The Actuarial Review

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From the President

Educating Actuaries for the Future

by Robert F. Conger

A bright young actuary I know recently remarked that some of us more senior actuaries can be pretty dangerous when we start poking around inside a spreadsheet. My colleague even joked that I should be issued a computer-operating license with specific restrictions—just like a senior citizen might have driver's license restrictions. At least I think it was a joke....

Joking or not, there's a legitimate point here. During the time I was pursuing my Fellowship, most insurance company computers were accessed through clumsy and expensive timeshare arrangements; computer instructions were written, line-by-line, in painstaking languages (the instructions were appropriately designated as "code"); and most calculators sported four functions. The first desktop computers and primitive spreadsheet programs were just gaining a toehold in the marketplace. Imagine, for a moment, that I worked tremendously hard in the early years of my career to learn all the ins-and-outs of FORTRAN programming on a timeshare computer, but only invested a couple of hours a

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2002 Leadership Meeting Focuses on Centennial

PHILADELPHIA, Pa.—CAS leaders gave high marks to this year's CAS leadership meeting, held here on March 26. With an eye on the centennial year 2014, CAS leaders discussed the future vision of the Society.

Each year the CAS president-elect hosts the leadership meeting, which, in the past, has centered on committee management issues and the roles and perceptions of the actuarial profession in the business world. This year, however, CAS President-Elect **Gail M. Ross** chose to envision what success would look like for the CAS at its centennial. Ross noted that while the CAS has a strategic plan, the CAS does not have specific benchmark targets that can measure the Society's progress toward its vision.

Ross teamed up with **Stephen P. D'Arcy**, chair of the Long Range Planning Committee (LRPC), to review proposals and conduct interviews with several firms vying to facilitate this year's leadership meeting. They finally decided on Tecker Consultants, LLC of Trenton, New Jersey.

Most meeting attendees, who included Regional Affiliate presidents, committee chairs,

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Actuarial Roundtable Discussion

The State of Casualty Actuarial Science Today

by Arthur J. Schwartz

In February, four distinguished actuaries and I got together by conference call to discuss the state of casualty actuarial science today. Our panelists include:

Glenn G. Meyers, with Insurance Services Office in New Jersey, has written many papers on risk loads, catastrophe ratemaking, and capital allocation, among many other topics. He has served the CAS on the Examination Committee for several years and on a number of CAS research committees.

Howard C. Mahler currently lives in Boston, teaches actuarial exam seminars, and consults. He has written papers on a variety of topics including workers compensation, credibility, experience rating, retrospective rating, and underwriting profit models. He served for a dozen years on the CAS Examination Committee, including three years as chair of the committee.

Sholom Feldblum works with corporate financial models for Liberty Mutual in Boston. He has written numerous papers explaining actuarial concepts and helping students learn these topics efficiently.

Stephen W. Philbrick is with Conning, a division of Swiss Re, in Baltimore. His paper on credibility con-

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In My Opinion

Fair Profiling

by Walter C. Wright

For the past several years, there has been significant public discussion of racial and ethnic profiling, generated in large part by the practices of the New Jersey State Police. This discussion increased in the wake of September 11, 2001, related primarily to the use of ethnic profiling as a tool of airport security.

In my opinion, federal officials responsible for airport security should focus on security, and not be overly concerned about the political correctness of "profiling." They should take a lesson from the actuarial profession, and develop standards of practice based on a logical consideration of issues and needs.

When specific acts of discrimination are widely viewed as repugnant, public opinion regarding these acts can change into "politically correct" generalizations. For example, finding that some acts of discrimination are reprehensible leads many people to the generalization that *all* discrimination is reprehensible—the very word "discrimination" is usually used pejoratively, without the need for the modifier "unfair." But discrimination and profiling are not inherently wrong: it just depends on how they are used in practice. Certainly no one who believes in affirmative action, for example, could argue that racial profiling is wrong, per se. Rather than jumping to generalizations, we can judge the good and bad of actual practices and we should hope that government regulators could do the same.

> **"...discrimination and profiling are not inherently wrong: it just depends on how they are used in practice."**

As actuaries, we are used to developing and working with risk classification systems, which are a form of profiling. Although profiling and risk classification are far from identical, there are similarities. Under any risk classification system, individuals are classified according to the expected value of their future costs, frequently using group characteristics (age, gender, health history, and so forth) as proven proxies for these expected future costs. They are required to pay a higher or lower premium than they would pay if they were not members of the particular group or groups to which they belong.

Under systems of ethnic profiling for security purposes, some individuals are screened based on group characteristics (race, apparent ethnicity, country that issued passport) and those who meet certain criteria are then required to submit to some inconvenience, such as being required to have their baggage searched. One objective of airport security profiling is to identify individuals with a higher than average probability of being a security risk, so that they can be prevented from boarding with weapons. This first objective is similar to risk classification for insurance purposes. A second objective is to discourage armed terrorists from even attempting to board planes. If this second objective is fully achieved, then not only will there be no terrorist attacks in planes, but no terrorists will be discovered by airport security checks. Actuaries might think of this second objective as the prevention of adverse selection.

There is a concern for "fairness" of both risk classification systems and profiling. Risk classification systems are judged in accordance with whether they are "fair," and the "fairness," or the lack thereof, of profiling systems has been a major public concern. But "fairness" should be evaluated in the context of the objective of the risk classification or profiling system, and different objectives lead to different definitions of fairness.

One of the primary purposes of risk classification, as stated in Actuarial Stan-

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CLRS and Limited Attendance Seminar Set for Arlington, VA

The 2002 Casualty Loss Reserve Seminar (CLRS), to be held at the Crystal Gateway Marriott in Arlington, Virginia on September 23-24, offers a chance to learn about loss reserves in today's challenging environment. A Limited Attendance Seminar on Asset Liability Management and Principles of Finance will immediately follow on September 24-25.

The venue for this year's seminar also provides a unique opportunity to hear the views of the nation's policymakers on issues related to insurance regulation, terrorism legislation, and the fallout from the Enron bankruptcy. This year's CLRS will offer over fifty sessions covering a variety of topics, including dynamic financial analysis, reserving techniques, and issues related to individual lines of business.

The limited attendance seminar will cover four topics in the areas of finance and financial risk management: "Basics of Finance and Its Applications to Insurance," "Introduction to Financial Risk Management," "Hands-On Sessions: Applications," and "Advanced Topics: New Developments."


Photo Credit: E. A. Smith

The Marine Corps War Memorial in Arlington, VA.

Don't miss this opportunity to participate in these seminars and enjoy the view of our nation's capital! Please visit the CAS Web Site at www.casact.org/coneduc/clrs/2002/index.htm for more information on sessions and registration.■

In My Opinion
From page 2

dard of Practice No. 15, is to be "fair." In the context of the rest of the Standard of Practice, it is clear that "fair" means that insurance premiums should be proportional to expected costs among the risk classes, to encourage widespread coverage and protect the financial health of the financial security system. This definition is widely accepted within the context of insurance, but it can be trumped by public policy issues. In the United States, for example, life insurers are no longer permitted to use race as a risk classification variable, and gender is no longer used for determining pensions. Presumably, these classifications were judged within the context of insurance classification systems, and it was found that their predictive value was not great enough to warrant their use when balanced against other social values.

One purpose of racial profiling, apparently as used by the New Jersey State Police, was to catch drug runners. There was no credible evidence that the use of profiling was effective or justified, and this practice, rightfully denounced as unfair, was discontinued.

The primary purpose of ethnic profiling, as used in airport security procedures, is to prevent terrorist acts on airplanes, thereby maintaining the safety of air passengers and the viability of our air transportation system. In the context of air safety, the inconvenience and possible embarrassment of being searched is minor, and not a cause to claim that civil liberties are being violated.

The Federal Aviation Administration (FAA), however, seems to have opted for a politically correct approach. FAA officials have stated that no one will be singled out for an inspection because of their apparent ethnicity, religion, or national origin. The FAA Web Site states that:

"Protecting the constitutional and civil rights of the American public remains one of our highest priorities. None of the new security measures decrease the responsibility of airports and airlines to enforce (various laws) regarding discrimination. Federal civil rights laws prohibit discrimination on the basis of a person's race[,] color, national origin, religion, and sex."

The FAA should follow the lead of the actuarial profession, and have a standard of practice for profiling. Given profiling's primary purpose, security, the FAA guidelines should be simple:

- Search all passengers, if this is practical. If not practical, then,
- Search passengers at random, with various probabilities of being searched based on the profile of each passenger.
- All passengers should have some probability of being searched. This is necessary to ensure security—if families flying to Disneyland with children are never searched, then terrorists may eventually attempt to match this profile. Also, subjecting all passengers to the possibility of being searched deflates any arguments that the search procedure is unfairly burdensome or intrusive.
- Some passengers may have a 100 percent probability of being searched, based on intelligence information.
- The probabilities should be adjusted on a regular basis to anticipate changes in terrorist profiles, as well as to render the probabilities unpredictable.
- The specifics of the profiling system should be confidential and subject to internal government oversight, but not made available to the public. (With the media coverage about security procedures, for example, what is the likelihood that a terrorist would buy a one-way ticket and pay in cash?)

The events subsequent to September 11 give rise to legitimate concerns about civil liberties. But let's not allow illogical political correctness to interfere with security needs. And let's not trivialize concerns about civil liberties by whining about the role of ethnic profiling in airport security checks.■

ASB Thanks CAS

Dear Editor:

I would like to offer my thanks to the Casualty Actuarial Society and its members for their support and commitment to the Actuarial Standards Board (ASB). Perhaps more than any other actuarial society, the CAS has been proactive in helping shape the standards of practice for the U.S. actuarial community. Let me offer just a couple examples.

Over several years, the proposed standard on statements of actuarial opinion regarding loss and loss adjustment expense reserves generated a lot of interest among casualty actuaries. The ASB received enough comments both before and after the prescribed comment period that we felt a public hearing would help us more clearly understand the many positions that had been espoused in the comments. The CAS graciously allotted us time and space at your 1999 general membership meeting for the public hearing. Several CAS members made comments at the hearing and many more CAS members took time out of their schedules to attend and listen. Most of the input received was accepted and the result was a better final standard.

Earlier this year the ASB revised its handbook. The handbook is primarily an internally focused operations guide. The Casualty Operating Committee of the ASB took it upon itself to review the new handbook and suggest further changes. Again, the initiatives of the casualty actuaries will result in a better final product.

Lastly, I would like to thank some individual CAS members for their efforts. **Phil Ben-Zvi** and **David Hartman** were stand out members of the ASB for many years. They represented the interests of casualty actuaries expertly and tirelessly. **Mike La Monica** and **Karen Terry** are now stepping into the casualty positions on the ASB, while **Bob Miccolis** assumes the chair of the Casualty Operating Committee. My thanks to each of them and to the CAS as a whole for a job well done.

Alan Stonewall, Past Chairman, Actuarial Standards Board

Joint Exams Support Objectives

Dear Editor:

In the August 2000 *Actuarial Review*, **Sholom Feldblum** initiated the public debate on Exams 3 and 4. In last November's *AR*, I published a statistical analysis of Exams 3 and 4. This was followed in February's *AR* by a call for restructuring Exams 3 and 4 by **Stephen P. D'Arcy** and **Richard W. Gorvett**. The debate continues.

D'Arcy and Gorvett state that Exam 3 overemphasizes life contingencies and call for restructuring the exams "to avoid concentrating on material that favors one specialty over another on a joint exam." Let's examine the extent to which the joint exams favor one specialty over another. The tables below provides pass ratios for all the joint exams over the past three sittings.

Exam 1

Date	CAS Workers	All Workers	Difference
Nov. 2000	28%	31%	3%
May 2001	20%	28%	8%
Nov. 2001	34%	30%	-4%

Exam 2

Date	CAS Workers	All Workers	Difference
Nov. 2000	30%	28%	-2%
May 2001	25%	28%	3%
Nov. 2001	28%	34%	6%

Exam 3

Date	CAS Workers	All Workers	Difference
Nov. 2000	20%	29%	9%
May 2001	33%	38%	5%
Nov. 2001	34%	36%	2%

Exam 4

Date	CAS Workers	All Workers	Difference
Nov. 2000	30%	33%	3%
May 2001	35%	38%	3%
Nov. 2001	39%	39%	0%

Some observations:

- The difference in Exam 3 pass ratios between CAS workers and other workers continues to decrease. Note that I identified this trend in my November *AR* article.
- To a lesser extent the same trend holds for Exam 4. But the problem is less severe in Exam 4.
- If one believes that a difference between CAS workers and other workers constitutes a problem, then we should be concerned with Exam 2. In this exam, the difference between CAS workers and other workers is increasing.

We should not restructure Exam 2 because of these statistics. This exam covers finance and economics and I believe that all actuaries need a stronger education in these fields. My point in bringing up the Exam 2 statistics is that we have to go beyond the statistics and look at our overall objectives.

The CAS does have a policy on joint examinations. This policy encourages joint exams whenever the actuarial organizations have "comparable learning objectives." I strongly support this policy. Both students and employers benefit from having as many joint exams as possible. Students will have a greater choice of employers. Employers of casualty actuaries in particular, will have access to a far greater pool of students. More joint exams will allow more time for everybody to find the best fit. In other words, everybody wins.

A qualifier in the above argument is the phrase "comparable learning objectives." For example, I see no need for life actuaries to learn the casualty insurance policy forms. Nor do I see a need for casualty actuaries to learn about the equivalent material about life insurance products. The CAS begins to put this material in our Exam 5. The SOA should be able to put its specialized material in its Course 5.

Life contingencies has been part of the CAS syllabus since the CAS was founded in 1914. I do not believe that the material on Exams 3 and 4 places the casualty actuarial student at a serious disadvantage. The structure for dealing with the problems we do have is already in place. We should utilize this structure and preserve the advantages to all that our joint exams provide.

Glenn G. Meyers, FCAS

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The Whole Truth

by Charles L. McClenahan

When an actuary testifies at a rate hearing, in deposition, or in court, it is generally after swearing or affirming to tell "the truth, the whole truth, and nothing but the truth." The first and third of these promises are fairly straightforward. The second, however, is a bit problematic.

To tell "the truth" means that the answer will contain a truthful response to the question asked. For example: "I selected the linear trend in preference to the exponential trend because, in my opinion, it represented a better projection basis."

To tell "nothing but the truth" means that the truth will not be hidden within a response containing one or more untrue statements. It would be improper to testify that, "I selected the linear trend in preference to the exponential trend because, in my opinion, it represented a better projection basis and because Actuarial Standard of Practice (ASOP) No. 13 states that the linear trend is better than the exponential."

The "whole truth" is more difficult. Rarely will you hear the actuary respond, "I selected the linear trend in preference to the exponential trend because, in my opinion, it represented a better projection basis as it was greater than the exponential trend and I assumed that the hearing officer would not approve the entire indicated rate change so I built in some excess trend."

So, is the actuary who tells the truth and nothing but the truth, but who fails to tell the whole truth, guilty of perjury? 18 U.S.C. 1621 provides:

"Whoever, having taken an oath before a competent tribunal, officer, or person, in any case in which a law of the United States authorizes an oath to be administered, that he will testify, declare, depose, or certify truly, or that any written testimony, declaration, deposition, or certificate by him subscribed, is true, willfully and contrary to such oath states or subscribes any material matter which he does not believe to be true, is guilty of perjury, and shall, except as otherwise expressly provided by law, be fined not more than $2,000 or imprisoned not more than five years, or both."

"...is the actuary who tells the truth and nothing but the truth, but who fails to tell the whole truth, guilty of perjury?"

In 1973 the Supreme Court issued its decision in *Bronston v. U.S.*, 409 U.S. 352, which revolved substantially around the following colloquy:

Q: *Do you have any bank accounts in Swiss banks, Mr. Bronston?*

A: *No, sir.*

Q: *Have you ever?*

A: *The company had an account there for about six months, in Zurich.*

Both of the answers were true, however Mr. Bronston had previously had a Swiss bank account for a period of about five years. While the second answer was literally true, the District Court found Bronston guilty of perjury. The Court of Appeals upheld the conviction holding that "[f]or the purposes of 18 U.S.C. 1621, an answer containing half of the truth which also constitutes a lie by negative implication, when the answer is intentionally given in place of the responsive answer called for by a proper question, is perjury." The Supreme Court reversed, holding that Congress did not intend that perjury include answers untrue solely by "negative implication" and pointing out that "the very unresponsiveness of the answer should alert counsel to press on for the information he desires" and that "[p]recise questioning is imperative as a predicate for the offense of perjury."

So unless the testifying actuary is asked whether there were any additional considerations that affected the trend factor selection, the failure to identify all of the elements underlying the selection does not constitute perjury.

This is probably a good thing. In my experience there are few hearing officers, judges, or juries with the patience to listen to the "whole truth" in an actuarial context. But it is important to distinguish between the situation above, where the answers were precise and the questions were misleading, and the following colloquy that involved an actuarial expert witness:

Q: *In your professional opinion is it likely that [a specified event] will occur?*

A: *There is a probability that it will.*

In this example, understanding that the specified event was unlikely to occur and that the actuarial expert knew it to be so, it was not the question but the answer that was cleverly designed to mislead.

Even though we may escape prosecution for perjury by answering questions truthfully, we have a professional obligation to honor in spirit the oath to tell the "whole truth." Section 3 of the revised version of ASOP No. 17 *Expert Testimony by Actuaries*,[1] states that "the actuary should act honestly, with integrity and competence, and in a manner to fulfill the profession's responsibility to the public, and should take reasonable steps to ensure that the expert testimony is not used to mislead other parties." This responsibility requires that the actuarial expert witness must not give answers that, although literally true, are misleading.■

[1] Adopted by the ASB at its March 2002 meeting.

Leadership Meeting

From page 1

and LRPC members, met the night before for a reception and dinner hosted by members of the Executive Council (EC) and CAS staff. For the full-day meeting, attendees were grouped randomly with either a member of the LRPC or the EC seated at each table.

Tecker Consultants' facilitator, Jean Frankel, began the meeting by highlighting some of the challenges facing associations today. Frankel said that associations must become more business-like in their dealings while retaining the service orientation of associations. Organizations should honor the past (the original reasons for forming the organization) and look to the future (consider how to sustain, improve, and succeed with the organization).

Thought-generating exercises led up to a brainstorming session on the "Big Audacious Goal"—a challenging objective that is well outside an organization's comfort zone but still attainable. Working together in the small groups, attendees developed vivid descriptions of what it would be like to achieve this aspiration. While the meeting concentrated on consensus building, dissenting opinions were welcome since arriving at final decisions was not the goal of the day.

Tecker Consultants will prepare a report for the LRPC and the Board based on the ideas brought forth at the meeting. The LRPC will use the report in reviewing the CAS strategic plan and developing benchmarks for success. The CAS Board is scheduled to have a similar retreat later this year, which will include evaluating the input from the Leadership Meeting.■

From the Readers

From page 4

Academy Has Unity Role

Dear Editor:

After reading the CAS/SOA unification discussion in the last issue of *The Actuarial Review*, I wish to offer another perspective. As chair of the External Communications Committee, my first and foremost duty is to promote the Casualty Actuarial Society and its Communication Plan. For those unfamiliar with the Plan (or the idea the CAS has one), it can be found on the CAS Web Site. CAS members crafted that Plan. When you read through the Plan, however, it mentions a body that neither Mango nor Mahon seems to address: The American Academy of Actuaries.

The American Academy of Actuaries is the major governing body for actuaries practicing within the United States. While the CAS and SOA (the learned Societies) have their own Statements of Principles, Exam Structures, and ideologies, the Academy (the public interface) provides the Standards of Practice, the requirements for Statements of Opinion, and communications to governmental entities on actuaries' behalves, and facilitates counseling/discipline for those who need it.

Should nonmembers of the CAS or SOA wish to practice in a specific actuarial area, the Academy can certify them in an area if it feels they are qualified to practice in it. This is made possible because of the agreed-to structure of the Academy. The Academy has many of the features Mr. Mango would like in his united world, while providing the inherent differences and freedoms expounded by Mr. Mahon. The current structure is not perfect nor encompassing enough for utopia, but it appears to complement our two Societies at this time.

The conversations that are taking place today are as cyclical as the pricing market or the M&A activity of the financial world. These dialogues will continue as long as many members hold myopic views. The issues will not be solved by either combination or isolation; but in working together to make the AAA more of the ideal to further complement both Societies. Hopefully in the process, synergies will be found such that the issues both Societies face today can be alleviated.

Please note, the views I express in this letter are neither that of the CAS nor that of the External Communications Committee.

William R. Wilkins, FCAS, MAAA

A United Actuarial Publication

Dear Editor:

We are writing this letter as six recipients of the Dorweiler or Woodward-Fondiller Prizes over the past six years. Five years have passed since the CAS Board of Directors declined the SOA's invitation to the CAS to serve as a joint sponsor of the *North American Actuarial Journal*. We believe it is now time to reconsider that decision.

We certainly value CAS publications as a forum for casualty actuaries. However, many topics cross practice areas. Such topics include financial issues like asset-liability management; accounting issues like fair value; market issues like elasticity of demand for insurance; statistical issues like copulas; and broader issues like enterprise risk management. Having researchers from both Societies learn from each other's efforts in such areas would benefit both groups—as would having practitioners see the work done in both Societies.

Because of the many crossover issues, we feel it is important that there be a North American research publication that actuaries of all stripes can call their own. We do not believe that CAS sponsorship of the *North American Actuarial Journal* would threaten CAS publications, since many other issues remain primarily of interest to casualty actuaries.

With the CAS as a joint sponsor of the *North American Actuarial Journal*, we would expect CAS members to be involved in the refereeing process and in setting editorial policy. We would also expect all CAS members to receive automatic subscriptions.

We urge the leaders of the CAS to begin discussions with the leaders of the SOA with the goal of instituting joint sponsorship of the *North American Actuarial Journal*.

Clive L. Keatinge, FCAS
Glenn G. Meyers, FCAS
Gary G. Venter, FCAS
Leigh J. Halliwell, FCAS
Donald F. Mango, FCAS
Stephen J. Mildenhall, FCAS■

Victory at All Costs

Five Days in London, May 1940 by John Lukacs (Yale University Press, 1999, $11.95)

Reviewed by Allan A. Kerin

This is a brief and extremely interesting book about decisions made by the leaders of the British government during five crucial days of the Second World War. The author's contention is that these five days, May 24 to May 28, 1940, comprised the most crucial period of the war, when the fate of the world hung most desperately in the balance. The crisis was brought on by continuing Allied military defeat, the fall of Holland and Belgium, the imminent fall of France, and the siege of the British Army at Dunkirk. The resolution of the crisis was not Allied military success, which would only begin to occur months later, but the decision by the five member British War Cabinet, led by Winston Churchill, to continue to fight on alone in spite of crushing military defeat.

Churchill had been appointed prime minister on May 10. He led a national unity government dominated by his own party, the Conservatives. However, at this stage the Conservatives were not united behind him. The Labour and Liberal Parties supported him more consistently than many important Conservatives. The War Cabinet consisted of three Conservatives (Churchill, Neville Chamberlain, and Lord Halifax) and two Labour members (Clement Atlee and Arthur Greenwood). Halifax was the proponent of seeking negotiations with Germany, and Churchill of fighting on. Churchill's skill as a leader prevailed throughout the five days of debate and political maneuvers. Churchill never wrote of the debate within the War Cabinet. He always presented himself as the leader of a thoroughly united government and nation. Letters, diaries, and declassified documents that became available decades after the end of the war are primary sources for this book.

The book presents an hour-by-hour report of the military situation, communications with the French government and with neutrals such as the United States and Italy, as well as British press reports and reports of British public opinion during the five days. The relative calm and optimism of the British people during this period provided the most important support for Churchill's decision. This is a fascinating book for anyone interested in history, even without a background or prior interest in the British political environment of the late 1930's and early 1940's. It is also an important book about a crucial moment in world history.

> **"The War Cabinet's decision...made the defeat of Hitler possible and saved the world from an unprecedented dark age."**

The War Cabinet's decision—not to proceed down the "slippery slope" (Churchill's phrase) of negotiation with Hitler but to continue to fight—preserved Britain's independence. It also made the defeat of Hitler possible and saved the world from an unprecedented dark age.

Churchill was a brilliant, subtle person and a professional politician whose spiritual home was the House of Commons, where negotiation and compromise are correctly the norm. But he knew there are times when negotiation is not morally or practically the right path. As he said in his first speech to the House of Commons as prime minister on May 13, "You ask what is our aim? I can answer in one word: It is victory, victory at all costs, victory in spite of all terror, victory however long and hard the road may be; for without victory, there is no survival."

At this time, we face an enemy as ruthless and brutal, although thankfully not as powerful, as the Nazis. Our national existence is not threatened, but our individual lives are as we go about our daily tasks. In the world we live in now, this well-written and sharply focused book is especially relevant. I highly recommend it.■

CAS Continuing Education Calendar

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

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

June 2–4—Seminar on Reinsurance, Westchester Marriott, Tarrytown, NY

July 8–9—Seminar on Risk and Capital Management, Toronto Marriott Eaton Centre, Toronto, Canada

July 12–29—Online Course: Financial Risk Management: Securitization, CAS Web Site

July 15–16—Seminar on Loss Distributions,* Hyatt Harborside, Boston, MA

September 6–23—Online Course: Financial Risk Management: The Building Blocks of Financial Risk Management, CAS Web Site

September 23–24—Casualty Loss Reserve Seminar, Crystal Gateway Marriott, Arlington, VA

September 24–25—Seminar on Asset Liability Management and Principles of Finance,* Crystal Gateway Marriott, Arlington, VA

September TBD—Seminar on Reinsurance,* TBD, New York, NY

* Limited Attendance

The Seminar Formerly Known as DFA Visits Toronto this Summer

by Joseph W. Wallen

A funny thing happened on the way to this year's DFA Seminar—it turned into the Risk and Capital Management Seminar, which will be held July 8 and 9 at the Marriott Eaton Centre in Toronto, Ontario, Canada. In addition to the traditional focus on DFA and its practical applications, this year's seminar will offer significantly more sessions on enterprise risk management (ERM) and capital management. Planned session topics include the role of capital management, management of asset risk, lessons learned from Enron, and professional standards for corporate risk managers.

Why the change in focus? After six years as the Seminar on Dynamic Financial Analysis, it was felt that expanding the scope would keep the seminar relevant and fresh in the face of a changing landscape in our industry and our profession. The seminar began as an outgrowth of the CAS's efforts to educate and enhance our members' roles in the application of this emerging discipline.

As the building blocks of DFA models became more standardized and familiar to those who attended seminars, the world in which DFA was being applied changed dramatically. The insurance industry, plagued by perceived excess capital and a prolonged soft market, came under pressure to return to fundamentals of sound underwriting, financial management, and (for publicly traded companies) shareholder value. Rating agencies also began to focus on these fundamentals, providing further impetus for change in the industry.

Early DFA seminars focused on practical topics such as model building, theoretical foundations, generation of model parameters, and potential uses for DFA models. In more recent years, seminars have added topics on practical applications, case studies, and real world experiences with DFA.

The CAS also began to investigate the potential role of actuaries in ERM. During 2001, the CAS successfully held its first ERM seminar, and the Advisory Committee on Enterprise Risk Management delivered its report to the CAS Board. Chief among the many findings of this report was a desire by CAS members to learn more about ERM and become more involved in the process.

All of this leads to the new Risk and Capital Management Seminar. Its roots are still based on the foundation of DFA, but its focus has been broadened to stay abreast of current trends and needs within the profession. For more information on the Risk and Capital Management Seminar, please visit the "Continuing Education" section of the CAS Web Site. Registration for the 2002 seminar will begin in May.■

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25 Years Ago in *The Actuarial Review*

by Walter C. Wright

The following is an extract from an article that discussed a presentation that a Dr. Freifelder gave at the 1977 Spring Meeting of the Casualty Actuaries of Philadelphia (now the Casualty Actuaries of the Mid-Atlantic Region). Aren't these issues still being debated on CASNET?

Dr. Freifelder compared utility theory as a ratemaking technique to mean-variance theory and ruin theory, which currently underlie many non-life ratemaking procedures.

In his discussion of risk, Dr. Freifelder noted that both the mean-variance and ruin theory techniques are developed from the principles of classical statistics and probability theory. The former suggests the use of the variance or standard deviation as a risk measure, while the latter method measures risk by the probability of large losses. Only utility theory measures risk by looking at the entire probability distribution….

The use of an exponential utility theory premium calculation principle changes the problem of insurance ratemaking into a problem of determining the probability distributions that best fit the empirical loss data on frequency and severity. Because a large amount of data is available, the problem of specifying the proper distributions should not be too difficult.■

Yearbook and *Continuing Education Catalog* Omission

The 2002 *Yearbook* and *Continuing Education Catalog* contain an error. **Kay E. Kufera** was left out of the listing of Regional Affiliate officers for the Casualty Actuaries of the Mid-Atlantic Region (CAMAR). Kufera is the 2002 CAMAR president. The CAS regrets the error.

For a complete listing of all CAMAR officers and other information, visit the CAS Web Site at www.casact.org/affiliates/camar/index.htm.■

Ethical Issues Forum

Projecting Confidence

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.

ABC Insurance Company (ABC) has been writing Hospital Professional Liability (HPL) insurance on a monoline basis for the past 20 years. The owners of this privately held company recently decided that because of market conditions, they would exit the insurance market and put their capital to use in other business ventures. The company is currently in runoff and is interested in a loss portfolio transfer (LPT) so it can completely close its operations.

ABC Insurance Company approached their reinsurer, XYZ Reinsurance Company (XYZ), about the cost of an LPT. Each party agreed to have its actuarial staff complete a reserve analysis projecting the expected value of ABC's reserves as well as the reserves at a 75 percent confidence level. After these actuarial reports are completed, ABC and XYZ would meet again to negotiate a price for the transaction.

Sue Jones, FCAS, MAAA is the sole actuary at XYZ. Sue has completed actuarial analyses of ABC's program for each of the last seven years to assist in the pricing of the annual reinsurance renewal. While the loss forecast for the prospective policy year has been the primary focus of Sue's reports, she also includes a projection of ultimate losses for the historical policy years. Loss projections were provided at an expected value level and at various confidence levels. These reports have historically been shared with ABC.

Because of their concern about the trends in industry HPL claims experience, approximately three months ago ABC retained XYZ to complete a "special" interim reserve report. While ABC has its own internal actuarial staff, the company was interested in the perspective of an outside actuary with more industry experience. ABC paid a fee of $20,000 to XYZ for this report that Sue completed. In this report, Sue stated that, given the rapid level of change in the HPL environment, there were "significant risks and uncertainties" associated with the analysis.

Bonnie Broker works for XYZ and is the manager for the ABC account. She has negotiated deals with the owner of ABC for a number of years and knows he is a tough negotiator. As a result, Bonnie has asked Sue to make this report's assumptions somewhat more conservative than those presented in the recently completed interim report. Bonnie would like Sue to increase her projections by at least 25 percent. While Bonnie wants to charge a fair price for the LPT, completing the deal will be considerably easier if she is seen "giving a little" in the price discussions with the owner of ABC.

From a professionalism perspective, can Sue change the assumptions from those presented in her most recent report?

No

It would be necessary to revise substantially the assumptions from the report completed just three months ago in order to arrive at the magnitude of increase requested by Bonnie. Changes of this degree, particularly given the upcoming negotiations, undermine the high level of confidence the general public has grown to expect from the actuarial profession.

Sue has a responsibility under Precept 1, particularly with Annotation 1-4, to uphold the reputation of the profession—manipulating the projections to make Bonnie's negotiations easier violates the Code of Professional Conduct.

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

Further, Sue also must consider if her most recent actuarial report completed for ABC creates a conflict of interest or impairs her ability to act fairly as required by Precept 7 of the Code of Professional Conduct.

Yes

The assumptions in an actuarial report are often subject to considerable uncertainty and judgment. This is particularly true with the current HPL environment and was specifically mentioned in Sue's report to ABC. The Statement of Principles Regarding Property and Casualty Loss and Loss Adjustment Expense Reserves specifically states: "An actuarially sound loss reserve for a defined group of claims as of a given valuation date is a provision, based on estimates derived from reasonable assumptions and appropriate actuarial methods…." The Statement goes on to say "The uncertainty inherent in the estimation of required provisions for losses or loss adjustment expenses implies that a range of reserves can be actuarially sound."

As it relates to the conflict of interest issue and Precept 7, given the past relationship, each party knows that Sue is performing the work, so no further notification is required (although to be safe, Sue may want to get a letter from both ABC and XYZ for her files). As long as Sue can be impartial in providing her analysis, she is not in violation of Precept 7.

While substantial changes would be required, as long as Sue's assumptions are not unreasonable and she satisfies Precept 7, she has not violated professional standards by increasing her loss projections as requested by Bonnie.■

Latest Research

VFIC Paper Suggests Duration Matching Is "Just One of Many" Risk Minimizing Strategies

by Kenneth Quintilian

The CAS Valuation, Finance, and Investments Committee (VFIC) recently completed a paper entitled "Interest Rate Risk: An Evaluation of Duration Matching as a Risk-Minimizing Strategy for Property/Casualty Insurers." This paper will be published in an upcoming issue of the *Forum*, and will be presented at several CAS and other meetings throughout 2002. The paper applies modern dynamic financial analysis (DFA) techniques to the evaluation of alternative investment strategies available to insurers.

VFIC tested the hypothesis that, compared to any other investment strategy, matching a company's asset and liability duration will optimize the risk profile of the company. Although the results varied by scenario, the overall conclusion was that duration matching does not stand out as a clearly optimal strategy for property/casualty insurers. Duration matching, in fact, was frequently just one of many optimal strategies from which the company had to choose based on its desire for return and appetite for risk.

VFIC decided to address this topic in order to shed more light on an often debated but sometimes misunderstood topic. In doing this, VFIC is building upon earlier work done by other committees. These other studies were limited by the fact that their committees did not have access to modern tools designed to support DFA. In particular, the former Financial Analysis Committee of the CAS did work on this subject that was never published in detail because of difficulty in validating the results.

Duration matching of the asset and liability portfolios has been advocated by many as the preferred investment strategy for property/casualty insurers. Duration measures the weighted average time to maturity of a particular investment portfolio, usually a group of bonds. If liabilities are discounted by current interest rates, then (all else equal) the value of the duration-matched liabilities and assets will both decrease when interest rates increase; as a result, surplus is theoretically insulated.

> **"One fact was undeniable: On average, long duration strategies yielded higher returns than duration-matched strategies."**

A duration-matched strategy, however, can reduce the insurer's income. This arises from the short duration of the liabilities of most property/casualty insurers, and the lower investment income that would normally result. Thus duration matching has a cost. Analysts find that most property/casualty insurers invest in portfolios with durations longer than those of their liabilities, suggesting that those insurers have concluded that the duration hedge's value is not worth the cost.

Life insurers have often used a matching strategy as a benchmark, but the duration of a typical life insurer's liability portfolio is much longer than a property/casualty insurer's, which greatly reduces the cost of duration matching. Life insurers also discount many of their liabilities, increasing the hedge's value. Finally, because most life contracts provide fixed amounts of benefits, the only risk (other than mortality) is interest rate. So for life contracts, duration matching is more likely to be optimal. But some regulators and other analysts have assumed the strategy should apply to property/casualty insurers as well. Accordingly, regulators have at times developed proposals that would penalize property/casualty insurers who do not use a matching strategy. Thus VFIC's interest in this topic arose to some degree from a corresponding interest among regulators.

VFIC ran its DFA model for a workers compensation carrier (with long-tailed liabilities) and for a homeowners carrier (with short-tailed liabilities, but with catastrophe exposure causing an increased risk that the invested assets would be liquidated before maturity). Although different in some details, the overall results from both companies were quite consistent.

VFIC noted that the results of the analysis were strongly influenced by the accounting convention selected. For example, statutory results showed greatly reduced asset risk because of amortized cost accounting. Therefore, on a statutory basis the longer investment strategies often yielded *higher* return with *lower* risk.

Furthermore, the risks were distorted under both statutory and GAAP accounting because the liabilities are not discounted. VFIC is considering a future research project in which "economic value" (including discounted losses) will be used as the accounting convention; this final test of whether duration matching holds any benefit for property/casualty insurers would be the subject of a subsequent paper.

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Actuaries Abroad

A Historic Year Ahead in the U.K.

by Kendra M. Felisky-Watson

Historic happenings are underway this year in the U.K. First of all, this is the Jubilee year of Queen Elizabeth II. It has been 50 years since she ascended to the throne and all sorts of celebrations are planned throughout the summer.

Lloyd's Reforms

A package of radical reforms designed to modernize the Lloyd's of London insurance market has been cleared for consideration by the market's ruling body, the Council of Lloyd's. The most important proposal is the elimination of individual Names with their unlimited liability, the three hundred-year-old traditional backbone of Lloyd's capital. The other most interesting reform is the removal of the traditional three-year accounting system in favor of a more familiar one-year accounting system. A summary of the key reforms proposed in the report follows:

- **Modernization of the structure**. Lloyd's will act as a franchiser in the management of the marketplace, with the managing agents of syndicates as franchisees.
- **A change to the way the market reports its results**. Lloyd's current three-year accounting system will be replaced by more conventional GAAP accounting.
- **A new vehicle for Names to participate in the market after January 2005.**
- **A transition mechanism to support the above change**.
- **An end to unlimited liability and the annual venture**. No new unlimited liability Names will be accepted, and existing Names who wish to continue underwriting will convert to limited liability by January 2005. Informal market consultation will now take place over the next few months. After that, the membership of the Society of Lloyd's will receive a final set of detailed proposals prior to voting on the reforms later this year. It appears that Lloyd's will be dragged kicking and screaming into the 20th century and possibly even the 21st!

Compliance Reviews of Lloyd's Actuarial Reports

A new compliance review procedure is being discussed by the General Insurance Board of the Institute and Faculty of Actuaries whereby every actuarial report for a Lloyd's syndicate will be reviewed by another actuary. Guidelines for the peer-reviewing actuary are being written, and consultation will follow. While it formalizes many external actuaries' peer-review procedures, the requirement that work by an internal actuary will need to be reviewed by an external actuary may well cause some ructions.

World Trade Center Losses

The completion of this past year-end for London and European insurance and reinsurance companies was obviously affected by the World Trade Center disaster. The General Insurance Board of the Institute and Faculty of Actuaries commissioned a working party to produce guidelines for U.K. actuaries to follow. If you are interested, the guidelines can be found on the Institute's Web site at www.actuaries.org.uk.

Seminars and Meetings

At the end of April, the seminar "Current Issues in General Insurance" will take place. The aim of the seminar is to allow actuaries to hear about the latest developments in topical areas with time available for discussion. Topics are expected to include accounting issues, asbestos update, state of the London market, and developments in household and motor claims. A "Brain Trust" will be the last session of the day, where a group of eminent people will field questions from the floor on any current issue.

The Casualty Actuaries in Europe's annual meeting is in May, where CAS President **Bob Conger** will provide an update on CAS activities with a focus on international issues and the question of mutual recognition. Simon Pollack will then talk about "The Capital Continuum—from Risk to Reward (via Capital Frameworks)." Simon will discuss the relationship between risk and capital, and how reinsurance can be viewed explicitly as a capital source.

This summer there will be a seminar on financial condition reporting, following up on the paper presented last year and the discussion at last year's GIRO. What makes this seminar interesting is that two case studies will be presented and the details will be worked through.

The next gathering of the U.K.'s general insurance actuaries will be in France(!) at the Disneyland Resort in Paris. British actuaries are eagerly looking forward to assessing the risk of falling off Thunder Mountain, the life expectancy of Mickey Mouse (he is rather getting on, isn't he?), and the potential for making a claim for dizziness symptoms after riding the teacups!

Details of the above gatherings can also be found on the Web site. In addition, the Web site has a General Insurance Reading Guide, which is a list of papers and books that all good general insurance/property/casualty actuaries should read.

But most importantly of all, we U.K. actuaries are looking forward to our extra holiday in June to celebrate the Queen's Jubilee.■

From the President

From page 1

year thereafter keeping up with the technology and tools. How effectively would I be using my laptop computer today? I probably would be better off if I had spent a little less time learning a fixed initial base of technology and more time learning the evolving technology over the years.

"Risk management used to mean, 'I buy our company's insurance'; today's risk manager may be considering all the interrelated factors that could affect the company's ability to meet its business goals."

It's not too much of a stretch to extend this analogy to our actuarial knowledge. So much has changed in a generation! Policyholders face new sources of loss and liability (Internet liability and employment practices liability as well as the dangers of using cell phones while driving). Mass torts, class action cases, and catastrophic natural or man-made events now loom large as we think about the total cost of the insurance system. New sources of information, and new ways of linking disparate sources of information, allow greater insights into the system cost-drivers, risk classification, and underwriting. Risk management used to mean, "I buy our company's insurance"; today's risk manager may be considering all the interrelated factors that could affect the company's ability to meet its business goals. Corporate lines have blurred as banks and insurance companies play in each other's arenas. The world has become our marketplace and we experiment with different models for the "manufacturing," distribution, and servicing of the insurance product. And, of course, the impressive technological power and vast array of information that is, literally, at our fingertips allows today's actuary to employ very different methods of analyzing, modeling, forecasting, simulating, computing, and communicating.

None of us is sufficiently prescient to know how a future CAS president might write the foregoing paragraph in the year 2025. (As in the film, *Frequency*, it sure would be helpful to have that future generation of actuaries sending radio messages back through the decades, "Psst! Buy stock in Yahoo.") It's a safe bet the columnist in that distant place and time will *not* be musing, "Gosh! Nothing has changed in the past generation!" How, then, are we to prepare today's new actuary for the journey into the future?

It seems to me the answer to this question is neatly linked with another challenge that we have been facing in recent years: the growth in the volume and complexity of material on our *Syllabus of Examinations*.

Perhaps we have erred on the side of packing our *Syllabus* as though preparing the new Fellow for a space launch—a space launch in which all supplies and materials must be on board at the beginning of the journey even though we don't know what strange environments and new civilizations will be encountered. A better model would be analogous to supplying the needs of a mid-19th century pioneer family as they push off from St. Louis for a trip into the unknown, carrying only the contents of a primitive wagon, but prepared (nay, *required*) to spend every day learning from and adapting to the new and changing environment.

What then are the implications of this metaphor for the future direction of the CAS education processes? First, exercise self-discipline in loading only the most important "supplies" into our *basic education* syllabus. We hear from today's students that their wagons are creaking under the current load; maybe we can do without some of the anvils and crates of encyclopedias we've packed in various corners of the wagon. But let's be sure to include plenty of materials that will help our future actuaries learn, adapt, and build the tools they need in the future. Second, continue and expand our organizational emphasis on offering a wide array of *continuing education* opportunities, using both traditional and new delivery and media techniques to cover an ever-growing array of subject matter. Where it doesn't make sense for the CAS itself to develop an offering in a certain area, collaborate with other organizations to help our members access the learning they need. Either way, the objective is to help our members learn from and adapt to the changing business environment around them. Third, in order to assure our employers and clients that their actuaries are prepared for the future environments, we should significantly expand the *continuing education requirements* that apply to each member, but allow considerable flexibility for each member to customize their continuing education to best fit their personal current and future job requirements and challenges.

"Perhaps we have erred on the side of packing our *Syllabus* as though preparing the new Fellow for a space launch...."

The 1970's syllabi anticipated none of the specific changes of the past quarter century, yet my CAS education as a whole, by including a large dose of continuing education, has prepared me very effectively for a great many of the changes. Let's make sure we are doing the same for the future generations! ■

Web Site News

"Log in Now" to Save Time Online!

by Tiffany L. Kirk

While visiting the CAS Web Site, you may have noticed the gray "Log in Now" buttons on the registration forms. Simply click the button and enter your username and password. When you click, the online form is automatically filled with your contact information, including your name, designation, company, title, address, telephone number, and e-mail address.

Log in Now

This feature was implemented as a time saver for members registering online and is yet another advantage to using the CAS Web Site instead of the traditional paper form. In addition, it allows you to see what information the CAS office has on file for you. If any information needs to be updated, please submit a change of address form (www.casact.org/private/members/changeform.cfm).

If you are a CAS member and do not currently have a username and password for the CAS Web Site, please e-mail your requested username and password to webmaster@casact.org. You will be notified when your access has been activated.■

All *Actuarial Reviews* Now on the Web

The CAS Web Site now features over 30 years of the Casualty Actuarial Society's quarterly newsletter! All back issues of *The Actuarial Review* (formerly the *CAS Newsletter*) are now available online. The complete set begins with the March 1970 inaugural issue and continues through the current issue. Pre-1997 issues are available in portable document format (.pdf) only. The initiative of the Committee on Online Services to post all issues of *The AR* was prompted by a member's suggestion and enhances the extensive library of publications available online. This library, with the recent addition of *The Actuarial Review*, can be accessed in the "Publications" section of the CAS Web Site.■

New and Improved 2002 Participation Survey Online

This year, the CAS presents a new and improved version of its annual participation survey available on the CAS Web Site. The more user-friendly survey was developed by the Task Force on the Participation Survey and will be posted mid-June 2002 in the "Member Services" section. The Committee on Volunteer Resources formed the task force after the completion of last year's survey in order to evaluate ways of improving the recruitment of volunteer resources.

In prior years, the CAS mailed the annual survey to all members. This year paper copies will be automatically sent to all members without e-mail addresses listed in the CAS database and to those members who request a paper copy. The rest of the membership will be asked to fill out the survey electronically. This will save both time and money for the CAS, and ultimately the membership at large.

Online survey respondents will have the option of reading a comprehensive guide for all committee time commitments or they can respond to an online questionnaire that will narrow the choice of committees based on committee characteristics. With the online questionnaire, respondents will be able to pare down the list of available committees based on their answers. For instance, a respondent who requests no travel commitments can choose from committees that only meet by phone conference or e-mail. Data fields on the survey form will also be personalized with the respondent's information (see "Web Site News," above).

Answering the 2002 Participation Survey online requires a password. Members who have forgotten their usernames or passwords can enter their e-mail addresses on an online form and receive an immediate reply to the e-mail address on file with the CAS. Those who have not previously registered for access to "Member Services" can contact CAS Web Site Assistant Noelle Skube (nskube@casact.org) to request a username and password.■

What's Your Story?

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

Bicycling Through Europe

by Marty Adler

It must be gratifying and rewarding to combine vigorous exercise and inexpensive traveling. Our featured Fellow has been doing this for many years.

He made his first long bicycle trip while on summer vacation from graduate school. Starting in Madison, Wisconsin, he and a fellow student rode their bicycles to Los Angeles, passing through the Black Hills of South Dakota, Yellowstone National Park, Salt Lake City, the Bonneville Salt Flats, and San Francisco. They traveled as much as 132 miles a day, which is rather amazing considering they were carrying their own gear. They carried a backpacking tent, sleeping bags, air mattresses, clothes, and tools in special bike saddlebags called panniers.

Another trip during graduate school took our Fellow and three friends to Europe. From Amsterdam they cycled through Germany, Austria, Hungary, Yugoslavia, Italy, France, Belgium, and back to Amsterdam. As with the western trip, they mostly slept in tents outside at campgrounds, which our Fellow prefers to the usual hotel or hostel. Among the four friends, they could muster a little German and French, but found that sign language and pointing usually obtained what they wanted—even when confronted by armed soldiers. On three occasions during their journey from Hungary to Yugoslavia (both countries then under tight communist control), parties of armed soldiers in camouflaged uniforms emerged from the woods and ordered them to stop. After they showed the soldiers their American passports and pointed on the maps where they were heading, the soldiers allowed them to proceed.

Since then, our Fellow's European bicycle trips have been in France because of the great food and excellent roads. **Larry Haefner**, FCAS, accompanied him twice. Michelin publishes detailed sectional maps of France, showing every small road and town, which enables a cyclist to avoid the heavily traveled roads. The roads in the French countryside are paved, clearly marked, and well maintained. You can traverse most of the country on smaller country roads!

Cycling burns a lot of calories, allowing you to eat everything you want without putting on weight. In France there is plenty of hearty country fare! Each day he finds a boulangerie (bakery) for baguettes, croissants, raisin bread, and other tasty energy sources.

"On entering another town...they soon discovered that The Tour de France had ridden through town minutes earlier...and the fans were cheering them on, tongue-in-cheek."

Lunch is frequently a picnic at a scenic location. The charcuteries (delis) and markets offer plenty to accompany a fresh loaf of bread from the boulangerie. Dinner is usually a multicourse meal, along with wine from the region, at a fine restaurant. Although Parisian restaurants can be pricey, you can get excellent dinners for reasonable prices in the small cities and towns. Many of these restaurants have chefs worthy of their toques! Though the French can be shy about talking to strangers, they always wish you well while you are eating with a heart-felt "bon appetit."

Unlike the reputation of Parisians, the folks in the provinces are friendly and helpful. (Nowadays, even the Parisians are trying to be nice because they realize the importance of tourism for France.) They always seem pleased to meet Americans touring their country. In one town our Fellow's cycling group met a man who was forced into

Our Fellow (right) and cycling companion touring the French countryside.

labor at a German factory during World War II. This gentleman was liberated by American soldiers and remained forever grateful. He insisted they join him at a local café, where he treated them to drinks and stories.

Though our Fellow plans the next day's route the evening before, he frequently finds serendipitous surprises. Once he passed a well-maintained castle where the English Black Prince had recuperated from battle injuries. Another day he came upon a small historic town founded by Charlemagne in the late 700's. On entering another town, he and his fellow cyclists saw large throngs everywhere urging them to "ride faster." Others were clapping and waving. They soon discovered that The Tour de France had ridden through town minutes earlier, on a route perpendicular to theirs, and the fans were cheering them on, tongue-in-cheek.

Our Fellow once passed through a small town that had earned "four flowers" (similar to Michelin restaurant stars) in the "Fleurissement de France" campaign, in which cities and towns are encouraged to plant flowers. There were beautiful displays of flowers in gardens, in flower boxes on houses, hanging on lamp posts, on traffic medians—everywhere he went in town. The French countryside is also being beautified, as old houses and historic structures are being restored. He has seen a definite improvement over the years.

Gary Dean finds that his brain works better after a week or so on the road, another advantage of a bicycle vacation. He doesn't know if it's from the extra oxygen pumping through his body or if it comes from being away from distractions of daily life, but it becomes much easier to concentrate on actuarial matters in Indiana.■

Hudson Valley's Tarrytown, NY to Host 2002 Reinsurance Seminar

by Steven Petlick

The Westchester Marriott Hotel in Tarrytown, New York, will host the 2002 CAS Reinsurance Seminar, June 2-4. A welcome reception will kick off the seminar on Sunday evening with general sessions and concurrent sessions on Monday and Tuesday. There will be a buffet dinner on Monday night.

The general sessions will cover profitability (or lack thereof) of the property/casualty insurance industry and workers compensation catastrophe modeling. Concurrent sessions will include finite reinsurance, the Lloyd's market, workers compensation issues, medical malpractice insurance, D&O insurance, severity trends, property catastrophe modeling, and actuaries in ceded reinsurance. Basic track sessions will review the basic techniques of reinsurance pricing, including experience and exposure rating, databases, and loss sensitive features. There will also be a research corner focusing on current topics in the reinsurance arena.

Please visit the CAS Web Site at www.casact.org/coneduc/reinsurance/2002/ for more information and a printable registration form.■

Actuarial Foundation Research Grants Available

The Actuarial Foundation is accepting proposals for grants to fund actuarial research projects. Proposals should explain how the research is relevant to actuaries and their interests. Some areas of focus for which proposals are currently being sought include long-term care, post-retirement risks, annuitization of retirement funds, insurance modeling, banking applications of actuarial principles and techniques, and extreme event risk. For more detailed information, call the Foundation office at (847) 706-3557 or visit www.actuarialfoundation.org.■

Roundtable

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cepts won the Woodward-Fondiller Prize. He has been active on numerous CAS committees, including chairing the Committee on Principles, which seeks common principles with other actuarial organizations. He writes the "Brainstorms" column for *The Actuarial Review*, which discusses interesting new applications of actuarial science.

Schwartz: *What are the most important technical challenges in casualty actuarial science today? These can be in pricing, reserving, financial, or other areas. Please briefly outline any methods or schools of thought on how to solve each technical challenge.*

Meyers: There are two main problems. The first is the area of quantifying uncertainty. This needs to be considered on a prospective and retrospective basis. The second area is in making use of new methods and new information for what we've traditionally done in ratemaking and reserving. For example, we're considering how to use credit information and the new data mining techniques. Also, we're considering how to predict differently than the traditional approaches, which are usually some form of generalized linear modeling.

Philbrick: I'd echo that. A third key area is communicating what we do. Actuaries have a problem communicating. We need to learn to say things in the language of financial theorists. A fourth area is challenges to the traditional principles of ratemaking and reserving; specifically, how do we use new classes of information?

Feldblum: There are two main problems. First, we are not sufficiently aware of the developments in related fields such as economics and finance. Actuaries seek to quantify risk, but practicing actuaries have little knowledge of the financial theory of risk. Pricing actuaries estimate needed rate changes, but few of us are aware of the economic work on the elasticity effects of product prices on market share and profitability.

A second problem is the actuarial syllabus. Students spend too many years memorizing details. Our students spend years memorizing the details of life contingencies and statutory accounting, both of which are important topics, because the exams require this memorization of details.

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CAS Welcomes New Affiliate Member

Nigel D. Hooker
IT Innovation AG
Kuesnacht, Switzerland
Fellow, Institute of Actuaries

Mahler: I would agree with Glenn that one key technical challenge is quantifying uncertainty. This relates to, among other things, parameter uncertainty, risk loads, allocating capital, and determining the cost of capital. However, there are also levels of uncertainty. For example how do we quantify the possibility of unprecedented events? **Gary Blumsohn** has an excellent discussion of levels of determinism in his paper in the 1998 *Proceedings*. In addition, there have been continued improvements in solving some of the same problems that began the CAS in 1914. Specifically, there continue to be new advances in experience rating, retrospective rating, class ratemaking, and reserving techniques. These new advances may occur in mundane, ho-hum areas, rather than some hot new area of actuarial science, yet these advances are also important.

> **"Most actuaries have a reasonable grasp of the financial issues. Where...our methods fall short is in the area of quantifying risk. It's the biggest challenge we face."**
>
> *—Glenn Meyers*

Philbrick: In addition to all these new areas, we are making steady improvement in our traditional tools for ratemaking and reserving. This is similar to a "six sigma" approach. We may not be closer to a final answer but our tools are becoming better and better. It's similar to a think tank at General Electric. We are not only tackling new things, we are doing what we do, better.

Feldblum: We must examine how our actuarial problems are handled in other fields. The cost of capital is much discussed in finance, and we should take account of the financial costs of capital when discussing risk loads. The relative benefits of equity and debt have been discussed by financial analysts ever since the publication of the Miller and Modigliani propositions. Actuaries discuss these same issues without being aware of the financial literature.

Meyers: Most actuaries have a reasonable grasp of the financial issues. Where I believe our methods fall short is in the area of quantifying risk. It's the biggest challenge we face. Getting the insurer's distribution of losses by analyzing data (i.e., quantifying the underwriting risk) is the tough part. Compared to this, the financial stuff is rather easy.

Mahler: I have worked on some of these issues at the intersection of actuarial science and economics for over 15 years. Yet adapting what we do to the economists' and finance theorists' framework is very difficult. Sholom is right that we should see if an already existing application of finance or economics may have already solved our problem. We also need to ask does their work make sense in an insurance context, in the context of a business whose sole purpose is to take on risk that other businesses don't want?

Meyers: You can apply their methods, but it takes a lot of work. The key is to get the right input for these models.

Mahler: So far, people have been unable to quantify many of these things accurately for use in a practical application.

Meyers: What's in the financial literature on handling catastrophes? Here I think we need to get away from the mean-variance analysis that is prevalent in the financial literature.

Feldblum: That is a complex issue.

Meyers: I wanted to throw that in since I believe many classical financial theories have been inadequate for the insurance (risk-assuming) paradigm.

Philbrick: My impression is that the classical financial models make the assumption that catastrophes do not occur. We need to do a better job, see what the economists and finance theorists have done, and build upon that.

Feldblum: Financial theorists deal with systematic risk; shareholders can diversify their risk. The actuarial view is to look at total risk. Since shareholders can diversify catastrophe risk, financial theory does not treat it separately.

Mahler: If an insurance company can buy protection against catastrophes in the financial markets, then if there is a relatively stable market price, the actuary can use this as a tool to help price risk taken on by an insurer. The insurance company and regulators desire protection against the insurer having insufficient funds to pay losses. If protection against catastrophes can be readily bought by insurers, and if the sellers of that protection are using financial theories based on diversified investors to price that protection, then this could link actuarial science and the financial markets. Also, securitization of risks leads one to believe that the market can price risk, to some extent. If securitization of risk continues to expand, in the following decades this may be a fruitful path connecting financial measures of risk to appropriate insurance risk loads.

> **"If securitization of risk continues to expand, in the following decades this may be a fruitful path connecting financial measures of risk to appropriate insurance risk loads."**
>
> *—Howard Mahler*

Feldblum: In effect, the market may be able to transform insurance risk to shareholder risk.

Mahler: Even if we didn't get that close to a final stage; if we simply got closer to connecting something we want to quantify, to something we see in the markets, we could make progress. For example, actuaries currently make some use in our work of the market-based "risk-free rate" and the increment of return required by buyers of bonds other than U.S. treasury securities.

Meyers: Insurance company man-

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agement wants to keep the company viable in the face of catastrophes. That's why regulators and investors require surplus. The shareholders' views are, they'll just buy a small portion of the risk, so their maximum loss is limited. The insurer must pay claims; the insurer must have sufficient resources to provide the coverage that they are promising.

"..study time required for the actual designation compared to the study needed for other professions...is an important consideration. We have to rethink our syllabus in that light."
—Sholom Feldblum

Mahler: From the shareholder's view, if my risks are diversified, then it's better to have no surplus. As has been mentioned by many others, if one were not constrained by regulations, one could form 50 insurers, one per state, each with $1 in surplus; then one would write high-risk auto insurance. Perhaps 40 insurers would fail, the other 10 though would make money, and the net return to shareholders, as opposed to society, would be substantial.

Meyers: It's heads, I win. Tails I lose, but I lose only a little.

Mahler: Consider a line like automobile liability insurance that many people must buy if they wish to drive a car. Only if the buyer or regulator insists on capital, is there a need to put up capital, otherwise there's no requirement to have substantial capital in order to write insurance. In contrast, if I am a manufacturer, I need capital to build a factory and get supplies.

Philbrick: The risks to insurance company solvency are interesting. I have seen an ISO study on insolvency that came to rather discouraging conclusions. It seemed to show that most insurers do not fail because of issues related to the law of large numbers, i.e., diversification of their risks. The study concluded that most insolvencies, about 80 percent, result from fraud or mismanagement. The challenge is to stay solvent. Our tools for preventing insolvency, such as risk-based capital, deal with about 20 percent of the insolvencies. The other 80 percent are caused by the two problems mentioned above.

Meyers: To some extent, fraud and mismanagement are the auditor's problem, not an actuary's problem. Getting back to our previous discussion on learning from other fields, a generalized linear model is the traditional way of setting rates or estimating reserves. A new way of setting rates or estimating reserves may come from approaches as diverse as data mining, neural networks, artificial intelligence, and clustering.

Schwartz: *The syllabus is our most precious possession for transmitting casualty actuarial science to future generations of actuaries. Are there any technical or business skills that the current CAS syllabus either does not cover or does not cover adequately? Are there any technical or business skills that the current CAS syllabus covers more thoroughly than necessary (out of proportion to their usefulness)?*

Mahler: Yes and yes.

Meyers: When I first entered the field, actuaries worked primarily on pricing and reserving. It was possible to cover most of what actuaries did in our exam syllabus. Today we are working in areas we could not have conceived of, even a few years ago. Now it is impossible to cover all aspects of actuarial work on the exam syllabus.

"I believe the syllabus needs to be improved in the area of investments and finance as they affect the insurance industry."
—Steve Philbrick

We have to decide what to include, and what to leave off the syllabus.

Philbrick: We need to cover more on finance. The current syllabus is much improved in this area, but some of us who finished our exams decades ago probably need more continuing education in this area. By the way, is there a favorite or recommended text on finance? I've heard from students that the readings on the finance exam, Exam 8, are very good. Specifically, what is important on the cost of holding capital?

Feldblum: The Modigliani and Miller (M&M) propositions[1] are impor-

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[1] Editor's note: According to *Investments*, Bodie, Kane, and Marcus, page 551: "M&M claim that if we take as given a firm's future investments, then the value of its existing common stock is not affected by how those investments are financed. Therefore neither the firm's dividend policy nor its capital structure should affect the value of a share of its equity." This is true for a world without taxes. When dividends are taxed fully but debt payments are tax deductible, debt is cheaper than equity. In practice, debt seems to be much cheaper (in theory) than equity, yet firms in many industries hold large amounts of equity. The issue of why insurers hold capital is a general financial question: Why do firms hold such large amounts of equity when debt is the theoretically preferred method of financing?

Sandor and Mango Win Ratemaking Prize

James C. Sandor, ACAS, MAAA (left) and **Donald F. Mango**, FCAS, MAAA won the 2002 Ratemaking Prize for their paper, "Dependence Models and the Portfolio Effect." Sandor and Mango were presented with a plaque and a check for $1,000 at the 2002 CAS Ratemaking Seminar, which was held March 7-8 in Tampa, Florida. This paper and other ratemaking papers are published in the 2002 Winter *Forum* and can be viewed on the CAS Web Site in the "Publications" section.■

Academy Forms Task Force To Examine Proposed Federal Charters Legislation; Members' Views Sought

by The American Academy of Actuaries' Property/Casualty Federal Charters Task Force

With the passage of the Gramm, Leach, Bliley (GLB) Financial Modernization Act, the future for insurers, banks, and securities firms is forever changed. For insurers, one of the first issues to be addressed is federal chartering. Federal charters have the potential to change the competitive landscape of the insurance industry in the United States dramatically.

The debate on federal charters for insurance companies is on the legislative agenda, with four proposals currently on the table. These proposals originate from the American Bankers Insurance Association, the American Insurance Association (a property/casualty bill), the American Council of Life Insurance (a life/health/disability approach), and the Schumer bill.

From the perspective of the bill sponsors, the prime impetus for federal charters is to reduce the myriad of state rules and regulations. An obvious impact of federal chartering would be a change in the insurance industry's barriers to entry. It will be easier for banks and international insurers to enter the U.S. insurance market. Federal regulations could also affect an insurer's market strategy. Quick, comprehensive access to simultaneous markets may encourage innovative product development.

The American Academy of Actuaries has set up the Property/Casualty Federal Charters Task Force (PCFCTF). The task force has three objectives:

- Coordinating with other Academy task forces and committees regarding appropriate responses to the proposals
- Communicating the major features of the proposals to property/casualty actuaries and soliciting the viewpoints of property/casualty actuaries on these issues
- Preparing responses and positions that communicate to decision makers the role property/casualty actuaries should play in supporting public policy objectives

The task force will be representing the members of the American Academy in the federal charters debate; hence the task force needs to know your views. What does the federal charters debate mean to you? To prepare for this debate, the PCFCTF will provide an overview of the proposal during a concurrent session at the CAS Spring Meeting in San Diego. You have an opportunity to voice your opinion, so bring your ideas and comments. How might federal regulation and national charters alter the actuary's role in pricing, regulatory filings and financial statements, and actuarial opinions? Will actuaries be as necessary in the pricing process? Will workload decrease if regulatory requirements are removed? Will there be national rating structures instead of state structures? Will actuarial statements of opinion need to include results of a dynamic financial analysis, measurements of asset-liability management, requirements on reinsurance, or risk securitization in the financial markets?

For additional information on federal charters, please contact Greg Vass and Meredith Detweiler, the Academy staff supporting this effort, at (202) 223-8196.■

Roundtable
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tant. There are three streams of thought to solve the M&M anomalies: Miller's explanation, Myers's explanation, and an explanation relying on agent-principle differences. This material is not on the Exam 8 syllabus, but it is the foundation of financial theory on the capital structure of corporations.

Feldblum: Another issue to consider is that the actuarial profession is competitive with other financial professions. The amount of study time required for the actuarial designation compared to the study needed for other professions that offer equally good financial and career rewards is an important consideration. We have to rethink our syllabus in that light.

Meyers: I agree. Allocating space on the syllabus should be seen as a task similar to allocating any scarce resource.

Philbrick: I also agree. At one time we had 28 lines of business on the annual statement. It was thought important to have a paper on the syllabus on each of those 28 lines of business. I believe the syllabus needs to be improved in the area of investments and finance as they affect the insurance industry.

Feldblum: I agree that it's ideas and not specialized applications that we need to study. We must consider how much time is required to prepare for these exams and to what extent we can fail students. We have to make sure that the exams do not dissuade potential students from the profession.

Philbrick: The problem is not only in the syllabus but the methods of testing. I know a bright student who says when he's taking exams, "I do not need to know the material, I only need to know how to answer the questions." That's the kind of attitude that the testing method encourages.

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Part Two of the roundtable discussion will appear in the next issue of The Actuarial Review. *Questions or comments can be sent to esmith@casact.org.*■

Brainstorms

Enron and Extremes

by Stephen W. Philbrick

The Enron story has many threads, some of which may continue to unravel for years. Several of these threads are generally interesting to anyone involved in the financial world, but I'd like to concentrate on one issue of special interest to actuaries.

The issue is diversification of a personal financial portfolio. Some of the Enron stories have emphasized the high proportion of Enron stock held in employees' 401(k) plans. We've learned that employees at many other companies are making large allocations of their retirement funds in the stock of their own employer.

"...the very act of working for an employer subjects one to financial risks that are likely to be highly correlated...[and] the overall correlation isn't the critical issue, but rather the correlation at the extremes."

I need to defend why this is an issue of interest to actuaries, beyond their own personal planning. I anticipate more discussion of these issues throughout society, due to the continued growth of defined contribution benefit plans, and I believe actuaries can contribute meaningfully to the conversation. General actuarial training gives us a solid understanding of investment and financial issues that may not be second nature to many people.

Of all the stocks one might select in an investment portfolio, there is one that deserves special attention—the stock of one's own employer. Many employees are allocating a substantial portion of their 401(k) to employer stock. While it is understandable that the matching benefits provided by companies might be in the form of company stock, many employees are voluntarily selecting company stock for their own contributions. This result should be surprising to actuaries who have studied the mathematics of diversification. One of the rules of thumb in diversification of a portfolio is to limit the amount invested in any single stock to no more than 10 percent. More recent studies have suggested that this value may be too high, and a better rule of thumb may be as little as five percent.

I can think of several reasons why one might consider an allocation other than five percent. An employee may have feelings of loyalty or pride, or may feel that purchasing company stock is evidence of being a "team player." Pride and loyalty are good things (though probably deliver more value to the employer than to the employee). However, prudent financial planning for retirement should trump any financial decision based upon loyalty.

An employee might believe that working at the company provides more knowledge about the company than is available to the ordinary investor. While this is certainly true to a limited extent, it may well be illusory. If the employee truly has inside information, the law prohibits the employee from trading on it. In the more limited case, where the employee simply believes the stock is undervalued in the market, it is unlikely to justify increasing the allocation by more than a nominal amount.

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It's a Puzzlement

A Pile of Pennies

by John P. Robertson

On the table in front of you is a bunch of pennies, more than 10. You are told that exactly 10 of them are heads up. Your job is to make two groups of pennies that have the same number of pennies heads up. The only problem is that you are blindfolded, and wearing gloves. So you cannot see the pennies. You can feel them, but you can't tell which side is heads, and which is tails. But you can pick any penny up, turn it over, move it around. How do you make two groups that have the same number of heads?

Double Squares

4	4	6	4	5
4	8	7	7	5
2	7	2	5	3

The solution to last issue's puzzlement is given in the diagram above. A process of trial and error is needed to derive the solution. Solver **Darrel Chvoy** used the clues in the order #3, #4, #1, #2.

Ralph L. "Casey" Abell, Marty Adler, Oscar Chow, Jon Evans, **John Herder, Paul Ivanovskis,** Alex Kozmin, E. Nicholl Marshall, **John Reynolds**, **Mark R. Shapland**, and David Uhland also sent in solutions. Several solvers noted that the solution is unique.■

Brainstorms

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Actuaries are well aware of the rationale underlying the diversification argument. A risk-averse investor is interested in avoiding the risk of a significant drop in wealth. Concentration of one's portfolio in a single stock increases that risk. The key point is that one should be concerned about one's total financial exposure, not simply the exposure of the investments in a particular 401(k). I suggest that the very act of working for an employer subjects one to financial risks that are likely to be highly correlated with the company's stock price. This is particularly true if one accepts that the overall correlation isn't the critical issue, but rather the correlation at the extremes. (If one is concerned about tail events, then one should be concerned more about correlation in the tail than in the center of the distribution.)

For example, a company struggling to meets its goals is likely to take actions that affect employees total financial exposure. These actions may include less generous raises for employees, smaller bonuses, fewer promotions, and could even include layoffs. Each of these actions has a financial impact on the employee. At the same time, the stock price may be under-performing. It might be an interesting exercise to model these results to solve for the implicit "allocation" that should be ascribed to one's employer. It seems likely that the financial exposure created by employment exceeds the rules of thumb for maximum exposure to a single company. At a minimum, this "thought experiment" suggests that the explicit exposure to the stock of one's employer should be evaluated in light of the implicit exposure created by employment.

Another reason for altering the allocation is created when company stock is available at a discount. Calculating the required discount to justify purchase of employee stock is not a trivial issue. I hope to address it in a future column.

Recent news stories on employee investment decisions have highlighted a need for better education of the public. I think actuaries can contribute.■

Latest Research

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One fact was undeniable: On average, long duration strategies yielded higher returns than duration-matched strategies. So, although duration-matched strategies may in some cases be less risky, they are also less profitable. Under traditional risk/return analysis, this supports the argument that both are optimal strategies that differ primarily in their position on the risk/return curve. As such, VFIC found that matching durations is reasonable, but not "better" than longer strategies.

A copy of this paper can be found on the CAS Web Site, in the "Research" section under Committee/Task Force Projects. VFIC welcomes comments from the membership and the general public on its paper, as well as any comments on this overall topic. Please direct any remarks or inquiries to the author of this article at (952) 897-5300 (e-mail: ken.quintilian@milliman.com), or contact the 2002 VFIC Chair, **Paul Brehm**, who can be reached at (651) 310-4800 (e-mail: paul.brehm@stpaul.com).■