



# The Actuarial Review

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## From the President

### The Three-Legged Stool



by Gail M. Ross

Over the past year of my presidency, I've had the pleasure of welcoming our new members into the CAS

as they attend their first meeting. During the welcoming reception, I've described our organization as analogous to a three-legged stool—if any one of our legs were to loosen or come off, the CAS would wobble or collapse. I see the three legs of the CAS stool as

- our volunteer membership
- our elected and appointed officers (who also volunteer their time)
- our staff employees

In prior "From the President" columns, I've written with pride about our volunteer spirit and I've praised the hard work of our officers as we've dealt with challenging strategic issues facing the casualty actuary. Now, in my last column as president of the CAS, I'd like to provide you with a "behind the scenes tour" and some little known facts and figures about our staff (I'll even throw in a little trivia quiz at the end of this article).

The CAS staff is under the leadership of our executive director, Cynthia Ziegler, who joined us at the end of 2001 when Tim Tinsley (the first executive director of the CAS) retired. Cynthia came to us with outstanding insurance, association, and business

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## D'Arcy Wins President-Elect; Miller to Become CAS President

ARLINGTON, Va.—CAS members elected **Stephen P. D'Arcy** as CAS President-Elect for 2004. **D'Arcy** will take on his new position at the close of the 2003 Annual Meeting in New Orleans. **Mary Frances Miller** will succeed **Gail M. Ross** as CAS president, who in turn will become chairperson of the 2004 CAS Board of Directors.



Mary Frances Miller



Stephen P. D'Arcy

Balloting for the CAS election closed on September 2, 2003, and tellers verified the

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## Mutual Recognition and Reinstatement Issues Pass

ARLINGTON, Va.—More than 72 percent of CAS Fellows voted to approve the constitutional amendment on mutual recognition, which has been the subject of much debate over the last few years. The amendment garnered 901 votes out of 1,237 votes cast.

The constitutional revision pertains to Article III, Section 2 entitled "Requirements for Admission to Membership." Mutual recognition agreements are reciprocal accords be-

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## Schultz Retiring From EC; Spalla To Fill Vacancy

ARLINGTON, Va.—The CAS Board of Directors has appointed **Joanne S. Spalla** CAS Vice President-Marketing & Communications. Spalla will serve out the term of current VP **Roger A. Schultz**, who announced in September his decision to retire from the Executive Council post.

Spalla has served as assistant-secretary to the Board since November 2000. She is chair of the Membership Survey Task Force and a member of the Committee on General Business Skills Education. A 1985 FCAS, Spalla is senior vice president and corporate actuary for Converium in Stamford, Connecticut.

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# Intelligence Isn't Everything

by Paul E. Lacko

**M**y mother-in-law gave me a copy of a book called *The Bell Curve: Intelligence and Class Structure in American Life* a few months ago. She saw it at a book sale and thought I might find it interesting. I do, and I think other CAS members will, too.

I don't mean to write a full-blown book review here; that would require much more space than this column affords me. Here's a thumbnail sketch: it's a thick book, well-documented, full of tables and charts and appendices. The authors, psychologist Richard J. Herrnstein and political scientist Charles Murray, examine the relationships between intelligence (as measured by generally recognized standard tests of cognitive ability) and education, sex, race, income level, and other characteristics of the broad U.S. population. The book raised quite a commotion for a

**"Of the best and the brightest among us, the best aren't always the brightest, and vice versa."**

short while after it was published in 1996, because the authors argue that we should question many strongly held beliefs about domestic social policy, particularly with respect to the U.S. educational system.

The authors hypothesize that intelligence is the single most important explanatory variable for some important and significant changes in society over

the last hundred years. They posit that our society has richly rewarded people of high intelligence as the economy has grown more technical and more technology-dependent, and that the distribution of income in the broad population is now determined primarily by intelligence.

CAS members can appreciate this book on both personal and professional levels. We're an intelligent group, probably averaging above two standard deviations above the mean intelligence level of the U.S. population. We actuaries are compensated well for the work we do, which reflects the cognitive and technical requirements of the job. We tend to associate with other people of high intelligence at work and at home. We tend to live in neighborhoods where other highly intelligent people live. Since we see people like ourselves everywhere we tend to go, we can draw the erroneous conclusion that we make up a good-sized, representative sample of the U.S. population. To the contrary, we are members of the privileged small minority of a society that has become segregated by intelligence.

As you and I well know, however, intelligence isn't everything. In a group of highly intelligent people, such as the CAS membership, intelligence is not such an important distinguishing characteristic, the way it was, say, in high school. Intelligence alone does not guarantee a passing grade on any of the CAS exams, for example. Highly intelligent people do not necessarily have highly developed people skills. Of the best and the brightest among us, the best aren't always the brightest, and vice versa.

The authors put considerable effort into explaining and clarifying this phenomenon. The authors show that intelligence correlates highly with exam scores, managerial success, and attained level of corporate responsibility *across the entire population*. At any given level of intelligence, however, we will see a great deal of variation among individuals. This is the residual variation that cognitive ability does not explain. If we *restrict our sample* to people who score at the upper end of the distribution of cognitive ability, then almost all the variation we observe among indi-

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# Colorado Springs to Host CAS Spring Meeting

by Patrick B. Woods, Vice Chairperson, CAS Program Planning Committee

The CAS is taking the 2004 Spring Meeting to new heights at the world-class Broadmoor Hotel in Colorado Springs, May 16-19, 2004.

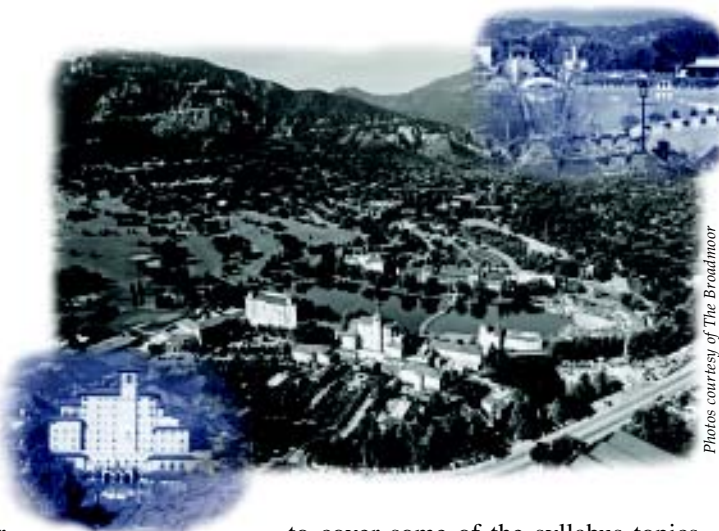
When you are not busy absorbing the vast amount of information during the Spring Meeting, you can find numerous ways to spend your time in this majestic area of the United States—perhaps a visit to Pikes Peak, the U.S. Air Force Academy, the awe-inspiring Garden of the Gods, or the U.S. Olympic Training Center. For those who are sports-minded, the Broadmoor is a top-rated resort for tennis (by *Tennis* magazine) and golf (by *Golf* magazine).

The Broadmoor has three golf courses, one of which has hosted the U.S. Amateur and the U.S. Women's Open Championships. For those with other interests, there are plenty of museums, shopping, brewpubs, and coffee houses.

If these attractions aren't enough to get this meeting inked in on your travel schedule, then come learn about what's changed in our profession since some of us became members. There are plans to hold a special interest seminar in conjunction with our Spring Meeting

to cover some of the syllabus topics added from 1990 through present. This special interest seminar will be a good opportunity to understand issues and ideas current candidates are discussing. The Spring Meeting will also offer a separate track to present papers on generalized linear modeling.

Please visit the CAS Web Site at [www.casact.org](http://www.casact.org) to learn more about the 2004 Spring Meeting as we finalize the program.■



Photos courtesy of The Broadmoor

# Philadelphia to Host 2004 Ratemaking Seminar

by Robert F. Wolf, Chairperson, Committee on the Ratemaking Seminar

CAS members, actuarial students, and guests are invited to the 2004 Ratemaking Seminar in Philadelphia. The seminar will be held March 11-12 at the Wyndham Franklin Plaza, and boasts several "all-new" sessions and tracks with an international emphasis and an expanded introductory track.

The general sessions will discuss the underwriting cycle, how it affects pricing actuaries, and some tools that actuaries can use to combat its effects. The cycle phenomena as well as insurance crises of the past, present, and future will be included in the discussion. A panel discussion will be held during these times on whether the underwriting cycle is an inevitable part of doing business and if industry crises, such as the current crises in medical malpractice, are necessary components of the underwriting cycle. With greater scru-

tiny of accounting and actuarial projections now the norm, the 2004 Ratemaking Seminar promises to offer important information for actuaries and others interested in ratemaking.

The various concurrent sessions are rated according to the audience knowledge and experience levels. The expanded introductory track will cover standard ratemaking procedures, including an introduction to the use of generalized linear models. Intermediate and advanced sessions will cover topics related to emerging technology and data management; current financial and economic considerations relating to updated research on risk, return, and the cost of capital; and issues related specifically to ratemaking lines of business such as workers compensation, commercial lines, and personal lines. Tracks covering regulatory issues



Pennsylvania, founded by an English Quaker named William Penn in 1682, was established as a haven for religious freedom. Penn named his first colony Philadelphia, meaning "city of brotherly love." More than 300 years later, artist Robert Indiana's "LOVE" sculpture stands in tribute to Penn's legacy.

Photo courtesy of the Philadelphia Convention & Visitors Bureau

and reinsurance are also provided, and several papers from the 2004 Call for Ratemaking Discussion Papers will be presented.

Look for information on the CAS Web Site and in the mail in late December or early January. See you there!■



**Dear Editor:**

It seems to me that there is a lot of confused thinking today in the actuarial profession despite the fact that we regard ourselves as being paragons of logic and clear-headed thinking. One source of this confused thinking has to do with the terms *science* and *profession*, I think. They are different. And, yet, it appears that many actuaries think of themselves as professional (social) scientists. This confusion has repercussions. [When I think of that term, I can't help thinking of Madonna's "Like a Virgin." Well, which is it?]

Take, for example, the term "actuarially sound." What does this mean? Is actuarially sound something akin to the Pythagorean theorem where application of the formula clearly results in an answer that is mathematically (geometrically) sound?

We assert that we are a learned society but, at the same time, we adhere to standards of practice. What are the standards of practice, for example, for the American Mathematical Society? What about physics? Do they have standards of practice so that society is protected from unscrupulous physicists who, unknown to us, foist off fraudulent ideas based on a non-Euclidean geometry (e.g., Albert Einstein's theory of relativity)?

To me, one major distinction between a science and a profession is that the former is axiomatized whereas the second is not. I am not suggesting that a profession cannot rest, in part, on axioms. For example, the legal profession exalts the syllogism to the point of actually having had to create courts of equity to undo what the coldhearted syllogism produced!

Actually, the adjective coldhearted, as applied to syllogism, is ridiculous since mathematics does not admit any statement that cannot be assigned a truth-value. For example, the statement "A single sixteen-year old driver is worse than a married twenty-five year old" sounds perfectly fine in actuarial "science" but is inadmissible in mathematics.

Statistics is not even part of math-

ematics and, yet, is exalted to the point of overlooking the fact that much of what we actuaries do should be identified with probability theory rather than statistics. The answer is always "in the statistics." [This characterization would not be true in life insurance]. If the correlation coefficient is high (i.e., not equal to zero), then it's actuarially sound.]

I heard the story that a former insurance commissioner expressed the opinion that statistics (read actuarial science) could be used to find a ratable difference among drivers based on eye color, if we would but collect the data. I suspect that he is correct (although a former boss became close to apoplectic when I suggested that). The trouble is that our "science" would not prevent us from taking sides on this question with some arguing that the statistics indicate a high correlation and, hence, it would be actuarially unsound not to rate by eye color and others arguing that it would be unsound to use eye color since it is probably a proxy for other variables. Who is correct? If we are scientists, why is there a debate over credit scoring? It should be "manifestly obvious to even the most casual observer," as one of my professors used to say.

This type of question does not even arise in mathematics. It is quite all right to assume, for example, that parallel lines intersect at infinity and, voila, you have projective geometry. Mathematics is somewhat like a game of chess—define how the pieces move and you have a valid game.

What we do should not be considered a game. People are affected economically by what we do—they feel it in their pocketbooks. Hiding behind our "science" as a shield is a form of unprofessionalism caused in large part by the confusion between a science and a profession.

I challenge our profession to think more clearly about what it is that makes us a profession. I would like to see us agree that we are less of a science and more of a profession. Understanding the difference and dealing as profes-

sionals with the ramifications of such a distinction will take us a long way toward resolving questions like Mutual Recognition, for example.

To me, MR is little more than formally recognizing that, for example, a Russian mathematician and a Canadian mathematician are equivalent (ignoring the language difference). It now remains for us to formalize that "fact" in a Mutual Recognition agreement so that a Russian mathematician teaching at a Canadian university is "blessed."

If we change the situation slightly, how does it ring? An American lawyer (Russian-speaking) hangs out his shingle in the town of Borovichi, Russia (approximately 50,000 people live there). Does this present some questions as to qualifications to practice? Shouldn't it? Why?

If that is not OK, then how about a Mexican actuary (with impeccable English) providing consulting services to a monoline automobile writer in Iowa regarding a rate filing? That sounds better, doesn't it? Why?

J. Gary LaRose. FCAS ■

## Let Us Hear From You

*The Actuarial Review* welcomes letters and story ideas from our readers. Please specify what "department" you intend for your item—letters to the editor, or proposed news items, Brainstorms, It's Puzzlement, etc. Here's how to reach us:

**Letters and Ideas for *The Actuarial Review***

**E-mail:** AR@casact.org

**Fax:** (703) 276-3108

**Mail:** CAS, 1100 N. Glebe Road, Suite 600, Arlington, VA 22201. ■

# Our Core Values

by C. K. "Stan" Khury

It has been a privilege to serve on the CAS Long Range Planning Committee (LRPC) during the past two years. During this time, under the very capable leadership of Chairperson **Stephen D'Arcy**, the LRPC went through a comprehensive and thorough process, ultimately yielding the CAS Centennial Goal. One of the steps in the process was the identification of what the CAS would consider its core values. In this column I focus on these core values, describing them and making some observations about what the LRPC concluded.

Core values are defined as "the essential and enduring principles that guide an organization and its members." Looking back over the past 90 years, the LRPC identified five such values. In no particular order:

**Learning.** This is the belief that the continuing effectiveness of a casualty actuary is built upon dedication to the idea of life-long learning. This is, of course, most evident in the extensive learning associated with qualifying for CAS membership as well as by the numerous CAS continuing education activities.

**Innovation.** This is the belief that the continuing vitality of the CAS is best served when creative thinking and research are fostered and new ideas are openly entertained. This is evident in the numerous ways in which the CAS encourages the generation of ideas, and the sharing and discussion of these ideas, on different levels of breadth and depth.

**Volunteerism.** This is the belief that the core purpose of the CAS is best served when every member is directly involved in the affairs of the CAS and volunteers to serve other members. This is most evident in the remarkably high rates of participation of CAS members in all types of CAS activities. The most remarkable aspect of CAS volunteerism is that the rate of participation of members has increased

as the overall membership has increased. Today three out of ten members are active volunteers. This clearly illustrates the depth of belief in the idea of volunteerism.

**Community.** This is the belief that members of the CAS are best served when the open sharing and exchange of ideas and research characterize the activities of the CAS. Indeed, one only has to go to any meeting of the CAS to

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**"Core values are defined as 'the essential and enduring principles that guide an organization and its members.'"**

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get a full appreciation of the scope of sharing and exchange of ideas—not only in the regular sessions, but also in the hallways, at social gatherings, and through follow-up contacts after a meeting has ended.

**Professionalism.** This is the belief that the professionalism of casualty actuaries is best realized when the CAS, as an organization as well as its members individually, is committed to the idea of adhering to the highest professional and ethical standards of education, qualification, and practice. This is demonstrated through the myriad activities of the CAS and its members, in association with other actuarial organizations, that serve to articulate principles and guidance, codify standards of practice, provide professional advice in specific situations as needed, and, ultimately, when all fails, provide the means of administering disciplinary action.

I would only add two observations:

- None of the five core values is specific to the CAS and its members' area of expertise. In other words,

while the LRPC views these values as relating to the CAS and its members, there is nothing about them that makes them necessary for the CAS to adopt. These core values are ennobling by their very definition and in the various ways that the CAS and its members choose to make them our own.

- It is noteworthy that these core values emerged by the process of observation, not by the promulgation of some board-approved statement of core values. For nearly ninety years, the CAS and its members have conducted themselves without an explicitly stated set of core values. However, in retrospect, viewing the success and progression of the CAS over these years, these are the values that turn out to have been operating all along. This gives them special gravity; they are not things that we just talk about, but things that we put into practice.

Setting aside the subject matter concentration of the CAS, putting all of this together yields an interesting working definition of the CAS:

*The CAS is an association of individual professionals, each of whom is dedicated to the idea of life-long learning, each of whom is actively involved in advancing the practice, both in scope and in depth of subject matter, each of whom believes that the governance of the association is best achieved when large segments of the membership are directly involved in the affairs of the association, and each of whom adheres to the highest professional and ethical standards of conduct.*

This is a pretty formidable idea. I would suggest that the reader contemplate this definition and identify exactly how it manifests itself in his or her professional life. I promise you an interesting and revealing experience. ■

# Securitization Offers Way for Insurers to Spread Their Underwriting Risk

The CAS has formed the Securitization/Risk Financing Advisory Committee. The committee's initial goal was to identify research and education that the Casualty Actuarial Society should undertake in the area of securitization/risk financing. The committee's report can be found on the CAS Web Site ([www.casact.org/members/reports/srfacreport.pdf](http://www.casact.org/members/reports/srfacreport.pdf)).

The report starts by defining securitization and risk financing within the context of insurance. Securitization is not a new concept; underlying each transaction are two basic components: a) a risk transfer mechanism, typically a reinsurance contract, which actuaries are familiar with pricing and analyzing; and b) a delivery mechanism, typically a bond or an index contract which the financial market is familiar with delivering. The committee looked at actuaries' current level of involvement and assessed the skills used.

Next, the report considers areas where actuaries may increase the level of their involvement and the skills re-

quired for doing so. The delivery mechanism and the overall combination of the risk transfer instrument with a security are areas that may be less familiar to actuaries. The core skills required are financial risk management and structured finance, which are covered to a certain extent on the current syllabus. To increase involvement in securitization, actuaries can look to broaden the scope of their financial engineering skills and their understanding of the regulatory environment surrounding investment banking.

The committee considered the state of the insurance securitization market by reviewing the types of deals completed to date. The majority of activity has been related to catastrophe bonds issued on an indemnity or index basis. The broad subject area was divided into narrower topic areas of consideration as follows:

- Definition of insurance securitization
- Pricing and analysis of the underlying risk in insurance securitization

- Index and indemnity securitization
- Rating agency considerations
- Accounting, regulatory, and tax considerations

Next the report describes the educational requirements that will enable the actuary to obtain a basic level of familiarity with these instruments as well as an expert level of knowledge. This includes a review of the current CAS exam syllabus and an identification of material needed for a general level of expertise that is not covered by the current syllabus.

Finally the report identifies and describes some areas where further research by actuaries is needed to expand the role of the casualty actuarial profession in this quickly evolving field.

**William F. Dove** chairs the Securitization/Risk Financing Advisory Committee. It is staffed by **Brian A. Hughes, Alexander Krutov, Michael V. Leybov, Glenn G. Meyers, Christopher E. Olson, Peter Polanskyj, and Manalur S. Sandilya.** ■

## AERF and The Actuarial Foundation Merge

**SCHAUMBURG, IL.**—The Actuarial Foundation and the Actuarial Education and Research Fund have officially merged, effective August 15, 2003. The merger was completed following a five-year affiliation agreement that allowed for both organizations to strive to unify and align missions and activities.

The new Actuarial Foundation will continue its focus on youth education and consumer education, as well as contribute to the long-term health of the actuarial profession through support of research, actuarial education, and scholarships representing all practice areas of the profession. The Board of Trustees has been expanded to include a broader representation of actuaries

from a variety of specializations. The number of nonactuaries with management operations expertise has also been expanded.

While there are other charitable organizations advocating purposes similar to the Foundation, there is virtually no vehicle that does so in a way that highlights the skills, abilities, and contribution of actuaries for the benefit of society as a whole. The Actuarial Foundation has adopted the following mission: "Utilize the unique skills and abilities of actuaries to increase public understanding, address societal problems, and advance actuarial knowledge." The organization's vision statement is "a secure financial future for an educated public."

The Actuarial Education and Research Fund, established in 1976 as a 501(c)(3) organization, promotes enhanced education and research activities in support of the actuarial profession. The AERF funds innovative research projects within fields in which actuaries are interested as well as educational scholarships.

The Actuarial Foundation was created in 1994 as a grant-generating organization to facilitate and broaden the actuarial profession's contribution to the health of society through innovative applications of actuarial skills in the public interest. The Foundation builds partnerships with grant recipients and commits to an interactive relationship with their mission. ■

# Managing Overconfidence of Actuaries

Are actuaries overconfident? Are *you* overconfident? Take the 'P/C confidence quiz' to find out!

by Robert F. Conger and Stephen P. Lowe

For years, behavioral scientists have been talking about the need for businesses to manage overconfidence. J. Edward Russo and Paul J. H. Schoemaker have explored this issue in depth in a number of publications, including the Winter 1992 issue of the *Sloan Management Review*. There they state, "Good decision making requires more than knowledge of facts, concepts and relationships. It also requires *meta-knowledge*, an understanding of the limits of our knowledge."

Routinely, in all businesses, executives make decisions based on the plans, projections, and forecasts made by their staff. Examples include the forecast for product sales revenue for the upcoming quarter, the projected date a new production facility will be ready to go on-line, the estimated savings from implementing a new software system, or the business plan for expansion into a new region. And because executives can't be involved in every detail of the business, they must rely on the ability of their staff to make realistic assessments in their projections, estimates and forecasts—otherwise the business will suffer the consequences of misinformed decisions.

There is abundant evidence that executives in all industries should be wary. Extensive research performed by behavioral scientists has consistently shown that people are almost universally more confident in their estimates and predictions than the outcomes warrant. For example, in one oft-repeated demonstration of this phenomenon, subjects are asked ten quantitative questions and asked to respond to each question with a numeric range such that they were 90 percent sure that the correct answer would fall within the range. (For example, one of the ten questions might be: "How many German automobiles were sold in Japan in 2001?")

Obviously, respondents wouldn't know the precise answer to such a question; their response would be an educated guess expressed as a range based on general knowledge and reasoning.) While one would expect that people would be able to construct the ranges such that on average they get nine out

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**"Every day, actuaries and underwriters are required to make critical assumptions about the future costs of the business being written, based on imperfect knowledge."**

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of ten questions right on such a quiz, the reality is that most people fail miserably—typically getting only three or four questions right. Such tests repeatedly demonstrate that most people are inherently overconfident when it comes to their ability to make accurate estimates, forecasts, and predictions.

Behavioral scientists have found that overconfidence is rampant across a variety of industries, from advertising to data processing to security analysis. The relevance of the overconfidence issue to each industry is tied to its need for estimates, forecasts, and projections. For example, Russo and Shoemaker discuss the management of the overconfidence of geologists working to estimate the likelihood of finding oil and gas in a particular area. One can easily see how critical such estimates would be to the future success of energy companies.

Nowhere is the issue of overconfidence more important than the prop-

erty/casualty insurance industry—particularly in the area of pricing and underwriting. Every day, actuaries and underwriters are required to make critical assumptions about the future costs of the business being written, based on imperfect knowledge. In order to make the best possible decisions, actuaries and underwriters must have a full appreciation of what they know and what they don't know. Overconfidence in the setting of pricing assumptions can have a devastating impact on underwriting results. Better management of overconfidence, by contrast, might help to reduce the underwriting cycle—or at least the degree to which a particular insurer is affected by the cycle.

In future articles, we intend to examine more closely the question of actuarial overconfidence and explore what types of tools can help to manage it, thereby improving underwriting performance. You can help us measure the current level of overconfidence among actuaries, and test your own overconfidence, by taking a ten question "confidence quiz" that draws its questions from the property/casualty insurance industry. Overall results, along with answers to the quiz questions, will be provided in a subsequent issue of *The Actuarial Review*.

For a lengthier article on this subject, and to take the "P/C confidence quiz" on-line, point your browser to [www.tillinghast.com/tillinghast/surveys/confidence](http://www.tillinghast.com/tillinghast/surveys/confidence). ■

## CAS Welcomes New Affiliate Member

**Timothy J. Pratt**

Deloitte & Touche LLP

New York, New York

Fellow, Institute of Actuaries of Australia



## From the President

From page 1

credentials—she had previously been a senior vice president at the CPCU Society and holds the CPCU, ARM, AAI, CPIW, and CAE designations along with an MBA. Like most of our staff, Cynthia is an active liaison and advisor to our board, Executive Council, Long Range Planning Committee, and all International Committees. She has brought some new and creative thinking to the CAS and has been an invaluable resource and friend to me over the past year. By the way, Cynthia was the purchaser of my now famous yellow step stool (painted with butterflies and flowers) that I'm going to bequeath to the CAS for future vertically challenged speakers.

Reporting to Cynthia are our five managers:

- Todd Rogers—Finance and Administration
- Mike Boa—Communications and Research
- Tom Downey—Admissions
- Kathleen Dean—Meetings
- Elizabeth Smith—Publications

Todd oversees our \$5.1 million budget and works with our Finance, Investments, and Audit Committees as well as our outside auditors. In addition to his financial duties, Todd is also the primary staff member responsible for providing administrative support to the committees supporting membership. These responsibilities include supporting the Regional Affiliates Committee, the Committee on Volunteer Resources, the New Fellows Committee, and the Membership Survey Task Force. Four staff members report to Todd. Sybil Petrey is administrative assistant-membership. Sybil maintains the membership database, including committee rosters, dues processing, and meeting and seminar registrations. Josh Liller, our technical specialist, manages our computer network, internal information systems, and serves as the help desk for CAS staff. Randy Schlosser assists Todd as the accounting and operations assistant. Randy is responsible for bookkeeping work as well as managing office services. Joseph Dubose is the operations assistant-office services

and is responsible for supporting all CAS staff handling the day-to-day functions of the copy/mailroom.

Mike Boa has a wealth of information regarding CAS activities over the years. In addition to taking minutes at all of our Executive Council meetings and attending every board meeting (along with Todd), Mike is staff liaison to our marketing and communications committees. He also oversees our online services staff led by Tiffany Kirk, our fantastic Web site developer, and Jen DeMarr, our new Web site assistant. Finally, Mike works with all of our research committees and working parties. He recently hired Erin Clougherty, who has already proven to be a valuable addition to the CAS staff as the information specialist supporting both the research and admissions committees.

Tom Downey is liaison to our Education Policy, Syllabus, Examination, and Candidate Liaison Committees, as well as task forces on educational issues. Together with Bob Craver, who coordinates proctors and exam centers, and Patsy Roberts, who handles exam registrations and requests for study materials, they process approximately 2,500 applications for examinations annually and disseminate and collect exams to and from 120 different examination centers per sitting (including 15 outside of the U.S. and Canada).

Kathleen Dean oversees the logistical planning for all of our meetings. Kathleen, along with Kathy Spicer, our longest-tenured CAS employee of nearly 16 years, and Carrie Leathe, our newest CAS employee of four months, work to ensure that our meetings come together flawlessly. At any given time, our meeting planners have 30 hotel contracts in place or under negotiation and they are currently booking CAS sites for meetings that will be held in the years 2004-08.

Elizabeth Smith is responsible for all aspects of producing this very publication as well as coordinating the production of the *Proceedings*, *Yearbook*, and *Forums*. The other half of the publications team is Megan Meringolo, our desktop publisher. Megan designs and produces our enticing meeting brochures and onsite programs and is cur-

rently redesigning *Future Fellows*. This team produces up to 25 publications and brochures annually.

And last, but certainly not least, are Jane Brooke and Sue Grossi. Jane, who is Cynthia's executive secretary, has always been a fantastic "go-to" person for me over the past year. Sue, "the voice of the CAS," is our long-time receptionist. Hers is the pleasant voice that greets you when you call the CAS Office.

So now for a little trivia quiz. See how many you get correct.

1. How many total years of association experience does our staff represent?  
a. 52   b. 75   c. 103   d. 148
2. Approximately how many Web pages are viewed in an average week on the CAS Web Site?  
a. 77,000   b. 112,000   c. 125,000   d. 146,000
3. What percentage of our membership receives their publications electronically?  
a. 10%   b. 20%   c. 30%   d. over 40%
4. How many countries outside of North America hosted CAS Examination sites in spring 2003?  
a. 12   b. 9   c. 27   d. 18
5. How many sets of twins have been born to CAS employees over the years?  
a. None   b. One   c. Two   d. Three

So there you have it. I hope this information has given you a better understanding about the people who keep the CAS operating day-to-day. As we volunteers dream up new ideas for the CAS, this efficient group of 20 staff members (two of whom are part-time) makes it all happen.

I wish to offer my personal thanks to the entire CAS staff for helping to make my year as president a wonderful experience. The next time you're at a CAS event, please stop by the CAS registration desk and extend your thanks to the staff for their constant hard work and dedication to our organization.

Answers: All d. (By the way, Mike Boa and Kathleen Dean each had twins within the last two years and former staff editor Brenda Huber had twins in 1994! Another set of twins was born to former staff editor Paula Miller, but after she left the CAS in 1997.)■



# A Fish Tale

*Cod: A Biography of the Fish That Changed the World* by Mark Kurlansky  
[Penguin USA (paper), 2003, \$14]

Reviewed by Allan A. Kerin

Many of us remember from elementary, junior high (middle school for younger readers), and high school John Cabot's discovery of Newfoundland in 1497, the importance of the cod fish in the settlement of New England and Canada, and the role of Massachusetts fishermen ferrying George Washington across the East River after the Battle of Long Island and across the Delaware to attack the Hessians in Trenton. This brief, well-written book skillfully summarizes a thousand years of the Atlantic cod's history as a staple of the European and American diet, and a crucial factor in the economic and political development of the United States, Canada, and of a number of European nations. In the past two decades, the Atlantic cod population has collapsed, most dramatically in its once most fertile areas off the New England and Canadian coast. The cod and the cod fisherman have been displaced and the possibility of recovery for the industry is questionable. Has the ecology of the North Atlantic changed so much that, even in the absence of over-fishing, the species cannot regain its former numbers?

This book eloquently combines the threads of natural history, technology, and economic and political history. Cod was plentiful, easy to find, easy to catch, easy to preserve, and tasty. (Easy is a relative term. Commercial fishing is an extremely hard and dangerous

occupation.) The Vikings depended on cod; the Basques played a vital role in fishing, processing, and distributing cod for centuries. Five hundred years ago salted and dried cod from the North Sea, Iceland, and then North America was a staple food thousands of miles

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**"Cod was the economic engine that first brought prosperity to the New England colonies and helped them reach a level of economic independence that made political independence feasible and attractive."**

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away in Spain, Portugal, and Italy. Cod was a crucial part of the colonial web of trade among England, North America, Africa, and the West Indies. One of the biggest markets for the cheapest grade of salted New England cod was the sugar plantations of the West Indies, where it was used as an inexpensive food for slaves.

In our November 2002 issue of *The Actuarial Review*, Curtis Gary Dean reviewed *Hubbert's Peak: The Impending World Oil Shortage* by Kenneth S.

Deffeyes. That book described the inevitable depletion of a nonrenewable resource. *Cod* describes the avoidable and hence more tragic depletion of a renewable resource. Substitute species once thought inferior, such as pollack and whiting, are now used in place of Atlantic cod. Many of these species are also being depleted. Farm fishing, first of fresh water fish, then of salmon, and now perhaps of cod is one solution to depletion of wild stocks. But farm fishing may result in the reduction of genetic diversity of species and other long-term problems that undermine the health and reliability of the resource.

Does the solution to problems caused by our sophisticated modern fishing technology rely on more sophisticated technology? Are we approaching a point where human population levels put too much pressure on our environment? How do we best manage a shared resource, such as the oceans? These are vital questions and they are questions that actuaries, time permitting, have the skills to approach in a rigorous way through more technical sources. However, I think that all readers will find *Cod* to be an interesting and informative book. In addition, dozens of recipes spanning hundreds of years and many cultures, are included. I enjoyed this book and am anxious to start reading another of Kurlansky's books, *Salt*. (You can see that Kurlansky favors short titles.)■

## CORP-Accepted Papers Posted on Web

The CAS Committee on Review of Papers has released its quarterly update of recently accepted papers. Electronic versions of the accepted papers are located on the CAS Web Site under "Publications." The CAS Editorial Committee will be editing these papers for inclusion in the *Proceedings of the Casualty Actuarial Society*. As of September 15, 2003, CORP has accepted the following paper:

"Testing the Reasonableness of Loss Reserves: Reserve Ratios" by **C.K. Khury**, Discussion by **Charles A. Bryan**. ■

# Five-Year Survey Yields Great Response

by Joanne Spalla, Chairperson, 2003 Membership Survey Task Force

Response to the 2003 CAS Membership Survey was tremendous, with over 52 percent of the membership (1,934 members) submitting a completed questionnaire. For comparison purposes, 32 percent of the membership responded in 1998 and 41 percent responded in 1993. The Membership Survey Task Force extends a huge THANK YOU to the CAS membership for its outstanding participation. **Thomas E. Hettinger** was the recipient of

the \$100 cash prize awarded to a randomly selected respondent.

The CAS Membership Survey, which is conducted every five years, affords the CAS a valuable opportunity to align our activities with our members' needs. Membership input provided through the survey is crucial in shaping the short- and long-term direction of the CAS. The Membership Survey Task Force has begun reviewing the raw data, running cross tabulations,

compiling written comments, and drafting the Survey Report, which they expect to present to the CAS Board of Directors during its March 2004 meeting. Following the presentation to the board, which will include recommended actions based on the survey findings, the report will be posted on the CAS Web Site for the general membership. More information on the Survey will also be published in *The Actuarial Review* next year. ■



David G. Hartman

## Hartman to Head ASTIN

Former CAS President and current Board Member, **David G. Hartman** has been elected chair of Actuarial Studies in Non-Life Insurance (ASTIN). Hartman has served on the ASTIN Committee for a number of years. He currently serves as a director on the CAS Board, as CAS Liaison to ASTIN, as chair to the International Actuarial Association Liaison Committee, and as a member of the Long Range Planning Committee.

The CAS hosts the *ASTIN Bulletin* on its Web site as well as awarding the Hachemeister Prize for best paper published in the *ASTIN Bulletin*.

Hartman is senior vice president and chief actuary for Chubb Group of Insurance Companies in Warren, New Jersey. He has long been involved in international affairs serving as a member of the International Oversight Committee and the Task Force on the ASTIN 2001 Meeting, and chairperson of the International Relations Committee. Hartman has also served as liaison to the International Forum of Actuarial Associations. ■

## Mutual Recognition

From page 1

tween two actuarial organizations whereby a member of one organization could become a member in the other, subject to the requirements in the agreement.

CAS Fellows also weighed in favorably with 95.9 percent of the vote to approve a revision to the CAS Bylaws regarding reinstatement. The revision expanded language in Article VII, Section 4 to make it clear that the reinstatement policy covers voluntary resignations as well as resignations brought about by failure to pay dues. ■

### Article VII, Section 4 of the CAS Bylaws: Reinstatement

Yes	1,187 (95.9%)
No	51
Total	1,113

### Article III, Section 2 of the CAS Constitution: Requirements for Admission to Membership

Yes	901 (72.8%)
No	336
Total	1,237

## CAS Researcher Receives International Award

**MAASTRICHT, The Netherlands**—**Shaun Wang** was awarded the inaugural Bob Alting von Geusau Prize (\$5,000 Canadian) at the 13th AFIR Colloquium, held here at September 17-19, 2003.

The 2003 Bob Alting von Geusau Prize was established to award the best contribution to the *ASTIN Bulletin* during 2001 and 2002 on a subject related to AFIR, which is a section of the International Actuarial Association dedicated to actuarial approaches for financial risks. Wang's paper, "A Universal Framework for Pricing Financial and Insurance Risks," proposes an actuarial pricing theory that has close links with CAPM and the Black-Scholes option-pricing formula. It provides a method for calculating fair value of liabilities. **Gary Venter**, who contributed earlier ideas to Wang's research, also presented at the 2003 AFIR meeting.

Wang's prize-winning paper is available for download from the CAS Web Site at [www.casact.org/library/ASTIN/wang.pdf](http://www.casact.org/library/ASTIN/wang.pdf). ■



# It's a Sea of Regulation

by Kendra M. Felisky-Watson

**T**his hottest summer in history for the British Isles has unfortunately drawn to a close and it is now time to start thinking about actuarial issues again. But first, most people will have trouble believing that the rain suspended itself for a few weeks and the thermometer actually topped 100 degrees for the first time ever! The bookmakers had the odds at something like 20 to 1 at the beginning of the summer, but reduced the odds to 4 to 1 later on. Were they becoming more risk averse or did they know something the weather forecasters didn't?

Anyway, by the time you read this, the annual actuarial conference of general insurance actuaries (called GIRO) will have taken place in Cardiff, Wales. It looks like it is on track for being the largest gathering ever at around 350 actuaries. General sessions are scheduled on such topics as operational risk, breaking the reserving cycle, development relationships with underwriters, and extreme events. **Gail Ross** is to chair a session on "Views from Across the Pond." A very relevant session looks to be the "Report from the Clearer Communication Working Party," something that seems relevant to most actuaries! (As a side note, we are pleased that the CAS is trying out using working parties to produce research papers. It has been a very effective format for producing papers here in the U.K.) There are also over 40 breakout sessions on such topics as "Marine Catastrophe," "Using Advice of Other Professionals," and "U.K. Asbestos." All papers can be found on the Web site of the Institute and Faculty of Actuaries ([www.actuaries.org.uk](http://www.actuaries.org.uk)).

The European Commission published a paper on March 3, 2003 that discussed the design of a future European Union prudential supervisory system for insurance. This paper was long on general principles and short on specific proposals but did include

- concentrating on "overall solvency"—a company's financial soundness, taking all factors, both current and ongoing, into account;
- adopting the 3 Pillar approach;
- gearing the system to each insurer's own risks, thus encouraging each insurer to better measure and manage their own risks;
- harmonizing across member states, and that the most efficient means of promoting harmonization is not to

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**"The FSA says the ECR will be introduced in a phased way so that it will initially only be a reporting requirement and become a prudential requirement later."**

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adopt new, more detailed rules but to foster the convergence of companies' practices by seeking a common interpretation of prudential rules;

- introducing the concept of "target capital" (or "desirable capital"), the capital required to reduce to an acceptable level the risk of ruin. This is in addition to the minimum capital requirement.

In order to comply with the recent European Union Non-Life Directives (Solvency 1), the Financial Services Authority (FSA) in the U.K. is implementing solvency rules to take effect from January 1, 2004. The changes are not radical:

- increased capital for higher-risk liability business
- adjustments to solvency margin calculation
- various other changes (to minimum guarantee fund, to use of subordi-

nated debt in asset calculation, and to treatment of small firms and mutuals)

Insurers will now be required to notify the FSA of any change in the nature and quality of reinsurance where this reinsurance is used to reduce its required solvency margin (RSM).

The calculation of the RSM now looks like the following (run-off of pure reinsurance companies excluded):

**Premium Basis**—Higher of premiums earned and receivable. Threshold increased from £10 M to £50 M. Threshold is linked to consumer prices. 50 percent increase for general, marine, and aviation liability.

**Claim Basis**—Threshold £35 M. Threshold is linked to consumer prices. 50 percent increase for general, marine, and aviation liability.

**Reinsurance Allowance**—Reinsurance ratio adjustment assessed over three years (from one year).

The FSA has recently issued "Consultation Paper 190: Enhanced Capital Requirements and Individual Capital Assessments for Non-Life Insurers." The new regime for non-life insurers will have two key features:

- a new risk-based enhanced capital requirement (ECR). This will be based on a capital charge to be applied to asset and insurance risks.
- individual capital guidance (ICG) to firms based on the FSA's own view of how much capital would be adequate for individual firms to hold taking into account firms' assessments of their own capital needs.

The FSA says the ECR will be introduced in a phased way so that it will initially only be a reporting requirement and become a prudential requirement later. They want to consult carefully on how the ECR is calibrated, assess its effects on individual firms, and allow time for the market to absorb the changes without stress.

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## GSU Seeks Director for Actuarial Science Program

The Department of Risk Management and Insurance invites applications for the position of Director of the Actuarial Science Program. The successful candidate will have an established record of high-quality research in the field of actuarial science, statistics, or related field such as financial mathematics, and a demonstrated ability to lead one of the outstanding actuarial science programs. A doctorate in actuarial science, finance, mathematics, statistics, or related field is required. This tenure track position, to be filled effective fall 2004 at the rank of associate or full professor, requires maintenance of a successful research agenda and demonstrated teaching excellence.

Membership in a professional actuarial organization is required. These may include the Casualty Actuarial Society, the Society of Actuaries, the Institute of Actuaries, the Faculty of Actuaries, or the Australian Institute of Actuaries. Associates of these societies or members of other actuarial societies may also meet this requirement if they have exceptional strength in scholarship, teaching, and leadership.

Preference will be given to applications received by December 1, 2003. Applicants should send a current CV, three letters of recommendation, and recent publications or working papers to: Richard D. Phillips, Search Committee Chair, Department of Risk Management and Insurance, J. Mack Robinson College of Business, Georgia State University, P.O. Box 4036, Atlanta, GA 30302-4036; Phone: (404) 651-3397. Applications may be submitted electronically via e-mail at: [rphillips@gsu.edu](mailto:rphillips@gsu.edu).

For further information, contact the chair of the search committee or visit the department Web site at [www.rmi.gsu.edu](http://www.rmi.gsu.edu). Georgia State University is an equal opportunity educational institution/affirmative action employer and encourages applications from qualified minorities. Position is subject to final approval for funding. ■

## University of Connecticut Seeks Assistant Professor

The Department of Mathematics anticipates an opening for a tenure-track position at the assistant professor level, starting fall 2004 with special responsibilities in actuarial science. An appointment at higher levels is possible in exceptional cases. The department has a very strong and active actuarial program, awarding bachelor's, master's, and Ph.D. degrees. Qualifications to be considered include Ph.D. in the mathematical sciences or the actuarial sciences, membership in one of the actuarial societies, an active research program, and industry experience. Salary is commensurate with experience. Review of applications will begin January 1, 2004 and continue until the position is filled. Send resume and at least three letters of recommendation to Hiring Committee, University of Connecticut, Department of Mathematics, U-3009, Storrs, CT 06269. The University of Connecticut is an equal opportunity and affirmative action employer. We encourage applications from underrepresented groups, including minorities, women, and people with disabilities. ■

## Drake University Offers Actuarial Science Position

Drake University has an open tenure track position in actuarial science available in the College of Business and Public Administration to begin August 2004, pending final budgetary approval. Rank and salary will be based on qualifications. Duties include teaching six courses per year; recruiting, advising, and placing students; conducting scholarly research; and serving the university and the profession. Qualifications include a Ph.D. in actuarial science or a related area along with Associateship or Fellowship in the CAS or SOA is preferred. Candidates with lesser qualifications will be considered if there are compensating factors. To apply submit a CV and arrange for three letters of reference to be sent to Professor Stuart Klugman, FSA, CBPA, Drake University, Des Moines, IA 50311. Applications will be accepted until the position is filled. Drake University is an equal opportunity/affirmative action employer and actively seeks applications from women and minority group members who are qualified for this position. ■



## Election Results

From page 1

election results. A total of 1,273 Fellows, or 50.8 percent, voted in this year's election. Those Fellows voting in the 2002 election numbered 49.1 percent; 58.2 percent of Fellows voted in the 2001 election.

D'Arcy, who earned his CAS Fellowship in 1975, is a professor in the department of finance for the University of Illinois at Urbana-Champaign. He has served as CAS liaison to the American Risk & Insurance Association since 1994. He is currently the chair of the Long Range Planning Committee and a member of the Committee on Review of Papers. Among his many CAS activities, D'Arcy has served on the CAS Board of Directors (1999-2002), Textbook Rewriting Committee (1998-2001), and the Exams 3 & 4 Contingency Plan Task Force (2000-2001). D'Arcy has also written numerous *Proceedings* and *Forum* papers.

Members also elected **Robert V. Deutsch**, **Sholom Feldblum**, **Andrew E. Kudera**, and **Robert F. Wolf** to the CAS Board of Directors. They succeed **Ralph S. Blanchard III**, **Janet L. Fagan**, **Michael J. Miller**, and **Deborah M. Rosenberg**.

At their meeting in September, the board elected Ms. Rosenberg to serve as vice president-administration, succeeding **Sheldon Rosenberg**, who has completed a three-year term. All incumbent vice presidents were re-elected by the board, including **Thomas G. Myers**, vice president-admissions; **John C. Narvell**, vice president-international; **Roger A. Schultz**, vice president-marketing & communications; **Christopher S. Carlson**, vice president-professional education; and **Donald E. Mango**, vice president-research and development. [In a later development, the board appointed **Joanne S. Spalla** to replace a retiring Schultz as vice president-marketing & communications (see story on page 1).]

Members of the 2003 Nominating Committee are Chairperson **Robert F. Conger**, **Doreen S. Faga**, **Leon R. Gottlieb**, **Patrick J. Grannan**, **Anne E. Kelly**, **Steven A. Kelner**, and **Julia Causbie Stenberg**. ■

[www.casact.org](http://www.casact.org)

# Online Index and Handouts Database Launched

by Tiffany Kirk, CAS Web Site Developer

## Index to the Literature of the Casualty Actuarial Society Now Online

Previously published and distributed in printed form once every five years, the *Index to the Literature of the Casualty Actuarial Society* is now online. The *Online Index* is updated quarterly and provides more current information. It is a comprehensive source to literature presented in CAS publications and a reference for the contributions of CAS members. For more on the *Online Index*, visit [www.casact.org/pubs/index/intro.htm](http://www.casact.org/pubs/index/intro.htm)

## Searching For a Meeting or Seminar Handout?

Session handouts sent to the CAS Office by presenters are posted on the CAS Web Site following the meeting

or seminar. Previously, only a chronological-by-meeting listing was available. The newly created Handouts Database allows users to search using specified criteria. Visit the Continuing Education main page and look under "Meeting and Seminar Handouts."

## The Missing Links

If you have forgotten your login information, please use the convenient "Forgot Your Password?" feature. Links to this feature can be found at the bottom of the CAS homepage, on the Member Services main page, and in the Exams section. Enter either your username or e-mail address and your login information is e-mailed to you. The correct e-mail address must be on file at the CAS Office in order for this feature to function successfully. ■

## Schultz Retires

From page 1

Schultz's acceptance of a product officer position at Fortis Health in Milwaukee, Wisconsin prompted his retirement. "This is a difficult decision for me; service to the CAS has been a significant and important part of my professional career," Schultz said, "In fairness to the CAS, I need to step aside and give someone else the opportunity to serve."

Schultz joined the Executive Council in 2001 when the Board elected him to the position of Vice President-Continuing Education. He assumed his present responsibilities when the CAS reorganized the committee structure in 2002.

Schultz is working with Spalla to effect a smooth transition until Spalla assumes full duties at the CAS Board of Directors' meeting this November. The Executive Council will determine a replacement for the assistant-secretary position that Spalla vacates by the November meeting. ■

### Election Counts

According to the 2002 election procedures approved by the Board, all vote counts are released to the membership.

#### President-Elect

Candidate	Votes
Stephen P. D'Arcy	1,113
Total	1,113

#### Director

Candidate	Votes
Sholom Feldblum	778
Andrew E. Kudera	573
Robert V. Deutsch	569
Robert F. Wolf	564
Chester J. Szczepanski	415
Jay B. Morrow	399
Clive L. Keatinge	385
David L. Menning	363

# From ACAS Voting Rights to Computer-Based Testing, New CAS Task Forces to Take on Various Projects

**CHICAGO, IL.**—At its meeting here September 10-11, the CAS Board approved the formation of several task forces relating to many different subject areas including education and classes of membership. The board approved the formation of several new Admissions task forces as well as two new task forces devoted to membership issues. The new task forces and their charges follow.

**Task Force on the ACAS Vote—**To investigate the advantages and disadvantages of granting ACAS voting rights and to develop a recommendation on whether the current ACAS should be allowed to vote. The task force is also charged with determining whether other differences between CAS Fellows and Associates should exist, including differences in dues and

the right to hold officer positions. The Task Force will consist of both Fellows and Associates and will make its recommendation at the March 2004 board meeting.

**Task Force on Classes of Membership—**To recommend whether there should be one or more classes of membership and the appropriate qualifications, rights, and responsibilities associated with these classes of members.

**Joint CAS/SOA Task Force on Preliminary Education—**To prepare a final recommendation and an implementation plan with respect to educational processes for both the CAS and SOA (including areas of joint activity) for the subjects covered by current Exams 1-4.

**Task Force on Computer-Based Testing—**To develop a recommenda-

tion and an implementation plan with respect to introducing computer-based testing for at least one exam by Spring 2005.

**Modeling Workshop Task Force—**To develop and pilot a modeling workshop along the lines proposed by the Future Education Task Force to test whether this idea merits consideration for inclusion as part of basic education.

**Task Force on Study Materials—**To evaluate existing study materials prepared by third parties to determine if these materials meet the learning objectives of the CAS *Syllabus* in a sound way. The Task Force, which will be made up of educators and members of the Syllabus Committee, is directed to present a report at the March 2004 board meeting. ■

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## 25 Years Ago in *The Actuarial Review*

by Walter C. Wright

### When Will This Ever Get Straightened Out?

*The following is extracted from a front page news article, by Mary Lou O'Neil, that appeared in the October 1978 AR:*

### New Jersey Tackles Problems of Actuarial Equity and Public Policy

**Recommendations to the Legislature Include Changes in Class Relationships, Merit Surcharges, Residual Rate Levels, and Profitability**

The New Jersey story started in June, when the Insurance Department and the Governor's office proposed three bills to alter the structure of the private passenger automobile insurance market. Briefly, these three bills would establish a reinsurance facility as the delivery mechanism for the residual market in private passenger automobile insurance, establish a merit rating plan

using fixed dollar amounts as surcharges based on accidents and motor vehicle violations, and provide for an increase in the Insurance Department staff at the companies' expense so that the Department could adhere to time lines established by the bill for the administration of the state's prior approval rate regulatory law.

Later in June, the Assembly Banking and Insurance Committee simultaneously voted the three bills out of committee and created the New Jersey Ad Hoc Committee on auto insurance reform...The committee's charge was to recommend a viable alternative to a reinsurance facility that would solve some of New Jersey's automobile insurance problems...not least of which is a population of one million drivers in the assigned risk plan.

Simplifying this charge, the committee sought a response to the problems of availability, affordability, and

profitability as each affects the various parties to the auto insurance transaction....

Affordability quickly became the focal point of discussion, pitting "actuarial equity" against "public policy." Traditional rating methods were challenged. In particular, territory and classification differentials were examined. The committee also explored the potential effects of eliminating age, sex, and marital status as rating criteria, the adoption of uniform merit rating surcharges by territory, and the use of voluntary market rates for all drivers. The committee endeavored to achieve a balance between the goals of actuarial equity and public policy so that gross market dislocations may be avoided....

Keeping these facts in the forefront, the committee took several giant steps toward greater social equity along the continuum from actuarial equity. These

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# Overcoming Students' Math Anxiety

by Marty Adler

**Y**ou have probably read about the high level of innumeracy among Americans and the frustrating fact that it typically starts during early education. According to the 2000 National Assessment of Educational Progress, only 25 percent of the nation's 4th- and 5th-graders are performing at or above proficient levels in math. Some good news is that The Actuarial Foundation, which many of us support financially, is working to improve this.

The Foundation runs a program called "Advancing Student Achievement," which brings actuaries and educators together in voluntary partnerships to enhance student mathematics achievement. Each year The Actuarial Foundation hosts an exhibit booth at the annual convention of the National Council of Teachers of Mathematics. When a local actuarial club shows interest in the program, the Foundation sends mailings to schools in the area. The Actuarial Foundation also promotes the program through its Web site, [www.actuarialfoundation.org](http://www.actuarialfoundation.org). As of August 2003, 305 actuaries have volunteered or are currently volunteering in school programs. At least 26 were Fellows or Associates of the CAS, and a number of actuarial students and other volunteers from local insurance companies joined them. Interested schools send proposals to the foundation for review by the Foundation's Committee for Student Achievement. If the Foundation finds a proposal acceptable, it will contact local clubs and actuaries to find volunteers. The Foundation provides monetary grants to approved programs when actuaries are involved.

One such grant is having an impact in the greater Phoenix/Scottsdale metropolitan area. Working with the teachers at Arrowhead Elementary School, **Ken Levine** has organized about 20-30 actuaries and Ken's wife, Sarah, a former part-time teacher, who volun-

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**"...the children...see  
that math can be fun."**

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teer to support monthly "Math Academies" at the school. The Math Academies are themed, four-hour programs designed to be active and entertaining, and help the students see how math is used in the real world. One month the "Math of Sports" helped the students learn the relevance of math for timing, statistics, and predicting. In another month, the "Math of Shopping and Budgeting" taught students about the value of money and opportunity cost. Perhaps the most popular theme, the "Math of Restaurants," not only taught about maximizing and optimizing the use of space, but also included some wonderful treats prepared by special guest Chef Tony.

In the classroom, the actuarial volunteers have a genuine chance to influence the math knowledge and self-esteem of the students. The enthusiasm and love for math that the actuaries bring rubs off onto the children, who see that math can be fun. Then the children approach their math lessons with a positive attitude that makes them better students. In this way the impact of the volunteers extends far beyond four hours in the classroom each month.

The Math Academies, in combina-

tion with other programs at Arrowhead, are making a difference. For evidence, one can just look at the second grade, which has made significant progress in its scores on the math portion of the SAT-9 test. It has climbed from a scaled score of 575 in 2001 to 582 in 2002 to 612 in 2003, when it ranked 16th in the Phoenix Valley among all grade levels. Math Specialist Kimberly Rimbey says that their district alone has 175 grade levels and there are more than 100 districts in the Valley. Ms. Rimbey says that it is difficult to distinguish which of many favorable factors came into play, but that all had an impact in creating confident, knowledgeable students.

Another volunteer tutor, **Andy Doll** in Sun Prairie, Wisconsin, learned about the program at the Actuarial Foundation's annual Clambake. The Clambake is the major fundraising activity for the Foundation, with the proceeds used for the various programs it sponsors. The Clambake includes a half-day meeting with industry speakers, golf, dinner, and an auction. Impressed by what he learned, Andy told his wife that he wanted to participate. Then, at a middle school SCO (PTA) meeting attended by Andy's wife, a seventh grade math teacher requested classroom assistance. They created a successful pilot project for the fourth quarter last year, which established a base to continue the program this year.

The program has three main components: before-school individual math homework assistance, classroom monitoring, and an after-school math club. Andy, four other CAS Fellows, and three actuarial students attend these activities weekly, choosing the area that best balances the volunteer's strengths with the needs of the teacher. Each volunteer tries to stay with the same class in order to become familiar with the students.

## Learn More About Advancing Student Achievement...

To volunteer as a mentor in the Advancing Student Achievement program or to learn how to submit a proposal to bring the program to your community's school, contact Eileen C. Streu, Director, The Actuarial Foundation at 847-706-3557 or by e-mail at [eileen.streu@actfnd.org](mailto:eileen.streu@actfnd.org). ■

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## Doubt of the Benefit

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

In the state of East Dakota, workers compensation costs have been unexpectedly increasing by significant amounts over the past five years. As a result, workers compensation rates have historically been inadequate and have been blamed for causing a large number of insolvencies in the state. In the wake of mounting losses and the continuing instability in the workers compensation marketplace, many insurance companies in the state have withdrawn from the market or have restricted writing policies.

In an attempt to bring stability back to the market, the East Dakota legislature recently passed a workers compensation benefit reform measure that has been claimed by politicians to reduce workers compensation costs by an estimated 30 percent. Because of the highly publicized nature of this bill, the East Dakota Department of Insurance has notified all workers compensation insurers in the state that their rate filings must recognize the impacts of this new legislation by including an explicit 30 percent reduction in the rates. Otherwise, their rate filings will not be approved.

Actuary Bob is preparing a workers compensation rate filing on behalf of his employer, Insurance Company X, in the state of East Dakota. Insurance Company X, like most other workers compensation insurers in the state, is

teetering on the brink of insolvency. Bob has reviewed the new legislation and believes that the measure will not reduce the workers compensation costs at all. Bob believes his rates will be inadequate if he includes an explicit 30 percent reduction in his rate estimates. In addition, another year of inadequate rates will likely force his company into insolvency. Therefore, Bob plans to include the mandatory 30 percent decrease in his estimated rates but then plans to offset this reduction by increasing the tail factor used in his analysis. Although the new tail factor used in his analysis is unreasonably high, Bob believes the overall results of his analysis produces his best estimate of the workers compensation rates. Is Bob violating the standards?

### No

Bob understands that his tail factor is unreasonably high; however the Statement of Principles Regarding Property and Casualty Insurance Ratemaking focuses on the rate, not the individual assumptions used to develop the rate. Bob needs to do whatever he can to ensure that his estimated rates comply with the four Principles:

Principle 1: A rate is an estimate of the expected value of future costs.

Principle 2: A rate provides for all costs associated with the transfer of risk.

Principle 3: A rate provides for the costs associated with an individual risk transfer.

Principle 4: A rate is reasonable and not excessive, inadequate, or unfairly discriminatory if it is an actuarially sound estimate of the expected value of all future costs associated with an individual risk transfer.

If Bob reduces his tail factor to within a reasonable range and incorporates the mandatory 30 percent rate reduction, his resulting rates will violate the Statement of Principles because his rates are expected to be inadequate.

### Yes

Bob's attempt to offset the required 30 percent rate decrease is dishonest and evades the law. His actions are in violation of Annotations 1-2 and 1-4 of the Code of Professional Conduct.

Annotation 1-2: An Actuary shall not provide Actuarial Services for any Principal if the Actuary has reason to believe that such services may be used to violate or evade the Law or in a manner that would be detrimental to the reputation of the actuarial profession.

Annotation 1-4: An Actuary shall not engage in any professional conduct involving dishonesty, fraud, deceit, or misrepresentation or commit any act that reflects adversely on the actuarial profession.

Actuarial Standards requires us to follow the law. As stated in the introduction to the Code of Professional Conduct: "Laws may also impose obligations upon an Actuary. Where requirements of Law conflict with the Code, the requirements of Law shall take precedence." Bob's should not attempt to offset the mandatory 30 percent rate reduction and should start looking for a new employer. ■

### CAS Continuing Education Calendar

**Bookmark the online calendar at [www.casact.org/calendar/calendar.cfm](http://www.casact.org/calendar/calendar.cfm)**

**November 9–12**—CAS Annual Meeting, New Orleans Marriott, New Orleans, LA

**November 7–24**—Online Course: Financial Risk Management: Securitization, CAS Web Site

**March 11–12, 2004**—Ratemaking Seminar, Wyndham Franklin Plaza Hotel, Philadelphia, PA

**May 16–19, 2004**—Spring Meeting, The Broadmoor, Colorado Springs, CO ■



# Volunteers Invited to Join New Membership Advisory Panel

Community and innovation are core values to the CAS. Community is the belief that CAS members are best served when there is open sharing and exchange of ideas and research. Innovation is the belief that the continuing vitality of the CAS is best served when creative thinking and research are valued, open discussion is encouraged, new ideas are openly entertained, and the diversity of members' opinions is respected.

Gathering, understanding, interpreting, and acting on member input is of paramount importance to CAS committees and task forces and is often accomplished by the use of research surveys. However, there has been concern expressed about overwhelming CAS members with numerous survey requests.

Earlier this year the CAS Board of Directors approved the formation of the Membership Advisory Panel Committee (MAPC) and the Membership Advisory Panel (MAP). The purposes of the committee and the panel are to encourage an open and dynamic communication environment among committees, members, and the CAS; to serve as a vehicle for members to provide feedback to CAS committees on the quality and value of benefits provided;

and to foster the spirit of community and innovation.

Volunteers on the Membership Advisory Panel (MAP) will be part of an *on-call focus group* that facilitates membership research activities by:

- Providing a mechanism that can be used to assess CAS membership satisfaction levels, with a goal of assuring that the benefits of association far exceed the cost and identifying opportunities to enhance the value of CAS membership;
- Providing CAS leaders and committees with access to a representative collection of members who are willing to participate in surveys and research conducted by the CAS;
- Providing a dynamic vehicle for CAS members and leaders to communicate and interact on topics of mutual interest;
- Providing a mechanism to assess the extent to which the CAS operates consistently with the core values of the organization, as articulated in the CAS Centennial Goal.

In 2003-04, the Member Advisory Panel Committee will concentrate on establishing itself by recruiting and staffing the Member Advisory Panel, integrating the new process into the CAS culture, and communicating the

availability of this exciting new resource to all committee and task force chairs.

Currently seven members make up the Member Advisory Panel Committee and five additional members are desired. The Committee plans to conduct most of its work through e-mail exchanges and teleconferences, and does plan to meet face to face at least once a year. Annual time commitment is expected to be 20-45 hours per year.

The committee is hoping to recruit at least 100 volunteers to serve on the Member Advisory Panel (MAP). MAP members will be called upon on an as-needed basis. There is no travel involved and the average time commitment is estimated to be about 20 hours per year. This is a great opportunity for those of you who indicated on the Participation Survey that you would like to volunteer but are under time constraints or prefer not to travel.

Volunteer now for the MAP or MAPC! If you indicated an interest in joining either the MAPC or the MAP on the Participation Survey you will be contacted by committee chair Al Weller. If you would like to volunteer at this time please contact the CAS office at (703) 276.3100 or [office@casact.org](mailto:office@casact.org). ■

## Nonactuarial Pursuits

From page 15

The volunteers show students how to apply math to everyday life, and more important, give each student a better understanding and appreciation for math. By providing one-on-one tutoring or in-room attention, the children feel they have someone willing to help them succeed in a subject that for many is quite challenging. As the teacher can give limited attention to each student, the mentors supplement that role and make the classes go more smoothly.

Andy recalls an example from last year where groups of students were asked to pick something from the textbook that they had not covered in class,

and then teach that concept to their peers. One group was working on dissecting polygons into triangles from a corner of the polygon. Andy explained that there was a formula that could be used to identify how many triangles and diagonals there were, based on the number of sides of the polygon. The group used the formulas in their presentation to the class.

The math club activities cover a wide spectrum, from the fun to the practical. In one exercise they went bowling, but the seventh graders had to score manually. A field trip to the mall focused on budgeting for purchases and seeing how sales tax affected the cost. This year the students

will be given the opportunity to develop a business plan. They will be given \$50 as initial capital (to be returned), but will be able to keep any profits. The program absorbs any losses.

The reward for the volunteers is in the progress and the appreciation the students show. At the end of one Math Academy, a student came over to hug one of the volunteers. The volunteer later told Ken Levine, "What a wonderful way to capture the spirit of the program, with a hug from a child." Andy Doll says, "To see their faces and hear them proclaim, 'I get it. That's cool.' is the type of satisfaction that makes the program successful." ■

# VFIC Sponsors Research on the Valuation of P&C Insurance Companies

by Claus S. Metzner, Member, Committee on Valuation, Finance and Investments

Two papers dealing with the fundamental valuation of property/casualty insurers for merger and acquisition purposes have recently been completed as part of a funded research project sponsored by the Committee on Valuation, Finance, and Investments (VFIC). Research teams from the Czech Republic and the United States authored the studies.

The Czech team, Jaroslav Danhel and Petr Sosik of the University of Economics in Prague, provide the background of the various valuation methods and then show the application to a specific merger from the Central Eastern European region. The focus is on the Economic Value Added (EVA) concept. The paper "Acquisition Value of P&C Insurance Companies" can be found in the Research section of the CAS Web Site.

The United States team, **Wayne E. Blackburn, Derek A. Jones, Joy A. Schwartzman**, and Dov Siegman, contrast the EVA and the Discounted Cash Flow (DCF) methodologies and dis-

cuss the conditions under which equivalent answers to the valuation problem are obtained. Their paper, "The Application of Fundamental Valuation Principles to Property/Casualty Insurance Companies" is also available in the Research section of the CAS Web Site.

Both papers present a well-ordered approach to the valuation problem, moving from first principles to an application of the principles. The papers are well designed to foster understanding among those actuaries who do not engage in valuation activities on a day-to-day basis. The bibliographies provide additional sources of information for those readers who wish to pursue the subject matter in more depth.

The papers present the valuation process from the economic/financial viewpoint. While the papers deal with fundamental valuation issues, the concepts presented are applicable to the evaluation of any financial transaction undertaken by a company. For example, the pricing structure can be sub-

jected to the valuation test: is shareholder value increased or decreased given a specific pricing strategy and considering the potential market reaction? Similarly, investments in marketing initiatives and other potential management actions can be subjected to the test: is shareholder value increased or decreased?

Applying the techniques as illustrated in the papers can also provide additional, more refined, insights into a company's financial progress than the usual calendar/accident year management reports. The use of EVA techniques for such reporting can also place the management reporting between the life and property/casualty operations of a multi-line company on a more comparable basis—a significant advance in management reporting.

Because of the universal applicability of the concepts discussed in the papers for evaluating the longer-term consequences of decisions, VFIC recommends these papers to all actuaries. ■

## In My Opinion

From page 2

viduals is the residual variation that cognitive ability cannot explain.

You knew that, of course, having been thoroughly grounded in statistics, credibility theory, and risk classification principles.

Can we run across this sort of situation in property/casualty insurance ratemaking? Suppose your underwriting department wants to specialize and market itself as a niche writer with valuable expertise. Let's say that the personal lines auto underwriters are graded very positively if new business is heavily weighted towards married, white-collar drivers, ages 25-35, who live within ten miles of their workplaces, and have good credit records.

In other words, the underwriters are writing as much as they can in one class, as little as they can in all other classes. Is there any point to setting up rate tables by age, marital status, distance from work, and credit score? Can you simply file one rate per territory plus a merit rating plan? Is the one big class the only one with sufficient credibility for establishing stable rates? Will the underwriters complain that their loss ratios vary wildly from one quarter to the next, and who cares about long-term averages when my annual salary review depends on quarterly results? What kind of underwriting expertise will your company gain if the rating variables cannot explain the variation in losses among the individual insureds?

An example relating to capital ad-

equacy also comes to mind. I have read reports in the insurance trade press recently about calls to revise or increase Risk Based Capital (RBC) standards. But what if current RBC standards *are* effectively flagging the insurers who could be running into financial trouble for reasons that the RBC formula measures? Then the insolvencies we've seen over the last few years happened for reasons that the RBC formula cannot measure or explain. How can raising the RBC requirements reduce the number of insolvencies that the RBC formula cannot identify?

Ultimately, what I like most about reading *The Bell Curve* is that it gets me thinking of questions about the limits on actuarial knowledge and how we can recognize the boundaries when we bump against them. ■

Last spring, the International Underwriting Association and the Association of British Insurers unveiled the findings of their jointly sponsored “Third U.K. Bodily Injury Awards Study.” This report—the biggest exercise of its kind ever undertaken—analyzes trends in personal injury claims and the forces driving them by drawing together research by legal, actuarial, rehabilitation, and medical working parties. The report concluded that the cost of bodily injury claims to U.K. motor insurers has risen by nearly 10 percent per annum over the past decade. Personal injury claims accounted for more than 33 percent of motor premiums in the 1998 accident year. From 1998 to 2000 claims inflation fell slightly to 8.4 percent but it is expected that the level of inflation will quickly rise above 10 percent over the next two years. Claims inflation has been greatest in the highest value claims. Payments by reinsurers on claims above £250,000 have risen by more than 20 percent per annum. ■

## 25 Years Ago in the AR

From page 14

steps were the adoption of general market reforms: limitation of the size of maximum territory and classification relativities to the statewide average, uniform merit rating surcharges by territory, and a single rate level (ISO) for all residual market drivers....

Profitability was addressed through the recommendation of specific time lines for Insurance Department actions on rate filings, establishment of an indexing procedure for automatic adjustment of rates, and provision for automatic recoupment of any association losses through the voluntary market rates.

The Ad Hoc Committee recommendations now before the New Jersey legislature point to the changing environment, in which adherence to actuarial equity is no longer the sole basis for the pricing of insurance. It is difficult to say where this chapter will end. However, actuaries are becoming aware of the new role required by ever-increasing social demands. ■

# Electric Grids

by Stephen W. Philbrick

Everyone knows about the Northeast blackout last August. Not as many know about the Memphis area blackout in July, even though it affected over one million people for up to three weeks. The September blackout in Sweden and Denmark affected five million, but also garnered limited press. A smaller blackout in London affected half a million people in August, and over 50 million in Italy were affected in September.

What, you may be asking, does this have to do with actuaries? I didn't see an immediate connection either, until I read a fascinating blog entry from Steven den Beste ([http://denbeste.nu/cd\\_log\\_entries/2003/08/Un-blackeningout.shtml](http://denbeste.nu/cd_log_entries/2003/08/Un-blackeningout.shtml)) explaining why it takes so much time to bring a grid back online. Exploring some of the links, I ran across an entry by Rich Hailey (<http://shotsacrossthebow.com/archives/001778.html#001778>) with a basic primer on how electrical grids came to exist.

In short, Hailey explained that a local system needs to have more generating capacity than its average needs, to accommodate peak needs. But this excess capacity is idle most of the time. Excess generating capacity costs money, so utilities would like to minimize it, while customers (who dislike power disruption) would like as much as possible to maximize it. Neighboring utilities realized that, to the extent peaks didn't exactly coincide, they could jointly get by with less than the sum of the required individual excess capacity if they hooked their local systems together. As more local systems were connected, the ratio of excess capacity to average capacity dropped, increasing the efficiency of the overall system.

It struck me that the excess capacity of a local electrical system could be analogized to the need for surplus in a stand-alone insurance company. The company needs to carry expected reserves (comparable to average electrical loads) plus an additional amount in surplus (comparable to excess capacity). Customers want the surplus levels strong because they want the company to pay all its claims, but the owners don't want too much surplus because it reduces the return on surplus.

Connecting local electrical grids is analogous to reinsurance; not in the sense of stand-alone reinsurance, but quota share reinsurance between two primary carriers.

The analogy is less than perfect of course, but the question in my mind is whether the analogy is good enough to gain insights. Is the science of electrical grid connections advanced enough that the insurance industry could learn from it? Conversely, is the insurance/reinsurance model advanced enough that the electric utilities could improve their operations by borrowing ideas from us? Or maybe both?

One of the criticisms of the electrical grid model is that no one seems to be responsible for the interconnected part. Their “reinsurance” is solely analogous to primary companies engaging in mutual quota share. There doesn't seem to be

**“It struck me that the excess capacity of a local electrical system could be analogized to the need for surplus in a stand-alone insurance company.”**

→ page 20

# Interrupted Betting

by John P. Robertson

**T**om Struppeck suggested this puzzle. In a best-of-seven series between evenly matched teams A and B, you have bet \$100 on team A to win the series. Team A loses the first game, and you find you have to leave. You have an agent who will remain through the remainder of the series. This agent has some money of her own, and can place bets at even odds on each individual game, just before the start of each game. You give the agent some money, and instruct the agent on how to bet on each remaining game. The amount bet can vary from game to game, and can depend on the results to date of the series at the time of the bet. The goal of these bets is that the agent, after settling up on your behalf at the end of the series (collecting \$100 if team A

wins, or paying \$100 if team B wins), will have broken even (i.e., she will have exactly as much money as she had before you gave her any money), and you will be out the amount of money you gave her. How much money do you give your agent, and how do you instruct her to bet?

## Orienting Bottles

The goal is to put four bottles at the four corners of a rotating table into the same orientation, up or down, while blindfolded. You can only request that you be presented with two bottles that are in opposite corners or two bottles in adjacent corners (but you can't specify which corners).

**Nicki Austin, Michael Dubin, Frank Karlinski, Alex Kozmin, David Uhland, and Dave Westerberg**, found the following solution.

Call opposite and put both up.  
Call adjacent and put both up.  
If you have not won, then there is one down and three up.

Call opposite. If you get the one that is down, put it up, leave the other, and you've won.

If you get two up, turn one down, and leave other up.

Now you have two adjacent down and two adjacent up.

Call adjacent. If you get two in same orientation, turn both over, and be done.

If you get two in opposite orientation, turn both over.

Now you have opposites the same and adjacents different.

Call opposite and turn both over. Now you are done. ■



## Brainstorms

From page 19

the analogy of a professional stand-alone reinsurer. Should there be?

I'm guessing Utility A doesn't get unrestricted right to draw upon the capacity of Utility B. For example, if Utility B is also experiencing a peak, it needs its capacity. Perhaps then both utilities would draw on Utility C. If we designed a reinsurance contract in an analogous way, we might include several parties with clauses indicating that participants with higher loss ratios bear a smaller portion of the shared burden.

This obviously has potential for problems, although some can be mitigated with industry loss warrantees (clauses which force coverage to apply only if industry losses exceed a certain level).

These are only two examples, based upon my very limited knowledge of the electrical grid system. However, I have

to wonder if an electrical engineer designing the electrical grid and an actuary thinking about improving the capital structure of a company might find they had a fair amount in common, if they avoid the technical jargon and talk about the overall structure of the respective industries. ■

## Keep Our Records Current! Update Your Address for the 2004 Yearbook

Mail in the address update card in your 2003 *Yearbook* or log on to the CAS Web site at <http://www.casact.org/members/private/changeform.cfm> to update your records electronically. All changes must be received by December 1 in order to be reflected in the 2004 *Yearbook*. ■

### In Memoriam

**William J. Rowland**

(FCAS 1980)

September 27, 2003

**Cindy R. Schauer**

(ACAS 1996)

August 23, 2003