways. For example, we might add a single catastrophic spike to the extreme tail, or we might add losses to the "middle" of the distribution. I suspect that, in order to return to equilibrium, the relative increases in required capital versus ROE will differ. Increasing the losses in only those situations where the company is insolvent affects only the insured and not the investor. I hope to find that we can specify how changes to both capital and ROE "should" occur based upon the shape of the distribution (technically, the incremental change to the shape of the company's aggregate distribution).

If anyone has already solved this problem or can add insights, please let me know. ■

AAA/NAIC To Sponsor Seminar

The American Academy of Actuaries is sponsoring "Symposium on Statements of Actuarial Opinion" on September 20 in Washington, DC. The symposium is being held in conjunction with the NAIC Fall Meeting. For more information, contact Steve Rentner at (202) 223-8196 or by e-mail at rentner@actuary.org. ■

In Memoriam

John S. McGuiness
(FCAS 1960)

April 29, 1997

It's a Puzzlement

Unsolved Problems in Number Theory

by John P. Robertson

There are thousands of unsolved problems in number theory. One famous open problem is due to Goldbach: prove or disprove that every even integer greater than 2 is a sum of two prime numbers. A less well-known problem is that of Egyptian fractions: determine whether every fraction of the form $4/n$ with $n > 1$ can be written as a sum of three positive rational numbers with numerator 1, i.e. $4/n = 1/i + 1/j + 1/k$.

Despite the fact that there are so many unsolved problems, Gary Venter continues to offer new problems. Here are two. The first is to investigate sequences of consecutive positive integers where each term is a product of two or more two-digit numbers (not necessarily primes). For example, 322, 323, 324, 325 give four such consecutive integers ($322=14 \times 23$, $323=17 \times 19$, $324=18 \times 18$, and $325=13 \times 25$). What is the longest sequence you can find?

In his second problem, Gary noted that if $n=12$ (or 36, or 156) then $(n+1)/1$, $(n+2)/2$, and $(n+3)/3$ are all prime. What is the largest k you can find such that there is an n with $(n+1)/1$, $(n+2)/2$, ..., $(n+k)/k$ all prime?

Does anyone know whether there is any theory that might suggest what to expect for either of these problems? For an integer n in the range of one million to one billion it appears, empirically, that the probability that n is a product of two-digit numbers is roughly $22n^{-0.45}$. Assuming that the probabilities of n and $n+1$ being expressible as products of two-digit numbers are statistically independent, this suggests that the expected number of sequences of length 3 or greater in any range $[n, a'n]$, for a fixed a , declines as n gets larger. For the $(n+i)/i$ problem, I don't see any reason why there should not be arbitrarily large k for which there is an n with the required properties. Does anyone have any thoughts on this?

Babies—A Pink or Blue Addition Problem

The problem had a nurse counting the babies in a hospital nursery. He has just counted two boys, and has not counted the girls, when, at 11:00, a new baby is brought to the nursery. A baby is then selected at random, from all the babies present, to have its footprint taken. The selected baby happens to be a boy. What is the probability that the baby added at 11:00 was a girl?

Melissa Neidlinger applied Bayes' Theorem, letting x be the starting number of girls and 2 the starting number of boys. She noted that if a boy arrived at 11:00 then the final number of boys is 3, and the final number of girls is x , while if a girl arrived, then these are 2 and $x+1$ respectively. Either way, the final number of babies is $x+3$. She assumed that the unconditional probability that the added baby was a girl was 50%. Let B be the event that a boy is selected, A_1 the event that a girl is added, and A_2 the event that a boy is added. The probability that the added baby was a girl, given that the selected baby was a boy, is given by the formula:

$$P(A_1|B) = \frac{P(A_1)P(B|A_1)}{\sum_i P(A_i)P(B|A_i)}$$

Substituting gives

$$P(A_1|B) = \frac{\left(\frac{1}{2}\right)\left(\frac{2}{x+3}\right)}{\left(\frac{1}{2}\right)\left(\frac{2}{x+3}\right) + \left(\frac{1}{2}\right)\left(\frac{3}{x+3}\right)} = \frac{2}{5}$$

so the probability that a girl was added is 40 percent.

Solutions were also sent in by Alex Bondarev, Mary Ellen Cardascia, Costas Constantinou, Steve Darrow, Jennifer Grimes, Kevin Kelso, Daniel Kligman, Bob Montgomery, John Noble, Randy Nordquist, Steve Philbrick, Nathan Schwartz, Michael Shackelford, David Skurnick, Russell Wenitsky, and jointly by William Finn and Sak Man Luk. Solutions arrived by regular mail, fax, and Internet E-mail. Michael Shackelford has a Web page with additional puzzles at <http://www.charm.net/~shack/math/>. ■