The Actuarial Review

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From the President

Developing Knowledge on a Worldwide Basis

by Robert F. Conger

2002 CAS President, Robert F. Conger, left, officially receives the gavel from 2001 President Patrick J. Grannan.

I was fortunate to have the opportunity to speak at the GIRO meeting in Glasgow last October on the topic of developing knowledge on a worldwide basis, an exciting and challenging opportunity facing our employers, our profession, and us as individuals. Consider the *need* for us to develop our knowledge globally, and the *potential benefits*; the *tools* that exist to facilitate the exchange and collective development of knowledge; and the *impediments* to progress. What can we do?

The Need

First, is there a need for our knowledge to have a worldwide base?

For an answer, simply look at the direction in which our employers and clients are moving, and as importantly, the direction in which *their* customers are moving. Whether through organic expansion, mergers and acquisitions, or teaming and partnership arrangements, the people who use our services are increasingly becoming parts of

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The Top Ten Casualty Actuarial Stories of 2001

by Robert F. Conger and Vincent F. Yezzi

In our annual survey of CAS thought leaders, 93 percent of respondents identified the September 11 terrorist attacks as the top news story of 2001. Respondents enumerated various potential implications that these attacks may have for casualty actuaries (see separate article, page 15).

The top five stories identified were:

1. The September 11 terrorist attacks.
2. The hardening of both price and terms in the insurance market.
3. Mold claims, with resulting issues in the areas of coverage and availability.
4. The scarcity of reinsurance protection for claims arising out of potential future terrorist acts, and the debate over possible federal reinsurance mechanisms.
5. The demise of Reliance and other insurers.

This array of stories illustrates that today's casualty actuary is involved in and affected by events and trends of significant societal and economic importance—events that in many cases are visible to the general public as well as the insurance executive. Each of

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Actuaries Debate the CAS Election Process—Part Two

by Arthur J. Schwartz

In November 1999 the CAS established a task force to review the CAS election process. In July 2000 the task force made its recommendations in a final report, which is available to CAS members on the CAS Web Site under "Member Services." One of the report's recommendations, which the board of directors accepted, was to publish articles about the election process in *The Actuarial Review*. The purposes of publishing such pieces are to educate the members about the election process and to stimulate greater participation in the elections.

Schwartz: *The Nominating Committee conducts a preferential ballot in the spring, that allows members to nominate themselves or other members. The Nominating Committee then selects a slate of qualified candidates, which is published in mid-July. Upon petition, a candidate can ask to be placed on the ballot. However, the voters do not learn whether anyone else, beyond the slate of nominated candidates, will be running until mid-August when the additional candidates are posted on the Web site. Also, the candidates who are on the ballot by petition have no means to communicate publicly how their views on the issues may differ from the slate of nominated candidates. Some have commented that this process is unfair to a candidate who seeks office by petition. What is your view?*

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In My Opinion

Semper Fidelis

by James H. "Tim" Tinsley, CAS Executive Director, 1991-2001

The Actuarial Review's Editor in Chief, **Walt Wright**, has kindly provided this special space for me to say farewell to the CAS membership, and to offer some reflections on my tenure as CAS Executive Director. I will have retired on December 31 as you read this in February 2002.

My memories are fond, and my reflections are many. At the recent Annual Meeting in Atlanta I expressed my gratitude as best I could for the opportunity to serve as your first executive director. I have since enjoyed serving twelve presidents as the membership almost doubled (from 1,800 to over 3,500), as the number of committees and task forces increased significantly from 27 to 60, and as the opportunities for continuing education offerings nearly doubled. While these and other growth metrics are impressive, the single result during this period of which I am most proud, is the role of the CAS Office in supporting the vitality of the exceptional CAS volunteer spirit. My task was to develop an office to relieve the volunteers of the nonactuarial "administrative" tasks, thereby leveraging the volunteers' contributions and encouraging continuing meaningful contributions. I am very proud of my contribution on this!

"...the single result during this period of which I am most proud, is the role of the CAS Office in supporting the vitality of the exceptional CAS volunteer spirit."

When I started in 1991, CAS committees produced *The Actuarial Review, Yearbook, Proceedings,* and all the other CAS publications. The president personally prepared and assembled agenda material for the board meetings; the vice president-administration maintained the various manuals, prepared elections documents, and organized the Participation Survey; the treasurer paid all the bills; and so on. Today, with the support of the leadership and the resources provided by the board, a competent and responsive office staff is in place to serve an ever more active, volunteer-driven Society. Compared to the other actuarial organizations in North America, the CAS enjoys the lowest dues, the lowest exam fees, and the lowest fees for meetings and seminars—more bang for the buck.

We hit our first home run in 1992-93 when we installed customized software to help manage office functions and to create a management information system for the Society. This included replacing the old Rolodex membership directory with an electronic database for member and candidate records. The Rolodex was updated manually, at intervals, whereas the electronic database is updated almost automatically. This software gave us tremendous reporting capabilities, for example, to study statistics on travel time among exams and to monitor members' participation on committees. Today, that custom software has been upgraded with an even more robust system, and the membership directory is now also available on the CAS Web Site.

Another major accomplishment was creating the CAS Web Site. President **Al Beer** gave us marching orders in August 1996 to demonstrate a Web site to the board the following month, which we did. As they say, the rest is history. The site is now well designed, easy to navigate, and an excellent resource for CAS and ASTIN papers. It sets the standard that actuarial organizations in the U.S. and abroad seek to emulate.

Lastly, I cite the quality of the CAS Office staff that I leave behind. Our office culture has been built around an attitude of "we are here to help" and your feedback

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2002 CAS Spring Meeting Set for San Diego

by Richard W. Gorvett

The ocean… A great zoo and wild animal park… Wonderful weather… Shamu….

A beautiful city and hotel—San Diego, California, and the Hotel del Coronado—will host the CAS 2002 Spring meeting. Mark your calendars for May 19-22, and join us at this traditionally popular location.

The featured speaker will be James Glassman, a financial columnist for *The Washington Post* and coauthor of the book *Dow 36,000*. He has offered his insights on global trends and the future of finance to national audiences via the print and television media. He is a resident Fellow at the American Enterprise Institute, and hosts TechCentralStation.com, a Web site exploring finance and technology.

Four interesting and timely general sessions are being planned for the meeting. "Dealing with Terrorism: Next Steps?" considers the issues and strategic responses of insurers and regulators with respect to the possibility of future terrorist events. "Enterprise Risk Management and Disaster Recovery" discusses issues associated with these emerging disciplines, along with what we have learned from the responses of disaster recovery plans to recent catastrophic events. "Can We Talk?" takes us on a satirical journey through a day in the life of a "communications-challenged" actuary: three tongue-in-cheek documentaries shed some light on how actuaries are perceived by others. "Market Cycle Update" examines changing insurance market conditions and looks ahead toward possible future market movements.

Some of the concurrent session topics being considered include: ratemaking in a hard market; mold issues; new capital flowing into Bermuda; using expert claims systems; reserving issues; risk and return; capital allocation; credit ratemaking issues; the dos and don'ts of dealing with the media; asset-liability management; fraud; risk retention and captives; diversity; medical malpractice; and catastrophe modeling. A limited attendance session focusing on general business skills will also be offered.

Photo Credit: Henry Fechtman

The Del's vista walk offers visitors a peaceful getaway.

The Monday tour will include a look behind the scenes at the San Diego Zoo. The Tuesday evening event will be a "patriotic theme" party at the resort.

Attendees are also strongly encouraged to participate in future meeting planning by filling out the evaluation forms that will be provided at the meeting. These evaluation results are important for determining the interests of the CAS membership regarding future general and concurrent sessions.

Additional information on the 2002 Spring meeting will be available soon on the CAS Web Site. Please join us in San Diego!■

Dorweiler Prize Awarded to Two Papers

CAS awarded the 2001 Dorweiler Prize to two *Proceedings* papers in November at the CAS Annual Meeting in Atlanta. **Stephen P. D'Arcy** and **Richard W. Gorvett** won for their paper "Measuring the Interest Rate Sensitivity of Loss Reserves" and **Thomas J. Kozik** and **Aaron M. Larson** won for their paper "The N-Moment Insurance CAPM." Pictured from left are D'Arcy, CAS Vice President-Continuing Education **Abbe Bensimon**, Kozik, and Larson. D'Arcy and Gorvett's paper is published in the 2000 *Proceedings* and Kozik and Larson's will be published in the 2001 *Proceedings*.■

In My Opinion

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over the years has been very positive on that score. Looking forward, the outlook for the staff is bright. Longevity now averages nearly seven years among my direct team: Kathy Spicer, Jane Brooke, Todd Rogers, Mike Boa, Tom Downey, Elizabeth Smith, and Kathleen Dean (in order of years of service).

So the state of the office and its relationship to the core values of the CAS are strong. And your new executive director, Cynthia Ziegler, brings fresh ideas and will build on this foundation. My best wishes to her and the CAS staff for the future.

I have been blessed to serve with the prestigious CAS and to leave with so many close friendships among its members. It's been a great trip in this last phase of my working life. With a look back to my earlier career as a Marine, I close with a heartfelt "Semper Fidelis."■

An Astronomical Undertaking

The Perfect Machine: Building the Palomar Telescope by Ronald Florence (Harper Trade, 1994, $14.00)

Reviewed by Allan A. Kerin

Ronald Florence's *The Perfect Machine* is an extremely interesting book about the construction of the Mount Palomar telescope. The project can be viewed as a step in the growth of big science or as the culmination of completely privately funded pure research projects. (The funding was primarily from the Rockefeller Foundation.) The 200-inch telescope was a huge engineering project and the largest and most expensive scientific research program in the world when it began in the late 1920's. Completed in 1949, it was the largest optical telescope in the world and remained so for decades. Although it has been surpassed in size by new innovative telescopes, it remains one of the most important astronomical facilities in the world.

Florence tells a complex story about the technological, financial, and organizational challenges faced during the two-decade-long project. There is also significant discussion of the scientific motivation for building the telescope and of the personalities of many of the scientists, engineers, administrators, opticians, and mechanics who worked on the project.

The heart of the narrative concerns the casting, grinding, and polishing of the great 200-inch mirror. The initial expensive attempts by General Electric to produce fused quartz mirrors were complete failures. The contract was then given to the Corning Glass Works to cast a conventional glass mirror. Corning decided to use Pyrex, which has a much lower coefficient of expansion than ordinary plate glass and hence would be less subject to distortions from changes in temperature. In today's world of personal computers and ubiquitous microchips it is instructive to see that the material needed to make an optically sound 200-inch telescope was already in pie dishes and casseroles in many American kitchens. (The 100-inch Mount Wilson telescope mirror had been cast from plate glass.) Corning and Dr. George McCauley, the Corning researcher who directed the Palomar mirror project, are deservedly described as heroes.

> **"...the material needed to make an optically sound 200-inch telescope was already in pie dishes and casseroles in many American kitchens."**

Amid a great deal of publicity the completed mirror disk was shipped in 1936 by rail from Corning, NY to Pasadena, CA on a special four-car train that was given the highest priority throughout the cross-country trip. Crowds lined the track in cities and towns along the way. Eleven years later (including a four-year pause during World War II), in October 1947 the grinding and polishing of the mirror was finally complete. During this time the telescope tube and mounting, auxiliary mirrors, machinery, building, and dome were being built. Many of the mechanical components of the huge telescope had to be built to unprecedented degrees of precision to ensure proper alignment of the mirrors and accurate tracking of objects.

This book describes the talent and diligence of those who planned and built the telescope. It also notes some of their occasionally humorous peculiarities. For example, the great astronomer Edwin Hubble was born and raised in Missouri, studied for a few years in Britain, and after that spoke with an "acquired English accent" for the remainder of his life. Byron Hill, the first superintendent of the observatory, expelled an astronomer from the facility for wearing shorts to lunch. When the telescope began operation, women were not allowed to be staff members or observers. A great deal of progress has been made in the 52 years since the telescope was completed!

I highly recommend this informative and entertaining book. The book's one shortcoming is that the descriptions of the structure of the telescope are woven into the narrative and are sometimes hard to follow. An introduction or appendix containing a clear description of the design would have been helpful.■

CAS Continuing Education Calendar

Bookmark the online calendar at www.casact.org/calendar/calendar.cfm

February 15–March 5—Online Course: Interest Rate Models, CAS Web Site

February 28—Seminar on Reinsurance,* The Roosevelt Hotel, New York, NY

March 7–8—Seminar on Ratemaking, Tampa Marriott Waterside, Tampa, FL

March 17–22—27th International Congress of Actuaries, Cancún, Mexico

April 5–22—Online Course: Introduction to Financial Risk Management for Insurers, CAS Web Site

April 15–16—Special Interest Seminar on The Changing Insurance Market, The Fairmont Dallas, Dallas, TX

May 19–22—CAS Spring Meeting, Hotel del Coronado, San Diego, CA

June 3–4—Seminar on Reinsurance, Westchester Marriott, Westchester, NY

* Limited Attendance

Allocating Surplus—Not!

by Gary G. Venter

Recently a fair amount of actuarial attention has been focused on the problem of how to allocate surplus to business units. Fortunately, this is usually just an academic exercise and is not used by carriers in their business planning process. I say fortunately because actually trying to use allocated surplus to make business decisions is a risky undertaking and can easily lead to wrong conclusions.

An Intermediate Calculation

Allocating surplus is not an end in itself. Surplus is allocated in order to make some other computation, most often to calculate the return (or risk-adjusted return[1]) on surplus for each business unit, perhaps for incentive compensation or development of growth strategies.

I will argue that there are other, better ways to accomplish these goals than allocating surplus. Further, there are so many difficult issues in allocation methods that it is not likely that an appropriate distribution will be produced.

Difficult Issues

To start, some of statutory surplus is taken up by statutory reserving requirements, including the difference between the fair value of liabilities and the undiscounted expected value that must be carried. It seems logical to allocate this portion of surplus to the lines with the offending reserves. However, these reserves do not necessarily increase the economic surplus that the company wants to carry—they just hide part of it. The fact that this portion of surplus is hidden in a reserve account does not mean that the line generating the reserve is actually using up that surplus. It is still there and may be protecting all of the policyholders against true insolvency. Making the wrong call on this step of the allocation could end up penalizing truly profitable business.

Another difficult issue is how to handle long-tailed payouts. You could treat the existing reserves as part of the line and allocate surplus to them. Or you could forecast the time that reserves will be needed on new business and allocate surplus to future years. But in the latter case you have to deal with the question of how to charge the future surplus to today's results.

Although there are a number of different allocation methods in the literature, a large class of them can be formulated as a two-step process. In the first step, pick a risk measure such as variance, VAR, tail-VAR[2], and the like. Then pick an allocating principle that will allocate surplus as a function of the selected risk measure. Candidates

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[1] A typical adjustment is to replace actual catastrophe experience with its expected value. It seems unusual to call this a risk adjustment. Does this serve to equalize the target return across lines of business?

[2] A *consistent risk measure* has been defined as a function H of the aggregate loss distribution F(x) that meets certain consistency axioms. It has been shown that all such can be represented by a probability distortion function g(y) on the unit interval that satisfies the formula $H[X] = \int x\,dg(F(x))$. The tail VAR at the 1 percent level is the special case where g(x) = (x - .99)/.01 for x>0.99, and g(x) = 0 otherwise. Thus it is the expected aggregate loss for the largest 1 percent of aggregate losses, i.e., E(X|X>99th percentile). Numerous other consistent risk measures can be defined using other g functions, such as $g(u)=u^a$, or $g(u) = \Phi[\Phi^{-1}(u) + \lambda]$.

CAS Launches New Scholarship

The CAS has established a new scholarship program for students pursuing a career in actuarial science. The CAS Trust Scholarship Program will award up to three $1,500 scholarships to deserving students for the 2002-2003 academic year. The scholarship's intent is to further students' interest in the property/casualty actuarial profession and encourage pursuit of the CAS designation. A committee comprised of academic professionals and External Communications Committee and University Liaison volunteers will administer the scholarship in conjunction with the CAS Office.

Applications are available in the "Academic Community" section of the CAS Web Site (www.casact.org).

To be eligible, an applicant must be a U.S. or Canadian citizen or permanent resident and admitted as a full-time student to a U.S. or Canadian institution. Applicants must also have demonstrated high scholastic achievement and strong interest in mathematics or a mathematics-related field.

Recommendations, transcripts, actuarial exam results, work experience, and written essays will all be considered in selecting the award recipients. Completed applications for the upcoming year are due by May 1, 2002. Additional details on application requirements are available through the CAS Web Site.

Established in 1979, the Casualty Actuarial Society Trust affords CAS members and others an income tax deduction for funds contributed and used for scientific, literary, or educational purposes. Trust donations from 1997 to 2001 from D.W. Simpson and Company have totaled $60,000 and helped the Trust balance reach a level that would support an annual scholarship program.■

Random Sampler
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include allocating in proportion to one of the following: the risk measure applied to the line losses, the marginal risk measure the line adds to the rest of the company, the marginal risk measure the last *peso* of premium in the line adds to the rest of the company, or the average (taken over all possible coalitions the line or a policy from that line can enter into) of the marginal risk measure the line or policy adds to the coalition. This average is called the game theory or Shapely approach, after an early developer of game theory.

The two-step method has some appeal but also a degree of caprice. (I guess it is not unique in this.) One problem is that there is no strong financial theory to tie the return definitively on a line to the allocated surplus. Making compensation and growth decisions on such a basis may not be optimal.

Just as an example of the differences the choices of the two steps can make, in 2001 there was a call for papers to analyze a hypothetical insurer, recommend a reinsurance program, allocate capital, and a few other things. The papers are published in the 2001 Spring *Forum*. Two of the papers responding were from actuaries working at U.S. subsidiaries of Swiss Re and Munich Re: "DFA Insurance Company Case Study, Part II: Capital Adequacy and Capital Allocation" by **Stephen W. Philbrick** and Robert A. Painter (Swiss Re), and "Preliminary Due Diligence of DFA Insurance Company" by **Raju Bohra** and Thomas E. Weist (Munich Re).

With apologies to the authors for some fudging, to get the results in a common format and to add up to 100 percent, the capital was allocated to line approximately in the chart above.

The allocation methods were not all that different. Both papers used the game theory approach. Neither separately evaluated the surplus from statutory vs. fair value reserves. The Philbrick and Painter paper's risk measure was tail VAR, while the Bohra and Weist paper's risk measure appears to be variance, but the main difference in allocation seems to arise from a different treatment of the time the capital is needed. Thus one approach hits long-tailed lines hard, while the other hits catastrophe-prone business.

	PP	BW	PP/BW	BW/PP
Workers Compensation	41%	11%	3.73	0.27
Auto Liability	26%	29%	0.90	1.12
Home/CMP(Property)	11%	51%	0.22	4.64
Auto Physical Damage, etc.	1%	1%	1.00	1.00
GL/CMP(Liability)	21%	8%	2.63	0.38

PP – Philbrick and Painter; BW – Bohra and Weist

Both methods seem to be based on reasonable although somewhat arbitrary assumptions. But since one method assigns four times as much capital to a line than does the other method, the same profit will generate very different returns. A given line of business could look extremely profitable or a waste of effort, depending on the method chosen.

Alternatives To Allocating

There are other methods of allocating capital besides the two-step method, but there is no room here to go into those. However, reasons for not allocating capital go beyond the fact that it is difficult to do so. For example, allocating could lead to violations of the economic principle of marginal pricing.

Suppose that writing a new policy in a line of business requires $x in capital over and above what is required for the existing book, and it costs $y to get this capital. If the expected profits from the policy exceed $y, then the firm adds value by writing this policy. This is marginal pricing—policy profits should cover the cost of writing that policy. The result could be different from allocating all the capital of the firm to policies *in proportion to* the marginal capital needed. That could end up allocating more than the marginal capital to the new policy. If the policy did not generate enough profits to cover the extra allocated capital, it would look like a losing proposition, when in fact it adds value to the firm.

This is just like fixed and marginal production costs in manufacturing. If unit pricing is more than the marginal unit costs, you should sell more. This does not necessarily cover the fixed costs, but the more you sell at a marginal profit the better chance you have of covering the fixed costs. Allocating all the capital is like trying to cover existing average fixed costs in every policy, and thus could lead to wrong decisions when evaluating growth opportunities.

Marginal capital can be evaluated by the increase the policy produces in some risk measure for the firm. However, the cost of the marginal capital is the key element in this analysis, and there are ways to estimate this cost without directly calculating how much marginal capital is needed. Recent approaches try to evaluate the marginal capital cost as the change in the cost of an option—for instance, the value of the default option inherent in the limited liability of the corporate form—that is produced by writing the policy. For more information on this topic, read Stewart C. Myers and James Read's AIB Working Paper, "Capital Allocation for Insurance Companies," which was published in August 2001 by the Automobile Insurers Bureau of Massachusetts. This paper is available at www.aib.org/RPP/Myers-Read.pdf.

Another way to evaluate growth opportunities is to look at policy pricing in comparison to a good theory of risk-based market pricing. If the actual price exceeds the market price, then selling it covers the risk associated. The CAS Risk Premium Project and recent papers by **Shaun Wang** develop such pricing theories. This method provides a theoretically sound direct measure to tell if a book of business is generating adequate profits.

Of course, if you really want to allocate surplus, you could allocate enough surplus to a policy so that the return from the market risk pricing equals your target return.■

A United Actuarial Profession...

FOR

by Donald F. Mango

I support the unification proposal in **Clive Keatinge**'s opinion piece, "A United Actuarial Profession Makes Sense" (*The Actuarial Review*, November 2001).

First, from the point of view of the general public, unification may be a nonevent, since we effectively already are one profession. Distinctions among pension, life, health, and property/casualty are similar to those among electrical, mechanical, and civil engineering: practice areas within a single discipline.

Second, where are the compelling arguments for the separation? Our counterpart societies around the world do not separate life from nonlife (as the European actuaries would say). The similarities and potential synergies are striking. Are there any arguments for maintaining separation that cannot be overcome in a well-structured unification process? I have yet to hear any.

"Are there any arguments for maintaining separation that cannot be overcome in a well-structured unification process? I have yet to hear any."

Keatinge's concept of self-directed practice areas within the larger organization means the value of the casualty actuarial designation will be preserved. I have heard concerns that a unified actuarial society would allow "cross-over," with, for example, life and pension actuaries taking property/casualty actuarial positions (although arguably the converse could occur as well). Speculation like this certainly speaks poorly of property/casualty actuarial hiring practices. What property/casualty firm would hire someone for a senior property/casualty actuarial role solely based on an "indivisible" designation? Experience always has been, and will continue to be, the predominant factor in hiring. If further "protections" are needed, the new designations could be extended to include practice-specific suffixes, for example.

Financial services convergence: Firms like Citigroup now struggle to consistently measure and price the risk of life, pensions, annuities, disability, health, auto, homeowners, general liability, workers compensation…not to mention their own asset holdings. I was contacted recently by a financial risk manager from such a firm, who wanted to allocate capital across all these categories. He asked if actuarial science had a "unified insurance risk theory." Sadly, I had to inform him that no such theory existed, in no small part due to the

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AGAINST

by John B. Mahon

As a CAS candidate I take issue with Clive Keatinge's proposal to replace the CAS and the SOA with a single new organization (*The Actuarial Review*, November 2001). This would be ill-advised for the CAS membership. The resulting organization would be mostly members from the former SOA. A quick review of the various actuarial society Web sites shows about 3,400 CAS members to about 16,000 SOA members. More importantly, the ratio of Fellows is about one to four (2,061 CAS Fellows to 8,545 SOA Fellows). In both Societies voting privileges are granted upon Fellowship. Given the overwhelming weight of life actuaries in this new organization, one would expect that most committees and votes would represent the majority viewpoint of the life actuaries. The current proposal contains an internal governance board for casualty actuaries to protect the interests of casualty actuaries. The only thing that I see changing here, as compared to the current organization, is that a "CAS-like" board would now need to fight off unwelcome decisions that come from higher up, from a majority that has its own interests.

"Any contests between the two governances undoubtedly will be arbitrated from above, where the four-to-one majority of life actuaries will shape the final result."

The CAS currently sponsors many major events, including the spring and annual meetings, and ratemaking, loss reserves, and reinsurance seminars. Once a single organization is created, all the dues, organizational staffs, and other resources will be pooled, and then reduced because one organization is more efficient. The casualty governance board will have to duel for access to these resources to continue to organize and present these seminars and meetings. Any contests between the two governances undoubtedly will be arbitrated from above, where the four-to-one majority of life actuaries will shape the final result. What has improved here? From the point of view of casualty actuaries, there are fewer resources available, and they have to fight to access them.

The proposal boasts that interaction between casualty and other actuaries will be increased by a joint organization. Although this will cause modest synergies, the much greater synergistic effect is garnered from casualty actuaries gather-

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For

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separation between the societies. How much longer can our profession afford to give such an answer? It is imperative for the future of the actuarial profession as a whole that we formulate and communicate a joint theory and practice of risk evaluation.

Hybrid vigor: Paraphrasing Peter Drucker, innovations in the information economy will increasingly come as a result of "cross-over" from other industries. The SOA is far ahead of the CAS in asset modeling and asset-linked products, and has developed the concept of the QRA designation, the Course 7 modeling seminar, and innovative continuing education techniques. The CAS efforts in DFA, catastrophe modeling, and credibility theory would certainly benefit SOA members as well. The insurance industry as a whole would benefit from the cross-pollination of ideas between our societies.

Critical mass: The Strategic Plans of both the CAS and SOA speak of a desire to broaden the scope of the profession beyond traditional insurance domains into "financial risk management." Joining forces would only improve the prospects for the success of these plans for the profession as a whole.

Keatinge proposes the creation of a new joint organization. This is critical to the success, for a combination is more palatable than a takeover or annexation. It is also easier when creating anew to blend the best of both predecessors, while eliminating ineffective prior structures and practices.

Bottom line: This is not a crazy idea! Keatinge's proposal is well considered, realistic, and provides a realizable plan. With a reasonable, sustained effort, this could actually happen. I wish to add my name to the list of those in support of this critical step for the future of our profession.■

Against

From page 7

ing and sharing ideas of common interest, and it seems that this is threatened.

There is no need for the current basic educational systems of the CAS and the SOA to be coordinated. In both systems the passing student is qualified with an impressive depth of knowledge. The issue of coordinating the educational systems of the CAS and the SOA hinges on trade-offs. The benefit anticipated is more efficient use of resources, and the cost is less flexibility in exam content. History has shown that casualty actuaries consistently want different content in their exams as compared to life actuaries. These differences have been shown in the current problems with Exams 3 and 4, where the exam content has been determined by groups dominated by life actuaries and the casualty actuary students' performance has degraded. Is it really worth a small savings in examination resources to give up the ability to tailor the education to the needs of the practice?

The two-journal versus one-journal argument is unpersuasive. There are pros and cons to either situation. The current two-journal situation provides more freedom for the individual disciplines to referee their own journals; the articles are naturally grouped by interest areas. With the proliferation of the Internet, access of published material across practice lines is not a problem. Any interested person can view the contents of either of these journals. One cannot see sufficient motivation for reorganizing the entire structure of actuarial societies based on collecting actuarial publications into one journal.

Comparison of United States actuarial practice with that in the rest of the world may not be the best way of determining the future for the CAS. After all, there is more casualty insurance in the U.S. than anywhere else. In the United States, the actuarial profession evolved separate casualty and life professions in response to increasing complexity of casualty insurance, specifically, the advent of workers compensation insurance. In other countries, the actuarial profession develops based on the evolving economic, legal, and political environment of the country. The actuarial organization in a country is likely to be "right" for that country. There is no assurance that it is right for another country with a different economic, legal, and political history.

History and nature abound with examples that show that the natural progression is from generalization to specialization. For example, Sir Isaac Newton did state-of-the-art mathematics, physics, and astronomy. Today, these are each scientific disciplines in their own rights. In the natural world, one needs look no further than Darwin's evolution theory for examples of progression from generalization to specialization. It is no surprise that the U.S. actuarial profession developed the specialization represented by the evolution of the two Societies. We are the only ones, simply because we happened to get there first.

Foreign countries represent a huge diversity of economic, political, and legal environments, which are powerful influences in shaping the actuarial profession that develops within each country. Indeed, it was the promulgation of workers compensation coverage in 1911 that is almost entirely responsible for the existence of the CAS. It is ridiculous for any actuarial professional society to think that it can form itself so that it can seamlessly interface with all or most foreign actuarial professions. While it is important to continue to forge relations with actuaries around the world, this should not be a prime motivation for altering the structures of professional organizations in the United States.

Reviewing the constitution of the CAS we are reminded that the organization is dedicated to advancing actuarial knowledge concerning property/casualty issues. It is not clear how deciding to merge and losing identity and control would further this cause. The leadership of the CAS is better encouraged to continue to pursue the issues that it is presently considering, such as reducing travel time and studying the loss of students to competing careers. I would further encourage the CAS leadership to initiate the process to resume control of Exams 3 and 4, so that they can determine the content and passing scores that are optimal for the property/casualty practice.■

Opinion

CAS Needs to Restructure Exams 3 and 4

by Stephen P. D'Arcy and Richard W. Gorvett

At its November 2001 meeting, the CAS Board of Directors passed a resolution charging the admissions committees and the Executive Council with designing and preparing Exams 3 and 4 that are appropriate for casualty actuaries. A task force has been assembled to implement this charge. The board resolution stipulated that the SOA would be invited to join in whatever changes are implemented, but that the CAS is prepared to develop independent exams if necessary. Although this is simply the latest step in the continuing process of revising these exams, for many CAS members the announcement of this action was their first notice that changes in these exams were planned. This article attempts to explain, from the authors' point of view, the problems with Exams 3 and 4 and the process that has led to this decision, so that all CAS members can understand the situation that has led to this resolution.

Background

As faculty trying to determine how to prepare actuarial students for the new exams, we recognized some of the problems inherent in Exams 3 and 4 as soon as the 2000 syllabus readings were announced and sample questions posted on the CAS Web Site. Essentially, a great deal of material on "modeling" was split into two new exams: Exam 3-Actuarial Models, and Exam 4-Actuarial Modeling. This material included life contingencies, survival analysis, loss modeling, stochastic processes, simulation, credibility, regression, forecasting, and time series. One problem with the revised exams was that several texts were on the reading lists for both exams in a manner that would make it hard to prepare students for an individual exam. Since a single university class would normally cover all of the relevant material in a particular text, it was immediately apparent that students would, to some extent, be preparing for Exams 3 and 4 together, potentially slowing exam progress. In addition, one of the readings announced in the 2000 *Syllabus* was not yet available.

A second problem was that many of the texts were not suited for self-study. These books appeared to be more appropriate for a classroom setting where a knowledgeable professor could explain the material.

Finally, the sample exams posted on the Web site generated concern. Many of the posted questions were not relevant to casualty actuarial work. While it is fine to have high standards for passing actuarial exams, there is no sense testing material rigorously if it is not likely to be relevant to the needs of future casualty actuaries.

Thus, even before the first joint offerings of Exams 3 and 4, many observers raised questions about the appropriateness of the material and the content. These questions were raised by academics, others involved in actuarial education, and the students themselves, the groups most directly affected by these changes.

CAS Responses

In recognition of these concerns, three months before the first offering of the new exams the CAS Board appointed a task force to evaluate Exams 3 and 4. The purpose of this task force was to review the exams and make any recommendations regarding necessary changes as soon as possible. In October 2000, the task force submitted its report to the board, which is available on the Exams Section of the CAS Web Site under "Information and Discussion." The report's primary findings included the following:

1. Action on these exams needed to be taken.
2. A significant number of the learning objectives were beyond what casualty actuaries need to know, particularly on Exam 3.
3. The amount of material on the exams needed to be reduced, particularly on Exam 3.
4. Many of the readings needed to be replaced or revised. More emphasis needed to be placed on the practical rather than the theoretical.
5. The exams appeared to be particularly difficult for those currently working, rather than those in college.

This task force's work led to several beneficial changes on these joint exams. **Stuart Klugman** has graciously written a study note to replace the Chapter 2 material of his textbook that is on Exam 3. He is currently working on an Exam 4 Study Note. Another change inspired by the work of this task force is that the readings on credibility for Exam 4 were changed to include readings from CAS sources, including material by **Stephen Philbrick** and by **Howard Mahler** and **Curtis Gary Dean**. Also, the amount of reading material and the number of learning objectives were reduced. In addition to these changes, the members of the Examination Committee have devoted substantial time and effort to improve the quality of the questions on each exam.

Despite these changes, problems remain, such as distributing topics between the exams and overemphasizing life contingencies. While some improvements were made, the CAS Board concluded that the improvements did not sufficiently resolve all the issues with these exams and that further changes were necessary.

In November 2000, the CAS Board appointed another task force to develop a contingency plan to revise Exams 3 and 4 in the event that current efforts were unsuccessful. The Exams 3 and 4 Contingency Plan Task Force agreed that the amount of material on the two exams should be restructured and reduced, and proposed two alternatives for accomplishing this task. One pro-

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Exams 3 and 4

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posal continued to have two exams, but proposed covering modeling, stochastic processes, and simulation on the first exam, and life contingencies, credibility, regression, forecasting, and time series on the second exam. It was expected that the first exam could be offered jointly with the SOA, but that the second exam would be offered independently. The other proposal was to replace Exams 3 and 4 with a single exam covering modeling, credibility, and life contingencies, with the other material (simulation, stochastic processes, regression, forecasting, and time series) moved to other exams.

While reviewing the task force reports, the board paid attention to the pass ratios on the exams. The figures from the first three exam offerings are summarized below.

Exam 3				
Date	CAS Workers	All Workers	Students	Total
May 2000	15%	29%	44%	32%
Nov. 2000	20%	29%	54%	36%
May 2001	33%	38%	60%	43%

Exam 4				
Date	CAS Workers	All Workers	Students	Total
May 2000	23%	27%	69%	34%
Nov. 2000	30%	33%	59%	37%
May 2001	35%	38%	54%	41%

In order to understand the reasons for the relatively low pass ratios for CAS workers, we reviewed the actual exams offered in November 2000. On Exam 4, there were four questions (17, 37, 39 and 44) that fewer than 20 percent of the candidates answered correctly—less than the percentage that random guessing would produce, given that these are multiple choice exams with only five possible responses. There were another nine questions (9,13,14, 19, 20, 24, 28, 30 and 33) that CAS workers answered correctly much less often than non-CAS candidates. Not surprisingly, seven of these questions (all but 13 and 19) were life contingencies questions.

These considerations suggest that CAS candidates are at a disadvantage relative to life candidates on Exam 3, due to the extensive joint coverage of life contingencies material, and that working candidates are at a disadvantage relative to students on both Exams 3 and 4, due to the nature of the readings on these exams. Thus, it would appear to make sense to restructure the exams to avoid concentrating on material that favors one specialty over another on a joint exam, and to make the exams as relevant as possible to the casualty actuarial profession.

At its May 2001 meeting, the CAS Board directed the admissions committees to seek creative solutions to reduce the level of life contingencies material tested for CAS candidates. The board also adopted a motion that stated it had reviewed the report of the contingency plan task force and, as a general direction for change, expressed a preference for the two-exam option. At a later board meeting, the admissions committees indicated that they had not been able to come up with an acceptable short-term solution to the life contingencies issue. Also at a later board meeting, CAS Vice President-Admissions **Mary Frances Miller** reported that the SOA was reluctant to restructure the joint exams now, since it was starting to work toward a major restructuring proposed for 2005. Thus, if the CAS does not act independently to restructure Exams 3 and 4, the only changes likely to occur over the next four years are to replace some of the readings with new material and continue to improve the quality of the questions incrementally. The CAS will still have the problem of overemphasizing life contingencies and covering closely related material on modeling over two exams. We are concerned that joint exams will continue to ask questions that are more theoretical than practical.

Issues and Concerns

A key concern is the relevance of these exams to the casualty actuarial profession. Interestingly, one problem that the Examination Committee is now experiencing is difficulty in obtaining CAS volunteers to work on Exam 4. When asked to participate, many members respond that they either are not familiar with this material, or are not applying it in their work. This suggests that, from a casualty actuarial perspective, we might be testing inappropriate material on this exam. Another issue is the degree to which life contingencies are currently being tested. It is important to recall a prior experiment, approximately twenty years ago, with jointly testing life contingencies material. After only a few years, this process was changed and, up until the recent changes in 2000, this material was offered separately between the Societies, via SOA Exam 150 and CAS Exams 4 and 4A. Now, we are again confronting the basic issue that casualty actuaries simply need to know less about life contingencies than do life actuaries, are less familiar with life notation, and will devote less effort to learning this material.

Another concern about the nature of the reading materials on these exams is the difficulty of self-study. The CAS draws members from a wide array of colleges and majors. A recent survey indicated that only about one in six CAS members had been enrolled in an actuarial science program in college. This diversity represents an important source of strength for the CAS. However, the current exam structure, with its emphasis on material best covered in a classroom setting, threatens this diversity.

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There was relatively little membership input with respect to the changes that led to the current jointly sponsored Exam 3 and 4 structure. The current debate emerging among CAS members regarding the present status of Exams 3 and 4 is a healthy process, and should help facilitate the board's making appropriate decisions in this area. Our hope is that this article will further inspire a constructive dialogue with regard to training future casualty actuaries. For those interested, the current syllabus and exams can be viewed on the CAS Web Site in the "Exams" Section.

***

D'Arcy and Gorvett served on the second and first task forces, respectively.■

Ethical Issues Forum

Another Rush Job

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.

Actuary Bill, ACAS, works for Last Minute Insurance Company (Last Minute) in their actuarial department. Last Minute is a large multiline insurer that writes high-risk casualty business. Because of the type of business written, Last Minute cedes a significant amount of business to numerous reinsurance companies. The majority of Bill's work relates to the complexities of Last Minute's reinsurance arrangements. As usual, Bill's assignments are not given to him until the day they are due, which forces Bill to rush through his work.

Bill's latest assignment, which is due at the end of the day, is to estimate the loss reserves for a large reinsured block of business that Last Minute wants to commute with its reinsurer. Last Minute will rely on Bill's estimate for the transaction. Bill realizes there is simply not enough time to perform a rigorous analysis but figures he can make a rough estimate of the reserves using some shortcut assumptions. Since the commutation is scheduled to take place at the end of the day, there is not enough time for a peer review of Bill's calculations. Once the commutation takes place, it will be too late to make any changes or corrections to Bill's analysis.

A little voice inside Bill's head tells him that he has a professional obligation to refuse to do the assignment given the unrealistic deadline. Although Bill believes his analysis will be inadequate for the purpose of performing a commutation, Bill wants to please his company and doesn't want to risk losing his job. Ultimately, Bill decides to carry out the assignment and figures he will not violate the Code of Professional Conduct (Code) as long as he informs his boss of the limitations of his estimates. Included among his limitations is the statement that his estimate is preliminary and therefore should not be relied upon until further analysis and peer review can be done. Are Bill's actions in violation of the Code?

No

Oftentimes, actuarial work is performed under some kind of limitation, such as data availability, budget, and time, which can affect the quality of the actuary's work-product. These limitations, however, should not preclude the actuary from accepting assignments just because the analysis, based on the circumstances, may be less than ideal. Since Bill is disclosing the limitations of his work, he is taking reasonable steps to ensure that his work is not inappropriately used as is required by Precept 8 of the Code.

Precept 1: An Actuary shall act honestly, with integrity and competence, and in a manner to fulfill the profession's responsibility to the public and to uphold the reputation of the actuarial profession.

Annotation 1-1: An Actuary shall perform Actuarial Services with skill and care.

Precept 8: An Actuary who performs Actuarial Services shall take reasonable steps to ensure that such services are not used to mislead other parties.

Yes

Given the timing, it is highly unlikely that Bill will be able to perform the assignment with skill and care, which would be a violation of Annotation 1-1 of the Code of Professional Conduct (Code). Although Bill intends to warn his boss of the limitations of his analysis, he should be aware that the intended use of his estimate will be in direct conflict with his limitations. Therefore, it would be misleading for Bill to accept the assignment given the circumstances, which would be a violation of Precept 8 of the Code.■

New Zealand Society of Actuaries Fall 2002 Conference to be Held in Rotorua

The New Zealand Society of Actuaries' next biennial conference will take place in Rotorua, in north central New Zealand, from November 13-15. The meeting venue, Rydges Rotorua, is situated in a garden-like setting adjacent to the Arawa Racecourse and offers some of Rotorua's most spacious hotel rooms. See www.rydges.com.au for details. The Society encourages overseas attendees, both actuaries and nonactuaries, to contribute to the professional program. Those interested in discussing a paper at the conference, should contact the program coordinator, Anton Gardiner (phone 64-9-476-9144; e-mail anton.gardiner@clublife.co.nz). Program details will be announced in due course. For further information, please contact the Society's office (phone/fax 64-4-477-1519; e-mail society.actuaries@clear.net.nz).■

New Fellows and Associates Honored

New Fellows, first row, from left: Dean M. Winters, Elizabeth Susan Guven, Heather L. McIntosh, Russell J. Buckley, **CAS President Patrick Grannan,** Maryellen J. Coggins, Richard James Engelhuber, Bradley G. Gipson, Richard Scott Krivo. **Second row, from left:** Kevin B. Held, Gary S. Traicoff, Jason R. Abrams, Sean Robert Nimm, Neil M. Bodoff, Richard M. Chiarini, Sara Frankowiak, Hayden Heschel Burrus, Thomas V. Le. **Third row, from left:** David R. Kennerud, Eric Vaith, John R. Rohe, John T. Devereux, Michael J. Miller, Joseph Allen Smalley, James P. Leise. **Fourth row, from left:** Christy Beth Olson, Lisa N. Guglietti, Apryle L. Oswald, Kathleen T. Logue, Matthew Allen Lillegard, Susan E. Kent, Christine R. Ross, Dennis H. Lawton.

New Fellows, first row, from left: Edward J. Zonenberg, Parr T. Schoolman, Eric D. Besman, Julie-Linda Laforce, **CAS President Patrick Grannan,** Steven Brian Oakley, Windrie Wong, Weishu Fan, Robert J. Walling III. **Second row, from left:** Peter Attanasio, Christian Lemay, Mario Richard, Louis-Christian Dupuis, Scott C. Kurban, Craig D. Isaacs, Kevin Francis Downs, Anju Arora. **Third row, from left:** Jeffrey J. Clinch, Jeremy James Brigham, Brian K. Turner, Glenn R. Hiltpold, Robert F. Wolf, Patrice Jean, Christian Menard. **Fourth row, from left:** Susanlisa Kessler, Isabelle La Palme, Amy L. Gebauer, Beth S. Thompson, Jill C. Cecchini, Curt A. Stewart, Kah-Leng Wong, Jennifer L. Throm.

New Fellows, first row, from left: Steven George Searle, Richard Michael Holtz, Stephen A. Alexander, Randall William Oja, **CAS President Patrick Grannan,** Bryon Robert Jones, Dustin Wayne Gary, Jeremy Todd Benson, Jennifer S. Vincent. **Second row, from left:** Kevin D. Burns, Brian D. Haney, Michael C. Torre, Craig Victor Avitabile, Kristen Maria Bessette, Kristin Sarah Piltzecker, Richard F. Kohan, Sean M. Kennedy, Nasser Hadidi. **Third row, from left:** Mary K. Woodson, Susan Elizabeth Innes, Christopher S. Throckmorton, Klayton N. Southwood, Rodrick Raymond Osborn, Mark D. Heyne, Corine Nutting. **Fourth row, from left:** Cosimo Pantaleo, Katherine H. Antonello, Michael Joseph Christian, John R. Pedrick, Louise Chung-Chum-Lam, Cara M. Low, Susan K. Johnston. **Fifth row, from left:** Aaron Michael Larson, Robb W. Luck.

at the 2001 CAS Annual Meeting

New Associates, front row, from left: Bill D. Premdas, Larry J. Seymour, Vagif Amstislavskiy, Daniel P. Post, **CAS President Patrick Grannan**, Michael J. Covert, Kofi Boaitey, Keith R. Gentile, Barbara L. Kanigowski, **Second row, from left:** Hye-Sook Kang, Stoyko N. Nikolov, Scott L. Negus, Brian M. Donlan, Justin M. Van Opdorp, Robert S. Weishaar, Anthony A. Solak, Kiera Elizabeth Doster, Charles W. Mitchell. **Third row, from left:** Joel E. Atkins, Jason L. Grove, Hall D. Crowder, Scott E. Henck, Stuart J. Hayes, Kyle A. Falconbury, Mary A. Theilen. **Fourth row, from left:** Erich A. Brandt, Christopher L. Cooksey, Maureen B. Brennan, Teresa Madariaga, Pamela G. Anderson, Alejandra S. Nolibos, Stacey M. Kidd, Jennifer A. Charlonne. **Fifth row:** Scott H. Drab.

New Associates, first row, from left: Jeff B. McDonald, Geraldine Marie Verano, Erik A. Johnson, A. David Cummings, **CAS President Patrick Grannan**, Ronald S. Cederburg, Joseph J. Muccio, Jeremy D. Shoemaker, Gaetan R. Veilleux. **Second row, from left:** Laurie A. Knoke, James S. Shoenfelt, Ryan P. Royce, Paul L. Cohen, Stephane McGee, Robin V. Fitzgerald, Sally Ann MacFadden. **Third row, from left:** Amy R. Waldhauer, Daniel A. Lowen, Long-Fong Hsu, D. Joe Burbacher, Run Yan, Steven A. Smith II, Erik L. Donahue. **Fourth row, from left:** Hao Chai, Wei Hua Su, Gregory L. Dunn, Stephane Lalancette, Peggy J. Urness, James E. Calton, Alan M. Chow, Amanda M. Levinson.

New Fellows not pictured: Sharon C. Carroll, Wayne W. Edwards, Jonathan Palmer Evans, Theresa Giunta, Karl Goring, Weidong Wayne Jiang, Steven M. Lacke, John N. Levy, Joshua Nathan Mandell, Jason Aaron Martin, Richard Ernest Meuret, Sylvain Nolet, Dylan P. Place, Asif M. Sardar, Theodore S. Spitalnick, Laura Little Thorne, Cameron Jason Vogt, Kelly M. Weber, V. Clare Whitlam, Jeanne Lee Ying.

New Associates not pictured: Esther Becker, Marie-Eve J. Belanger, Brent Carr, Leanne M. Cornell, Thomas Cosenza, Ruchira Dutta, Patrick P. Gallagher, Genevieve Garon, Christie L. Gilbert, Christopher J. Grasso, Donald B. Grimm, Katherine Jacques, Gregory O. Jaynes, Brian B. Johnson, Dana F. Joseph, Lawrence S. Katz, Anand S. Kulkarni, Matthew E. Morin, Norman Niami, Dianne M. Phelps, John T. Raeihle, Giuseppe Russo, Larry J. Seymour, Brett M. Shereck, Junning Shi, Karine St-Onge, Edward Sypher, Jean P. West, William B. Wilder, Jennifer X. Wu.

'02 Research Conference Set For Waterloo

University of Waterloo is hosting the 37th Actuarial Research Conference, August 8-10, 2002, in Waterloo, Ontario, Canada. The conference traditionally has been the central meeting for North American academics and researchers interested in actuarial science.

The conference is cosponsored by the CAS, Actuarial Education and Research Foundation, the Society of Actuaries, and the five other actuarial organizations in North America. To ensure a spot on the program, participants who would like to make presentations must submit an electronic copy of their title and abstract by **June 17, 2002**. Each year the papers presented at the conference are published in the *Actuarial Research Clearing House* (*ARCH*). The *ARCH* containing the 2002 conference proceedings will be published electronically. Additional information about the conference can be found at www.stats.uwaterloo.ca/Stats_Dept/arc2002.html.■

2001's Top Stories for Casualty Actuaries

How They Ranked and Why

Rank	News Story	Actuarial Significance	# Votes		
			Sum	#1 or #2	Total
1	September 11 terrorist attacks	Impact on market conditions, coverage and availability issues; new perceptions about risk (See story page 15).	673	45	45
2	Underwriting market hardens—price and terms	More direct reliance on the work of pricing actuaries.	564	20	44
3	Mold claims give rise to claims and coverage crisis	Need to price this exposure. Illustrates the type of major event that needs to be incorporated in future pricing and risk scenarios.	398	6	38
4	Reinsurance scarce for terrorism; Feds contemplate role	Actuaries must help evaluate exposure and risk profiles, capital requirements, pricing, and viability of certain markets and coverages.	391	6	33
5	Reliance and others put into liquidation, rehab, or supervision	Management and regulators need help from actuaries to identify whether a company is strong or in jeopardy and which actions will affect its condition.	370	3	36
6	Asbestos claims up sharply; some defendants declare bankruptcy; Lloyd's resists some claims	Actuaries modeling and projecting the ultimate financial impact of asbestos. How can actuarial models anticipate the "next" asbestos?	320	1	31
7	Insurers and corporations appoint chief risk officers	Enterprise risk management catches on. Actuaries are needed to help understand, quantify, model diverse risks—and their interplay.	213	1	23
8	Insurer mergers, acquisitions, and spinoffs continue	Actuaries involved in mergers and acquisitions analyses. Actuarial jobs affected by these corporate transactions.	208	0	23
9	U.S. economy sluggish	Actuaries must project turning points and changing trends in key variables that affect insurer revenue, expenses, and claims.	202	1	20
10	Additional new capital and new reinsurers in Bermuda	New players need good analytical abilities.	195	0	22
11	Enron bankruptcy	Illustrates the intertwined nature of diverse risk sources and the opportunity for the future to perform differently than the past.	170	1	17
12	Increasing E&O claims against professionals	Actuaries are among the potential targets.	152	3	17
13	Stock market weakens	Increases pressure for underwriting results to be self-sufficient.	143	0	16
14	Anthrax threats: coverage issues for workers compensation, liability, business interruption	Designing and pricing business interruption. Yet another example of extreme events that may occupy the tails of risk distributions, but really do occur.	122	1	14
15	Poor workers compensation underwriting results	Will actuaries be given and effectively take the opportunity to help make better future decisions?	94	0	10
16	Insurers struggle to hire enough talent	There are many opportunities for actuaries. More generally, may affect the ability of some insurers to execute their business plans.	85	0	10
17	Emerging insurer opportunities in China, India, and Russia	New territories where there is little casualty actuarial track record—will we respond or will some other professionals?	74	1	8
18	Various insurers receive rating downgrades	Another definition of capital adequacy.	63	0	7
19	IRS stops challenging deductions for premiums paid to owned captives	Remove another perceived impediment to self-insurance trends; more corporations may need actuarial help.	59	0	7
19	California workers compensation market shakeout	Winners and losers; what is the right price for the coverage?	59	1	6

Top Ten

From page 1

these top stories also illustrates the complexity and difficulty of the problems that actuaries are being asked to tackle, in collaboration with other members of management teams. Clearly, the actuary of the future will find no shortage of intellectual and technical challenges.

This year's number two story, the hardening of the underwriting cycle, was third in last year's survey. Respondents noted that as the market hardens, prices are based more directly on expected costs, and the pricing actuary is likely to have a direct impact on the improved industry results that should emerge from the hardening market.

Mold claims against homeowners policies was selected as the number three story. As homeowners insurers grapple with the coverage questions surrounding the current influx of mold claims, as well as evaluation and resolution of those claims, actuaries are considering the direct pricing implications. Further, the financial implications of these claims provide an ex-

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9/11: Implications for Casualty Actuaries

by Robert F. Conger and Vincent F. Yezzi

September 11 is one of those historical events, along with very few others, for which we will remember where we were and what we were doing while we watched the horrific events unfold. For casualty actuaries, the implications range from the very human to the extremely analytical. Certainly the human toll of the events hit close to home as we realized the number of insurance and other financial organizations housed in the World Trade Center complex; as we tallied the number of actuaries, colleagues, and friends whose offices were in or near the WTC; and as we learned the identities of the September 11 victims. We were saddened to learn that some in our immediate professional community and their family members were among those lost, but we also were grateful for the number who escaped.

Many of our employers and clients also had immediate and practical challenges: locating all of their employees, colleagues, and families; providing grief and stress counseling; getting employees safely home; finding alternative office space; making alternative arrangements for shipping; rescheduling and rethinking future meetings; handling claims, claim payments, and claim inquiries; dealing with cash needs; and helping their clients' clients who were directly affected.

As the days and weeks passed, we began to reflect on some of the longer-term implications for our country, our way of life, our economy, and our sec-

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Top Ten

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ample of the type and magnitude of extreme events that dynamic financial analysis models need to anticipate.

Another "claims" story, asbestos, was number six for 2001. Unlike mold claims, this story has been around for decades, but in recent years has surprised many observers with a renewed surge of claims. Actuaries are facing the challenge of revisiting projections of the ultimate financial toll of these claims on their employers, and also anticipating the characteristics of future events that may draw on the premium and capital dollars of today.

The number four story was the scarcity of reinsurance protection for terrorist events in the aftermath of September 11. As the federal government contemplates a possible role in this arena, actuaries are working with their management teammates to evaluate the implications for the exposure and risk profiles of their companies, the capital requirements, and possible responses such as coverage exclusions, withdrawals from certain coverages or markets, and pricing changes.

Three of the top ten stories related to the transformation of the insurance industry through new formations (No. 10: the establishment and capitalization of new reinsurers in Bermuda); acquisitions, mergers, and divestitures (No. 8: the continuing mergers and acquisitions activity); and liquidations (No. 5: Reliance and other companies put into liquidation, rehabilitation, or supervision). The speed with which several major companies slid from apparently solid financial ratings to liquidation, with little time for regulatory intervention, is prompting questions about the effectiveness of various regulatory financial checkpoints, some of which involve actuaries. In addition, actuaries are involved in analyzing company formation and merger/acquisition transactions, which affects the jobs and markets in which actuaries work.

This year's seventh story was the appointment of chief risk officers by various insurers and corporations. This marketplace trend reflects the growing recognition of the importance of evaluating and managing all dimensions of an organization's risk holistically. Actuaries have an important role to play in understanding, evaluating, quantifying, and modeling the diverse set of risks and their interactions.

Finally, the story rated ninth was the sluggish U.S. economy. Respondents noted that many casualty actuaries have worked primarily during an era of continuous economic growth. Anticipating the impact of economic turning points—and a weaker economy—on revenue, expense, and claim outlooks will require a change of thought processes for some actuaries.

As in prior years, this year's candidate stories were culled from the trade press to be externally oriented, and not intended to review CAS internal actions. In the first round of the survey, participants, drawn from CAS committee chairs, past presidents, Board of Directors, executive council and Regional Affiliate presidents, narrowed and consolidated an initial list of approximately forty stories. The first round of this Delphi study also highlighted reasons for top selections by various voters. The second round invited voters to review their initial selections. The final scores were tallied using a sports polling method (15 points for first place down to 6 points for tenth place).

Continuing this year are the prizes for the best first-round predictors of the final consensus of all participants. **Shelly Rosenberg** won top honors for naming all of the top eight stories, as well as for selecting rankings most closely aligned with the final ranking of the top ten stories. **Gail Ross** named nine of the top ten stories, and finished second in ranking the top ten stories, followed closely by **Ralph Blanchard**. Blanchard was one of our winners last year also. **Patricia Furst** and **Walt Wright** followed in fourth and fifth places this year.

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

Volunteering Sharpens Leadership Skills

When her company downsized in 1995, **Regina Berens** had a distinct advantage over other jobseekers. Prior to being downsized, Berens had been placed on the ballot for the CAS Board of Directors. That serendipitous timing helped her land her next job.

Name recognition and exposure are just a few of the many benefits of volunteering in the CAS. Berens, CAS Committee on Volunteer Resources (COVR) chair, joined **Dale Porfilio**, **Daniel Roth**, and outgoing COVR chair **Roger Schultz** in a panel discussion of CAS volunteer opportunities during the 2001 CAS Annual Meeting in Atlanta. The session familiarized attendees with the advantages of volunteering, the process, and COVR's role.

Benefits

For the panelists, volunteering gave them a better view of the actuarial profession and allowed them to get involved in areas that interested them. Roth spoke about his passion for getting people involved in actuarial science. He found his opportunity as a University Liaison to his alma mater, Northwestern. Roth's contact with the university has not only been a gratifying experience for him but has also aided his company's recruiting process.

COVR's Role

Responsible for the "care and feeding" of CAS volunteers, COVR operates with the goal of increasing volunteer involvement and improving volun-

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9/11: Implications

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tor of the economy. Somewhere on that list, is the question of the implications for the work of casualty actuaries. We asked Top Ten survey respondents to help identify some of the most important of these implications.

For the work of casualty actuaries, the four implications most frequently cited by the respondents all relate to conditions in the property/casualty underwriting market. The most frequently cited implication was the acceleration of the general hardening of the property/casualty insurance market. In a close heat for second were: the introduction or expansion of terrorism and nuclear exclusions in policy language and in reinsurance terms; the decreased availability of insurance and reinsurance; and the increased cost of reinsurance. Each of these implications changes the economics and dynamics of the markets our employers and clients operate in, and can change the very viability of those markets. Actuaries are directly involved in evaluating these different markets and in evaluating cost implications. Where our employers and clients are buyers (of insurance or reinsurance) rather than sellers, actuaries may be involved in helping devise strategies and pricing implications for our clients' and employers' own products.

The fifth most frequently cited implication is the likely change in business interruption coverage. Historically, relatively few casualty actuaries have been significantly involved in analyzing or pricing this coverage. September 11 has raised the visibility of business interruption coverage, prompting questions about what is or is not covered, to what degree it is covered, and under what situations. We may expect to see some buyers and sellers (and regulators) rethinking their positions on this coverage, and some entrepreneurs introducing creative new products responding to the business need. Actuarial analysis of the expected costs and risk characteristics of the potential exposures would be helpful to all parties.

The implications cited sixth, seventh, ninth, tenth, and eleventh all relate to evaluating "risk": the uncertainties and probabilities surrounding our employers' and clients' business plans. Respondents noted that September 11 requires that we think about risk in a new way; that we recognize and quantify the possibility of new sources of risk; and that we expand our prior thoughts as to a "worst case scenario." Certainly our employers and clients will have a better understanding of the concept of "worst case scenario." Respondents also observed that the events of September 11 illustrate the intertwined nature of risk: one event can affect every insurance coverage; it can affect multiple insureds in multiple locations; it can affect an insurer's operations and investments at the same time the event is affecting policyholders; and it can create a multitude of ripple and shadow effects after the fact. This new awareness and sensitivity will affect the way we factor risk into our work: from calibrating DFA models, to modeling clash covers, and from pricing an exposure that was not previously recognized, to considering the capital requirements of our employers, our clients, and their insurers/reinsurers.

The eighth most frequently cited implication for casualty actuaries related to the level of industry capitalization as well as other implications cited less frequently. Specifically, respondents noted the immediate impact of September 11 on the current financial condition of insurance companies. Companies so affected need to rally their management teams, including actuaries, around rethinking some aspects of their business. Another implication cited by various respondents was the emergence of new capital and new players in the aftermath of September 11. These new players will need some actuarial support to devise their strategies, evaluate their risk positions and capital structures, and underwrite and price their products.

Finally, respondents noted several practical business issues that need to be addressed: defining insurable events, and establishing firm policy terms and language prior to binding coverage.

The array and range of September 11 implications identified in this informal survey makes it clear that casualty actuaries will be affected in significant ways, regardless of the geography, market segment, and job title of their daily work.■

ERM Is Vital to the Future of CAS

The CAS should take a leadership role in the development of Enterprise Risk Management (ERM) as a modern management discipline, according to the Final Report of the Advisory Committee on Enterprise Risk Management. The complete report, which was accepted by the CAS Executive Council in December 2001 and includes the committee's charge, work process, results, recommendations, and additional thoughts, is available on the CAS Web Site in the Research section under Committee/Task Force Projects.

To guide its work, the committee developed a working definition of ERM as "the process by which organizations in all industries assess, control, exploit, finance, and monitor risks from all sources for the purpose of increasing the organization's short- and long-term value to its stakeholders." The committee concluded that ERM presents an opportunity to create a compelling business-relevant framework for the currently unconnected parts of the casualty actuarial discipline. Properly unified, these component strengths should make CAS members the primary candidates for chief risk officer positions, allow the actuarial knowledge base to be perceived as a valuable commodity in industries well beyond insurance and financial services, and aid in the recruitment of young professionals to the actuarial career.

The committee conducted a thorough and systematic assessment of CAS research and education needs on the subject of ERM, the centerpiece of which was a formal survey of the CAS membership. Its report provides a set of specific recommendations to meet those needs, all of which the CAS Executive Council (EC) approved.

In the area of research, the committee recommended that 12 specific topics within ERM be the subject of focused research. The committee also recommended that a standing ERM Research Committee be formed to direct and monitor this research and take responsibility for related tasks such as maintaining an updated ERM bibliography (the committee has drafted an initial bibliography), providing advice and content to the CAS committees that plan ERM-related seminars and workshops, partnering with other professional organizations as appropriate, developing ERM messages for the CAS to communicate internally and externally, and designating ERM media spokespersons.

In the area of education, the committee recommended a series of approaches in specific areas to close the gap between current and desired level of knowledge within each element of the ERM framework, which specifies the risk types covered by ERM and the sequential steps of the risk management process. These approaches range from exam syllabus treatment to annual ERM seminars and ERM tracks or sessions within existing seminars, to self-study guidance, depending on the subject area within the framework. These recommendations reflect the expressed preferences of the CAS membership regarding education methods, and will be carried out through existing CAS committees. To assist these committees, the committee drafted a complete set of "learning objectives" for each element of the ERM framework.

With its work complete, the EC will recommend that the board disband the Advisory Committee on ERM, which was staffed by **Michael J. Belfatti**, **Martin Cauchon**, **Edgar W. Davenport**, **Kevin G. Dickson**, **Charles C. Emma**, **John J. Kollar**, **John R. Kryczka**, **Marc-Andre Lefebvre**, **Lawrence F. Marcus**, **Jerry A. Miccolis** (chairperson), **Mary Frances Miller** (EC liaison), **Chris E. Nelson**, **Andrew T. Rippert**, **Joseph W. Wallen**, **Bill S. Yit**, and **Theodore J. Zubulake**.■

25 Years Ago in *The Actuarial Review*

by Walter C. Wright

Clive Keatinge's argument in favor of a united profession, printed in our November 2001 issue of The AR, *prompted responses from Donald Mango (for) and John Mahon (against). We urge members to make their views known on this important topic. Curiously, this topic was of major concern 25 years ago, as shown in* ***George D. Morison****'s "From the President," which appeared in the January 1977 issue of* The AR*:*

One of the first requests that reached me on returning from San Diego was to help in the selection of a Fellow of the Society of Actuaries to chair a committee which was being formed to engage in discussions with representatives of the Casualty Actuarial Society and other actuarial organizations. I mention this incident to illustrate, in very dramatic fashion, just how far we have progressed in collaborative efforts among the several actuarial organizations.

To our newer members, such actions might appear quite normal and logical, but to those who were involved in CAS leadership roles in years past—when the very existence of the Society was often overlooked—this new status might well be viewed as a major achievement.

It seems to me that an awareness of this brighter (in the eyes of other actuaries) image of the CAS should help our members to consider and discuss the subject of amalgamation of actuarial organizations in a less emotional atmosphere than in the past. As **Harold Schloss** reports elsewhere in these pages, some earlier discussions have indeed been fraught with "emotional overtones." It is my contention that we need no longer react emotionally to the concept.■

FINANCIAL REPORT
FISCAL YEAR ENDED 9/30/2001

FUNCTION	INCOME	EXPENSE	DIFFERENCE
Membership Services	$1,061,832	$1,483,473	($421,642)
Seminars	1,355,019	1,126,175	228,844
Meetings	574,678	654,658	(79,980)
Exams	2,593,427 (a)	2,530,386 (a)	63,041
Publications	34,664	32,874	1,790
TOTALS FROM OPERATIONS	$5,619,620	$5,827,566	($207,947)
Interest Income			199,305
Unrealized Gain/(Loss) on Marketable Securities			48,912
TOTAL NET INCOME (LOSS)			$40,271

NOTE: (a) Includes $1,628,025 of Volunteer Services for income and expense (SFAS 116).

BALANCE SHEET

ASSETS	9/30/2000	9/30/2001	DIFFERENCE
Checking Accounts	$30,029	$368,491	$338,462
T-Bill/Notes	3,511,251	3,102,104	(409,147)
Accrued Interest	43,006	37,791	(5,215)
Prepaid Expenses	90,789	59,492	(31,297)
Prepaid Insurance	16,719	19,737	3,018
Accounts Receivable	2,980	48,715	45,735
Textbook Inventory	3,499	174	(3,325)
Computers, Furniture	406,702	390,925	(15,777)
Less: Accumulated Depreciation	(307,174)	(297,268)	9,906
TOTAL ASSETS	$3,797,801	$3,730,160	($67,641)

LIABILITIES	9/30/2000	9/30/2001	DIFFERENCE
Exam Fees Deferred	$325,339	$466,121	$140,782
Annual Meeting Fees Deferred	44,605	32,345	(12,260)
Seminar Fees Deferred	42,750	1,050	(41,700)
Accounts Payable and Accrued Expenses	349,159	246,072	(103,087)
Deferred Rent	2,652	0	(2,652)
Unredeemed Vouchers	14,400	0	(14,400)
Accrued Pension	50,016	45,875	(4,141)
TOTAL LIABILITIES	$828,921	$791,462	($37,459)

MEMBERS' EQUITY Unrestricted	9/30/2000	9/30/2001	DIFFERENCE
CAS Surplus	$2,561,879	$2,602,150	$40,271
Michelbacher Fund	110,185	116,245	6,060
CAS Trust	63,628	85,827	22,199
Research Fund	160,972	117,718	(43,254)
ASTIN Fund	54,910	0	(54,910)
Subtotal Unrestricted	$2,951,574	$2,921,941	($29,633)
Temporarily Restricted			
Scholarship Fund	$6,610	$6,475	($135)
Rodermund Fund	10,695	10,283	(412)
Subtotal Temporarily Restricted	$17,305	$16,758	($547)
TOTAL MEMBERS' EQUITY	$2,968,879	$2,938,698	($30,181)

Sheldon Rosenberg, Vice President-Administration

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

CAS Audit Committee: Frederick O. Kist, Chairperson; Ralph S. Blanchard; John F. Gibson; and Anthony J. Grippa

Nonactuarial Pursuits of Casualty Actuaries

Jammin' With Actuaries

by Marty Adler

I have previously observed that actuaries add evidence to the correlation of mathematical and musical ability. In this issue we feature a jazz musician, one who has jammed with at least three other members of the CAS.

Our Fellow inherited his talent. His mother was a classically trained violinist who stopped playing to raise five children, all of whom took piano lessons. Three continued on to other instruments. His oldest sister has been a church organist and sang with the Pro Arte Chorus on the Carnegie Hall stage. His older brother is a fine trumpet player who has played at the Washington National Cathedral.

Our Fellow started piano at age six and trombone at nine. In ninth grade he played in the Northern New Jersey Regional Band. In college he taught himself the electric bass and formed a rock cover band that played at fraternity parties and local bars. Their first gig started at 2:00 a.m.!

After college he joined an original rock band led by songwriter Ray Donato. For a while fellow actuary **Joe Palmer** was the keyboard player. They played "showcase" sets (usually 45 minutes) in clubs around New Jersey and New York City. *The Aquarian*, a weekly music magazine, reviewed them very favorably.

While still taking actuarial exams, perhaps to relieve some of the pressure, he started hosting an informal living room session on Sunday afternoons called "We Be Jammin'." He was joined by guitar players **Paul Klauke** and John Morley (a former student now training for a higher profession—the priesthood), and later trumpeter **Alex Maizys** joined.

Upon completion of his FCAS, our Fellow purchased an upright double bass (it plays an octave below the written music) and, taking advantage of all that free time, began practicing and taking lessons. He had recently formed "Swing Unit" with his brother Sam on trumpet and guitarist Scott Smith, a CPCU. (The band's name came from the part of the hospital to which his mother had been moved when her health improved.) After playing the double bass for three months, he brought it to his gigs instead of the electric bass.

From left: Bud Ayres – double bass; Sam Ayres – trumpet; and Scott Smith – guitar.

At present he studies with two teachers. Nate Lienhard, who plays in the Joe Morello trio, teaches him weekly in New Jersey, focusing on classical technique using the Rabbath method books. Michael Moore, currently in the Dave Brubeck quartet, works with our Fellow about once a month on jazz technique, playing "time" (keeping the beat at all tempos) and learning tunes to develop a repertoire.

"Lessons, rehearsals, gigs, and practicing account for somewhere between 500 and 1,000 hours a year with the bass, an interesting replacement for study time."

Lessons, rehearsals, gigs, and practicing account for somewhere between 500 and 1,000 hours a year with the bass, an interesting replacement for study time. He has had opportunities to sit in with Morello and has attended jam sessions and joined other musicians. He feels fortunate to have taken lessons with many prominent bass players, including Michael Zisman, Todd Coolman, John Goldsby, Rufus Reid, and Jeff Eckels. The brotherhood of the bass is very inclusive. Those fine gentlemen have helped him without hesitation.

Playing jazz has provided our actuary some interesting experiences. He and his band have played at New Jersey's top jazz spot, Shanghai Jazz in Madison. He played in a trio at his niece's wedding in Bridgewater, New Hampshire. Packing his bass in a van, he then took a bicycle trip in northern New England. In Blue Hill, Maine he sat in with the musicians playing at the inn. The building where he formerly worked hired a prominent Broadway piano/keyboard player to play in the lobby during lunch hours in December. On several occasions our actuary sat in with him.

On one Sunday this past December his band was the headline entertainment in a fundraiser for the Juvenile Diabetes Research Foundation at New Jersey's Meadowlands. Although his group competed with clowns, face painting, games of chance, and food, more than 1,000 people wandered in and out as the band played. The room was quite a contrast to the clubs where they ordinarily play, which are about the size of a large room. The event had replaced the annual walk in Liberty State Park in Jersey City, which was canceled after September 11.

William "Bud" Ayres considers himself still developing as a musician. Bud is expending energy to improve and become accomplished. Nevertheless, jazz is a difficult living. Gigs today often pay no better than they did 20 or 30 years ago, although the musicianship is better. So Bud will still consider opportunities to use his actuarial expertise.■

Election Process

From page 1

Purple: The ballot does include the same information from the petitioned candidates as for the selected candidates. The task force did consider that the candidate by petition is at a disadvantage.

Khury: The petitioned candidate ...may be seen as a troublemaker, because they were not endorsed. That is a bad connotation, even though the petitioned candidate may well be a well-qualified person.

Shoop: One of the problems is that petitioned candidates are seen as interlopers. It is unfair to the petitioned candidate. The timing issue should be easy to overcome and eliminate.

Khury: At the time that the Nominating Committee is seeking candidates to serve, the committee can ask *any* member who wishes to be considered by the committee to obtain a petition. [This] would level the playing field. Once the Nominating Committee slate is out, the voters would not know who was selected and who was not—and whether the slate was constructed by petition or straw ballot.

Purple: The situation is: who wants to be on the board? At the preferential ballot, a candidate should be able to say, please add me, regardless of whether you choose me. The task force suggested this. Somebody can petition before the Nominating Committee publishes the slate of recommended candidates. Then the voters would not know who had not been selected. The board did not accept this recommendation. The feedback was that the board strongly wanted the voters to know who the endorsed candidates were. One other comment that I have is the difficulty of getting people interested in serving. Many people have work or family commitments. It takes time and effort to serve.

Shoop: Any process that weeds out those who don't really want to serve is good. Folks have marital, job, or personal issues that can be time-consuming. For these reasons they are not good candidates. Also, I don't understand this problem with being a "loser." If someone is so sensitive, they shouldn't seek office, because once in office they'll get criticism from all quarters anyway. Further, if there was a problem getting people to serve, perhaps they would be more willing to serve if the process made more sense or if the demands on their time were less.

Khury: Then you lose them.

Shoop: I have no problem with losing people who didn't want to be there in the first place. Otherwise, we are back to keeping them and having a contrived election.

Khury: I really do not think it is contrived so long as there is the right to petition. Some people will say anything to get elected. As long as the questions are not on the issues, if it gives you any insight into their willingness to work, it's good.

Shoop: I disagree. The questions should be on the issues. When I run, I want to get elected because people know where I stand on various issues. If they like what I stand for then I will get elected, and I will get elected for the right reasons.

Khury: I could see a process where each candidate responded to three or four questions, not on the issues, but on their ability and qualifications, plus one open-ended question.

Purple: The task force did not recommend a discussion forum where anybody could ask any question of the candidates. Also, the task force did not want to see debates. The time commitment in responding to unlimited questions from that process and the possible back and forth discussions, seemed too time-consuming. Also, a debate might only show who was a better debater or who has the most time to respond to questions. The question that I would like to see asked of the candidates is, "What do you see as the most important issues facing the CAS over the next two or three years?" Also, I'm not averse to some discussion of the issues.

Schwartz: *Currently, Associates have no voting rights. Three suggestions that have been aired are: a) give Associates the same voting rights as Fellows; b) count an Associate's vote as "half" of a Fellow's vote; or c) give Associates the same voting rights as Fellows, but only after they have been Associates for some time (say ten years). What is your view?*

Purple: I would like to see Associates become Fellows. If they have an incentive, they are encouraged to do so. If they are career Associates, maybe they [could] get voting rights. I don't feel strongly against that. However, I wouldn't want them to get full voting rights immediately upon first attaining the Associate level.

Shoop: I favor alleviating what I see as the Associates' total disenfranchisement from the voting process. The CAS leadership does not seem concerned. Somehow, the Associates should have a voice.

Khury: Under your scenario, Ed, would an Associate be eligible to serve on the board or as president?

Shoop: I would be in favor of it.

Khury: If the Associates attain full membership rights then we are begging the question: Is the main event going to be attaining the Associate level, with full voting rights? And if so, that is like getting your Bachelor's degree. Then some people take advanced courses and go on to get their Master's degree; that's Fellowship. I believe this is the implication of the Shoop proposal. Should Associates gain full voting rights? I don't know. It is a problem. There should be a higher level that all are encouraged to obtain. The Academy is an example of the opposite paradigm. If you are an Associate, you can become a member of the Academy. Another way of looking at it is that the Academy members are at the lowest common denominator of professional status rather than the highest. That is where the issue resides. If this were the choice in terms of what constitutes the main event of belonging to the CAS, I would probably argue against full voting rights. In any event, I think the issue of voting rights has to be placed in a larger context.

Shoop: I agree that the Associate designation should not be the principal designation. I don't know what the alternative would be. However, I strongly feel that Associates should get some recognition in the voting process. Again, I believe it is a question of will on the part of the CAS leadership. If

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Election Process

From page 20

the will is there, it can be achieved.

Schwartz: *Are there any additional comments that you want to make on the CAS election process?*

Khury: In Sir Thomas More's *Utopia*...life is ideal. Elections are held. One representative is chosen for every sixty families, serves two years, and then comes back to his family. If caught campaigning to be selected, he can't serve—ever, in his lifetime. Once they have been chosen to serve once, they can't serve again. This is how I see the CAS system. It is a process of choosing or drafting those who we want to serve. The more we move away from this vision, the more likely we are to lose the ball game of volunteer self-governance. All that the elected board and president should do, is to serve the members. The CAS election process should be true to this ideal. No member should ever be caught campaigning.

Shoop: I would like to see the CAS election process be more open. It is unfair that the [election] results...for the board are protected and not openly revealed, so as not to hurt anyone's feelings. The perception of an "old boy" network at the top does not work to the long-term advantage of the CAS.

Khury: Do you think the past elections were lacking? Or the past boards? Have the elections produced any real problematic board members or presidents-elect?

Shoop: Any election in which there is only one candidate for president-elect is lacking by definition. That is not my main discomfort. Rather, I would like to see a process where it is easier for a CAS member to facilitate change. It is extremely difficult, right now, to get on the board if your agenda is too strong, or to influence the board. The process is intentionally structured to not be "user-friendly." It is very hard for an outsider to get on the board.

Khury: Actually, it's easy to break in. You build from the ground up. You join a committee, and gradually you move on to serve as chair. You hold more and more positions, on different committees, and you gradually grow into a position of high responsibility. The process is incredibly open, remarkably so. The system is based on people who do things. The strength of the CAS is in its volunteers.

Shoop: Stan, listen to what you just said: "Do lots of service; do it 'our' way; and if we approve, we will let you in…." Actually, I see the CAS culture of volunteerism as possibly being a weakness. The exams are a case in point. We made so many changes to the syllabus, so quickly, and without a well-defined philosophy, that the result was that many students abandoned the CAS.

Khury: We can't get too many people involved in the affairs of the CAS.

Shoop: We're reaching the size where, as the Society grows, more full-time staff should replace the positions of volunteers.

Khury: We currently have a nineteen-person administrative office. It's totally subordinate to the volunteer governance of the CAS. More than forty percent of our Fellows serve on various committees, on a voluntary basis. As we grow, the energy we collectively generate is so vital. *The CAS is alive!*

Schwartz: *Thank you all very much for participating in this discussion.*■

From the President

From page 1

worldwide—or at least multinational—organizations. They will demand that our knowledge base follow (or better, lead) their footsteps.

Further, what are your competitors doing? Who are your competitors: other actuaries? Other employers? Your employer or client's competitors? Other professions that are filling niches actuaries should be filling? Any way you choose to define your competitors, they, too, are increasingly moving to a worldwide base of knowledge.

It all adds up to a requirement that we have access to data from around the world and understand how other parts of the world work. We need this amount of information even if we don't plan to embrace or adopt or adapt that knowledge to our own purposes. Worded differently, it adds up to a rather negative reason to become an active part of the worldwide intellectual community: Do it or get left behind.

Opportunities and Benefits

I am not a big fan of negative reasons (threats, punishments, fears) for people and organizations to do things. These types of reasons often do produce actions and results, but not always through a constructive dynamic.

Consider a more positive perspective, namely, how do we stand to *benefit* from our active participation in increased global development of knowledge?

1. Better data to manage and analyze our business. Certainly as an analyst or business executive, you would access socioeconomic data for a new territory you are entering. Well, the globe is your new territory.

2. Better data to understand the dynamics affecting our business, even locally. With the interconnected global economy and the rapid worldwide cascading of consequences arising out of events occurring elsewhere, knowledge of these events and of these linkages can help us manage our local business better. If a butterfly flapping its wings in Beijing is going to affect the weather in my neighborhood, I want to know how many butterflies are in Beijing, what they are up to, and how that will affect me.

3. Better use of development efforts. Participating in the global development of knowledge avoids reinventing the wheel. If a colleague or competitor already has developed the wheel, I am better off spending my energy inventing the axle or the rubber tire.

4. Better tools with which to do business. By combining ideas and perspectives from different places, cultures, and disciplines (including different professions), we can develop ideas greater than the sum of the parts. Our DFA models are better tools thanks to the involvement of economists, asset

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From the President

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experts, and operational risk experts on our teams. Some of the most exciting client projects I've been involved in have used multidisciplinary teams, such as actuaries, claims practitioners, general management consultants, and experts in human dynamics and organizations. Each brings a unique set of talents, perspectives, and experience to the table; the work-product is more comprehensive, and just plain better, than any one alone could have produced.

5. More fun and intellectual stimulation. Once you have made the decision to participate you will find new opportunities and new ways of looking at the world. It really is fun, and it really does exercise your brain!

Tools and Opportunities

There are many tools and opportunities. I would include:

The Internet. On the CAS Web Site (www.casact.org) we publish information about the CAS, our members, our activities, and virtually all of our newsletters and books, including historical volumes; we provide links to other organizations and other journals; and we host ongoing discussion threads on highly relevant, as well as some frankly irrelevant, topics. Other organizations offer a similarly rich array of resources on their Web sites. Still other Web sites are goldmines of data and information.

E-mail. Sharing ideas with a colleague halfway around the world is quick and effortless.

International meetings and meetings of other professions and other organizations. Take the time to attend or actively participate in one of these and you will find an exciting blend of kindred spirits and different perspectives, common views, and varied backgrounds.

Job relocations. Seek opportunities to work on jobs in other locations or in different kinds of projects. These opportunities need not even involve moving to a new continent. Many organizations need people to work on one-time projects or to collaborate with others in a virtual worldwide team without even leaving their desks. Teleconferencing, videoconferencing, and Internet tools, make these virtual meetings inexpensive and productive.

Impediments

Impediments to developing global knowledge exist in three critical dimensions.

1. Differing legal and regulatory frameworks. Today, much of our work is derived from regulatory requirements, such as the requirement for a statement of opinion on loss reserves. While these requirements have the beneficial effect of involving our profession in critical issues for our employers and clients, these same requirements also often produce the undesirable effect that the work is performed strictly within the narrow confines of that regulatory regime. Another slightly broader example is the tort liability system in the U.S., which is the basis for a huge proportion of our insurance products (and insurance problems!) and for a huge proportion of the work of our casualty actuaries. The considerable intellectual energy that U.S. actuaries spend dealing with the tort system may be of limited use in other jurisdictions; and actuaries from other jurisdictions need to learn about our legal system before they can be effective working on various problems in the U.S.

2. Cultural and language differences. Even within the English-speaking world, we use different phrases and words to describe the same concepts. Some basic actuarial vocabulary and tools differ. These differences, while surmountable, make it more difficult for us to work together, and more difficult for us to collaborate on the development of more advanced tools and ideas.

3. Inertia. It is easier and more comfortable to continue thinking about a problem by ourselves, in the way we are accustomed. I think of a five-year-old unsuccessfully trying to tie a shoe, and insisting, "I can do it myself!" This natural tendency is reinforced by the fact that we are being bombarded and overloaded with sensory and intellectual input from the same kinds of sources, as we would exploit for global knowledge development. We simply don't have the time and energy to sort out what's valuable.

Organizational Initiatives

There are some things that we must do as organizations, and there are some opportunities and needs for us to take individual initiative. As organizations, we need to:

- Make it easy to cross-access papers that have been published by others, examples of actual work-products, and works-in-progress such as the discussion of working parties and committees.
- Publish papers and committee work-products in a manner so that others can access them.
- Cross-collaborate on exams, using measures such as common learning objectives, syllabi, and exams, as well as incorporating one another's material and ideas on our own syllabi.
- Cosponsor and codevelop meetings, seminars, and videoconferences, working with other actuarial and nonactuarial groups to develop content, multidiscipline panels, and presentations, and to deliver that content to a diverse audience.
- Assemble joint committees so that people from diverse perspectives are working together—actuaries from around the globe, and actuaries working with nonactuaries.
- Work towards mutual recognition and granting practice rights to appropriately educated and experienced actuarial colleagues, creating both the incentive and the opportunity to practice around the world.
- Think more broadly than mutual recognition. Mutual recognition is a concept derived from the regulatory frameworks. A more important path in the long run is to develop and promote the capabilities for actuaries to do the work that has real business value outside the regulatory framework, because this kind of work has global value without needing to be translated between different regulatory frameworks. We can see some excellent examples in the programs of meetings such as the recent GIRO/CAS meeting in Glasgow; and in the incubating work the profession supports in de-

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From the President

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veloping DFA as a real tool to address business issues such as reinsurance strategy, asset allocation, and capital analysis. Other incubating efforts are underway today in wide-ranging areas such as enterprise risk management, asset/liability management, customer value measurement, business planning, catastrophe modeling, refined classification analysis and loss prediction models, and data mining, as well as working with nontraditional employers and occupations. I am convinced that these new areas are the key ingredient to converting our steady diet of regulatory compliance work into a feast of business and intellectual opportunities.

Individual Initiative

Take a risk and get involved in a project that is outside your comfort zone. That's where we do some of our best growing! More specifically:

Talk to people in other disciplines and other countries about a problem you are working on. Get their input and ideas. Invite people in other disciplines and other countries to participate with you on a committee or working group, or on a project.

Attend a meeting in another country or of another profession. While there, talk to those folks. Work with someone from another country or profession to present a paper or an idea. Look at other organizations' Web sites.

Write down an idea you have had, or that you have used on a real problem. Don't worry if it's not the biggest idea ever. Small incremental ideas add up in a big way. Write it down and share it, so that others can use it, and can add to it.

Participate in a committee or working group, in your own organization or others. Get involved in a project at work that is not just regulatory-compliance based. Be open—listen and learn.

Global knowledge development: the need exists and the potential business and intellectual benefits are huge. Come to the feast with your own contributions, and be prepared to enjoy the offerings of others. A banquet awaits!■

Brainstorms

Zero-Sum Contracts

by Stephen W. Philbrick

An article in the local paper, reporting a bonus payment to University of Maryland Coach Ralph Friedgen for taking our team to the Orange Bowl, caught my attention for two reasons. As a Marylander I am happy to see the football team step up into the ranks of the elite. As an actuary, I was intrigued to see that the $300,000 bonus cost the school $15,000. (The taxpayer in me was also happy.)

The school purchased an insurance policy "against" the unfortunate occurrence of a bowl invitation. The premium in this case is probably reasonable, given losing seasons for Maryland in prior years. The price for, say, University of Florida, would be much higher.

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The actuarial pricing of performance bonuses raises some intriguing issues. Some schools probably work on the assumption that they are almost certain to go to a bowl game, and wouldn't even offer a contingent bonus. Effectively, it would be priced into the salary.

While a few elite programs expect to go to bowl games on a regular basis, the likelihood for most of the 117 Division I football programs is fairly low. Consequently, the risk associated with any payoff is fairly high. The contract will either pay the total amount, or zero.

As is the case with other insurance contracts, a company cannot justify writing a single contract. A company wants to write a number of contracts with little correlation between the contracts. The law of large numbers will operate, and while the total risk will grow as contracts are added, the risk grows at an ever-slower rate. With a sufficient number of contracts, the risk margin required for each one can be modest.

However, these performance contracts have a potentially interesting feature. The number of teams that will go to a bowl game is fixed. One team managing to win a few extra games and go to a bowl invariably means another team will be crowded out. If a company could write such a contract for every single Division I school, it would know precisely how many contracts will have a claim. The aggregate risk actually drops to zero, even though each individual contract has substantial risk.

In practice, the ideal cannot be met. Not all schools will offer performance bonuses, the terms may differ, and the amounts are likely to differ. This probably turns out to be a benefit. While each contract contains risk transfer, if someone could literally write a contract on every school, someone might step in and argue that the set of contracts, taken as a whole, do not constitute risk transfer. Alternatively, some organization other than an insurance company might decide to offer such a product. So it may be good news that the best achievable market penetration would still have underwriting risk.

Another interesting attribute is the perceived chance of loss as compared to the true chance of loss. For many coverages, such as auto liability, the policyholder believes he or she is less likely to have a claim than is actually the case. The price seems high, based upon this unrealistic belief of a low frequency of loss. Sports fans, on the other hand, are more apt to overestimate their chances

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Double Squares

by John P. Robertson

Some squares look as if they should be expressed in two halves. For example, $9805^2 = 96138025$ looks like $31^2\_195^2$ because $31^2 = 961$ and $195^2 = 38025$. Also, $60526^2 = 3663396676$ looks like $1914^2\_26^2$, with $1914^2 = 3663396$ and $26^2 = 676$.

In this crossnumber puzzle, $\mathbf{x}^2 = \mathbf{y}^2\_\mathbf{z}^2 = 1000\mathbf{y}^2 + \mathbf{z}^2$. Numbers going across are denoted by capitals, and numbers going down are denoted by lowercase letters. Each cell in the diagram above at the right contains one digit, and there are no zeroes in the completed diagram.

A	a	b	Bc	d
Ce			D	
E		F		

x	y	z
A/2	e/6	E
4F	2b/e	C/4
5a	7d/5	B/3
c	B/3	D/3

This puzzle was created by John Gowland, and is used with permission.

Card Trick

The last issue's puzzlement was as follows. Amy has seven cards numbered 1, 2, 3, 4, 5, 6, 7. She randomly deals three each to Bill and Celia, keeping one for herself. All three people then look at their cards. Can Bill and Celia communicate with each other, in the presence of Amy, so that Bill and Celia can each determine what cards the other holds, but Amy will not know who holds any given card, other than the one that she herself holds?

I had in mind a very simple, elegant solution, and several readers submitted this solution. But the CAS never ceases to amaze me. Alex Kozmin submitted a solution that is even simpler. The solution that I had in mind was that Bill and Celia each announce the remainder when the sum of their cards is divided by 7. As the sum of all seven cards has a remainder known to all, namely zero, this gives Bill and Celia enough information to deduce Amy's card, and hence the cards held by the other. But, for each possible pair of remainders that Bill and Celia could announce, there are enough ways each pair could arise that Amy cannot determine any card held by either Bill or Celia. For instance, if Bill announces, "6," and Celia announces, "1," then the possible cards for Bill and Celia are {1, 2, 3} and {4, 5, 6}, or {2, 5, 6} and {1, 3, 4}, or {3, 4, 6} and {1, 2, 5}. Amy cannot determine a single card held by either Bill or Celia.

How could this be made any simpler? Kozmin proposes that Bill announce his remainder, and that Celia then simply announce Amy's card.

Robert Ballmer, **Bob Conger**, **Jon Evans**, Chris Noble, Yipei Shen, **Ed Shoop**, **John Stenmark**, and David Uhland also submitted solutions. There was one anonymous submission.■

Volunteering

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teer satisfaction. COVR provides potential volunteers with information on logistics, such as types of interaction (conference calls as opposed to face-to-face meetings) and administrative tasks. COVR monitors how committees are staffed and gathers statistics on volunteers by using the Participation Survey. On the Participation Survey, potential volunteers can review various committee time obligations and expectations. COVR also promotes member involvement, encouraging committee leaders to choose new members instead of recruiting already active volunteers. To offer even more support to volunteers, COVR has organized a Volunteer Advisory Program that pairs new volunteers with seasoned volunteers who can answer questions and provide guidance.

Learning to Lead

Working on committees is an education in leadership, the panelists concluded. Schultz emphasized that learning leadership skills hones one's ability to influence people—a valuable personal and business skill.

For more information on how to get involved in the CAS, look for the 2002 Participation Survey, which will be distributed and posted on the CAS Web Site in June.■

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of winning. Last year's winners expect to repeat. Last year's losers assume that it was an off-year, and this year will be better. While few Maryland fans "expected" that Maryland would make it into a bowl, most probably would peg their odds at better than the 20-1 (or worse) implied by the premium. The head of an athletic department waxing eloquently about the next year's prospects will have to at least feel guilty to complain about the price of the contract.

At the extreme, this is an example of a zero-sum game, where there is still risk at the individual participant level. Sports offers the clearest examples where contingent bonuses for achieving playoffs have the desired attributes: risk at the individual contract level, but little risk when aggregated. Contests for scientific breakthroughs could be structured this way. There may be other examples, or perhaps a clever insurance company could create situations, in which contracts could be structured with risk at the contract level, but minimal risk in aggregate.■