



# EXPANDING HORIZONS

NEWSLETTER OF THE EDUCATION AND RESEARCH SECTION

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## And Now.. A Word From The Editor

by Patricia Pruitt

Every reader of this newsletter should be grateful to Marjorie Rosenberg for the fine job she has done as editor. We were fortunate that she was willing to take on the responsibility during her time on the Section Council. When she called to ask if I would like to be the next editor, I was excited because I thought that it would be a great way to become more involved in the activities of the Education and Research Section. I greatly appreciate the advice and assistance she has given me in getting started. Credit should also be given to Chelle Brody, who provided the articles on Nankai University and the closing remarks of the 26th International Congress of Actuaries, and Faye Albert, whose idea it was to ask Joe Buff to elaborate on his remarks about Newton and Einstein at the Annual Meeting General Session.

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## Joint Task Force on Strengthening Academic Ties

by Stephen R. Radcliffe

The following report is an update on the work of the joint CAS, CIA, and SOA Task Force on Strengthening Academic Ties.

The report is just a beginning. It makes the case for strengthening the partnership with the university system in North America in order to address some fundamental issues that our profession faces as it moves into the next century. The task force identified three major reasons to build this partnership:

1. The university system is big, strong, and vibrant, and has the capacity to help address the issues of education and research;
2. The actuarial profession faces new competition for students from other disciplines, such as financial engineers;
3. We can learn from other models of actuarial education, and professional quantification in the emerging global

actuarial profession.

The task force needs to accomplish two things in 1999. First, we need to communicate the issues to the membership to bring them up to date on our work. Second, we need to develop a new model for the future that will integrate the universities into the profession for a more robust structure to address the issues that our profession faces.

The task force has accomplished much, but there is a lot left to do. We need your input. Please contact Warren Luckner at the SOA office, [wluckner@soa.org](mailto:wluckner@soa.org), with your comments.

Stephen R. Radcliffe, FSA, is Executive Vice President at United Life Insurance Company in Indianapolis, IN and Chair of the Joint Task Force.

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# The Case for a Partnership

## **Background**

Both the actuarial profession and the academic community historically have had a significant role in education and research. The relationships between the profession and the academic community have varied over time and by actuarial organization.

In 1989 the Casualty Actuarial Society (CAS) created the Academic Correspondent Program. This program formalized the process for non-CAS members of the academic community to be knowledgeable about the proceedings of the CAS. For a nominal charge, the academic correspondent receives all CAS publications including quarterly newsletters and research journals. In addition, they can attend CAS meetings and seminars and participate in CAS online services. The CAS is currently considering expanding the benefits of the program and increasing the profile of the program to attract more members of the academic community.

## ***EXPANDING HORIZONS***

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**Editor's Voice**

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Speaking of involvement, I happened to fill in for Tom Herzog, our Section's representative, at a meeting of the planning committee for the 1999 Annual Meeting, because I was in the right place (the Chicago area) at the right time. If you took the trouble to think about it, you might say that a lot of work must go into organizing a meeting with more than 100 sessions, but then again you might not have thought about it at all. Actually attending the initial planning meeting was enlightening. As members, we may take for granted all the sessions, breakfasts, luncheons, receptions, even field trips, that give us opportunities to learn new things and meet old friends. Getting a glimpse of all the steps that must be taken, all the details that must be worked out, and all the people who are needed to make such a meeting a success really made me appreciate the volunteers from the various Sections, as well as the ever-busy SOA staff in Continuing Education. Think about it: the planning for next year's Annual Meeting started in mid-September, a month before the 1998 Annual Meeting. The SOA staff did a little training, in a fun way, to prepare the Section representatives for their jobs of developing topics, recruiting speakers, writing accurate descriptions for the program, and making sure that there is variety in the sessions. No doubt some speakers have already been recruited. In January, Tom Herzog will be going to the second planning meeting, at which all the sessions will be slotted. From the description of the process, it sounds like an auction.

So, thanks are due to Tom Herzog, already at work on the Annual Meeting, Sarah Christiansen, whose report on the planning of the Spring Meetings appears in this newsletter, and all those who are willing to be speakers or workshop leaders at the sessions sponsored by the Education and Research Section. It's a great way for Section members to be involved in continuing education. Patricia Pruitt, FSA, is a member of the Health, Education and Research, and Computer Science Sections and is the new Editor of the Expanding Horizons Newsletter.

## 26th International Congress of Actuaries Closing Ceremony, Birmingham June 11, 1998

Speech by Jean Berthon

**I** am very proud to have been elected to wear this chain of office and be sure that I will do my best to maintain the established high standard.

When I started writing this speech, I was looking for a concept on which I could base my remarks. I wanted to have something related to professionalism, ethics, and so on. Suddenly, I remembered the motto of the city where I grew up. Angoulême is the county town of Charente, a very nice city located not far from the Cognac county on one side and from the Dordogne region on the other. The motto of the city coat of arms is: *Fortitudo mea civium fides: My strength is the trust of my citizens.* Don't you think that it could become one of our mottos, by replacing our citizens with our publics?

Trust was the concept that I was looking for, because trust underlies all of our activities and relationships.

As Professor Penelope Corfield said in her lecture, every profession relies on public trust. Remember that, as the first truly global profession, we aim to serve the public interest. So trust is the cornerstone of our profession.

Trust is gained through values and ethics, skills, and knowledge. We had interesting papers and discussions on those subjects during the Congress.

In my view, we have several priorities for the coming years:

First, we have to make every effort possible to gain and develop public trust, not only within our countries, but also at the international level. We should continue to promote high standards of professionalism among ourselves which means pursue the excellent work already done in the Education Committee to establish a core syllabus. We must also start thinking of elaborating a common framework to establish worldwide

recognized standards of practice. In the long term, one of our aims is to establish the conditions of mutual recognition among our different associations or countries.

Second, we have to expand our presence in the world. We have to promote the establishment of actuarial clubs and associations in countries where there is no organized actuarial body, not only because we will want to see more actuaries throughout the world, but because we think that it is important in order to enhance the welfare of citizens in those countries.

Third, we have initiated good relationships with international organizations like the International Accounting Standards Committee and the International Association of Insurance Supervisors. It is very important for us as a profession to keep moving in that direction through the participation in their committees as observers and through our capacity to promote our point of view in those fields that directly concern our profession. We also will have to get in touch with other international bodies to develop the same kind of relationship with the International Monetary Fund, World Bank, Asian Development Bank, InterAmerican Development Bank, Bank for International Settlements, and so on. We also will try to improve our status at the United Nations Organization. For that we will need the support of our member associations, as well as the support of individual actuaries inside these organizations, because we will need to deliver in a very short period of time. Our credibility will depend on our ability to deliver what we are promising.

Fourth, as we have gained credibility in many fields since the creation of the International Forum of Actuarial

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Associations (IFAA), in my view, we can start to be more proactive. I would encourage us to think about covering other fields of activities where actuaries are already involved, like finance, portfolio management performance, and measurement standards. We should also look at other fields in which we are not already involved, but where our skills, knowledge, and ethics could play an important role.

But all those developments will need to be well-publicized, because information and public image are

essential to establish public trust. As you know, actuaries are not known as being very keen to communicate in a comprehensible way. It is very important that we try to do it and manage to improve our image in that field.

I no longer want to hear that joke of an actuary being asked how much is 2 and 2 and replying, What do you want it to be, Mister Chairman? I would prefer that the joke ends as borrowed from Yves Guérard, It depends; if it is 2 plus 2 it will be 4; if it is 2 over 2 it will be 1; if it is 2 beside 2; it will be 22.

Developing the public confidence should be at the center of our concern. But trust is also one of the essential components of leadership. No leadership is legitimate if it is not built on trust.

Then we will be in battle order and in a good position to take up the numerous challenges that we will be facing in the future.

Jean Berthon, is President of the International Actuarial Association (IAA) and Past President

## Chairman's Report

by Irwin T. Vanderhoof



First, I would like to thank the members of the Section for electing me to the Council and the Council members for electing me Chairman. Thanks also to my predecessor, Curtis Huntington, for leaving the Section in such good shape.

The functions of the E&R Section are the heart of the profession and the reason for the existence of the actuarial societies. Education and research are their defining activities. It would, therefore, seem appropriate to try to find ways in which the Section activities can enhance the several actuarial societies and the SOA can help the members of the Section. After Howard Bolnick's presidential address, we know we will have his support.

I am hopeful that the Section can explore two possible initiatives this year. First, each Section has the opportunity to set up several sessions for the Society's various Spring and Annual Meetings. I believe that we should consider an ongoing educational effort in the direction of financial risk. I would like us to consider putting on a teaching session at a series of Annual Meetings on this topic. Over several years, every member of the Society should have an opportunity to be brought up to speed,

and many members of the Section will have the opportunity to participate in a Society meeting. In addition, it would be beneficial if the Section took on the responsibility of providing update sessions on this topic every few years.

A second action which should be considered would be to try to provide more opportunities for young academics to get publishing credits from their institutions. More than 20% of 800+ members of the Section are employed as teachers. The younger academics need more places to publish their work and get credit from the institutions for the work they do within the Society. Some restructuring of our publications might help them in furthering their careers. Even such a simple thing as making ARCH partly refereed might be helpful. We should also discuss with the institutions ways in which credit can be given for committee, task force, and POG membership.

Let me hear your ideas on these matters. It is up to us to bring the Society into the 21st century, and we only have a few years left.

Irwin T. Vanderhoof, FSA, is Clinical Professor at New York University in Towaco, New Jersey.

## The Case for a Partnership

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post-graduate education and qualification process. Competition for jobs is coming from individuals (such as financial engineers and health economists) who increasingly share the actuarial profession's intellectual base of applied probability and statistics. These individuals develop their intellectual skills through strong ties to universities, especially business schools.

In large part due to concerns raised by the SOA Strategic Planning Committee, a symposium on relationships between the actuarial profession and the academic community was sponsored by the CAS, the CIA and the SOA, and held in February 1998. The purposes of the symposium were to:

- learn about the relationship between academia and the professions in general
- learn about past relationships between actuaries and academics
- learn about current relationships between the actuarial profession and academia
- discuss ideas for improving the current relationship

As a result of the symposium, a list of ideas to further enhance the relationships was generated and a joint CAS, CIA, and SOA Task Force was created. The charge to the Task Force was:

1. Explore the arguments for and against expanding ties between the actuarial profession and academia and make a recommendation about the need, if any, for change.
2. If an expansion in ties is recommended, look at specific ideas developed by participants at the February 1998 Academic Symposium and any other ideas of interest to the Task Force. Specific programs that are recommended by the Task Force to the appropriate leadership bodies for adoption should include their purpose and expected results as well as appropriate cost estimates.
3. Identify programs that might be considered in the future.
4. Recommend goals for improving the relationship and ways to monitor the results of the programs proposed.

The remainder of this document provides the Task Force's current thinking with respect to the reasons for a partnership,

between the actuarial profession and the academic community, the objectives of such a partnership and a list of questions to be addressed. The Task Force welcomes the opportunity to obtain reactions and suggestions from the Boards of the CAS, the CIA, and the SOA before making any specific recommendations to the Boards.

### Task Force Members

**Chair:** Stephen R. Radcliffe

**CAS:** Frederick W. Kilbourne, Dale S. Porfilio, William Robert Wilkins

**CIA:** Robert L. Brown, Andre Premont, Kurt S. von Schilling

**SOA:** Bryan V. Hearshey, James C. Hickman, James W. MacGinnitie

### Other Participants

**SOA President:** Anna M. Rappaport

**Institute of Actuaries of Australia:**

Trevor J. Matthews

**SOA Staff:** Rachel Brody,  
Warren Luckner

### Reasons for a Partnership

A primary purpose of any partnership is to make optimum use of the skills of all partners for the benefit of all partners. Because both the actuarial profession and the academic community have significant roles in education and research, the Task Force believes there are no substantial reasons for the actuarial profession not to have a partnership with the academic community. In fact, members of the Joint CAS, CIA, and SOA Task Force on Academic Relations strongly agree that a partnership between the actuarial profession and the academic community is essential to the continued success of the profession.

However, the Task Force affirms that in a partnership with the academic community, the actuarial profession must retain the ultimate responsibility and accountability for the actuarial education and professional qualification of its members. Thus, the Task Force members agree that a partnership between the actuarial profession and the academic community does not include the possibility of an exclusively university-

based process for actuarial education and professional qualification.

The Task Force believes the reasons for a partnership between the actuarial profession and the academic community are persuasive. There are three compelling reasons to build this partnership:

1. There is value in a professional partnership with academics.
2. We have new competition for future members and jobs from other disciplines that have developed academic programs focused on quantification of risk and its financial consequences, areas that actuaries have traditionally considered cornerstones of their skill set and competence.
3. We can learn from other models of actuarial education and professional qualification in the emerging global actuarial profession.

Following is an elaboration of the three reasons for partnership.

### There is Value in a Professional Partnership with Academics

#### 1. Historically, professions have had partnerships with the academic community for both education and research.

By the 16th century, the learned occupations of medicine, law, and divinity could be called professions with elite status. As stated in Clare Bellis' paper for the June 1998 International Congress of Actuaries, All three were concerned with the well being spiritual, financial, or physical of individuals, who were obliged to put their trust in members of these occupations if they wished to consult them.

In 1989 at its Centennial Celebration, the actuarial profession heard from Willard Z. Estey, a retired Justice of the Supreme Court of Canada, about the challenge of professionalism. In his remarks, Mr. Estey stated,

There are three general qualifications accepted in literature about professions as spelling out a rough outline of a definition. First of all

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there must be associated with the professional undertaking, skilled intellectual technique. There must be a voluntary association at the core of the profession, and that association must have a code of conduct or ethics with a formalized mode of enforcement upon its membership. There are characteristics which surround the resulting professional body. One of them is a program of intensive training for qualifications and a continuance of that training and retraining throughout the professional's career. Second, there is an association in the public mind of specialized skills within the daily life and work of the professional. Third, and most importantly, there is a commitment by each and every member of that community towards community interest, humanitarian, and other altruistic goals overriding the immediate economic necessities of life of the professional in his daily work.

At the February 1998 Academic Symposium, the keynote speaker, Dr. Bledstein of the University of Illinois and author of *The Culture of Professionalism: The Middle Class and the Development of Higher Education in America*, included, as a criteria for a profession, training in higher educational institutions on a specific cognitive body of knowledge with examinations for competency. He chronicled the development of the modern American university during the late 19th century when the world of business established its disciplines within the structure of the university as the place where knowledge could be cultivated and nurtured. He concluded his comments by saying, If actuaries don't take firmer possession of their productive and lucrative territory in the cultural sense of a profession based on higher education, others will.

The educational advantage of a close academic relationship is leveraged with basic research from the universities and better use of membership resources currently devoted to the basic educational process.

### **2. The academic community is well qualified to provide basic education and basic research consistent with the mission and vision of the actuarial profession. Such resources should be better utilized by the actuarial profession.**

A partnership of the actuarial profession and the academic community is best able to identify and respond to advances in actuarial science, in actuarial practice, and in educational materials, as well as to the changing environments in which actuaries work.

Classroom education offers the opportunity for better education of prospective members. For example, statistical methods cannot be taught well without the opportunity to work on problems with actual data and discussion and interaction with faculty and other students. The SOA has recognized this in the new required Course 7, Applied Actuarial Modeling, which is an intensive seminar scheduled for implementation beginning in 2000. University programs can offer more educational options, including distance learning. Education transforms through growth and development, while examination summarizes this achievement.

A particular ongoing concern, in both the academic community and the actuarial profession, has been the relative lack of meaningful interchange between academics and practitioners in addressing practical actuarial problems. Academics need and want a better understanding of real world problems and access to practitioners to work with in solving such problems. Practitioners want to understand better how to apply research and the link between the tools academics can provide and the problems to be solved.

The 1997 Consultants Advisory Panel suggested that the actuarial profession should be investing its resources to teach technical material in combination with other disciplines. The idea of partnering, particularly with academics, to jointly sponsor financial-related seminars with academic institutions such as The Wharton School, was viewed positively. Panelists desired actuarial and non-

actuarial input to deliver a program that provided a multidisciplinary approach. This might help actuaries learn about an area they have the skills to expand into and become more effective.

Thus, it is important to promote partnerships involving a collegiate actuarial program, a professional actuarial society, and a government department or a private enterprise that uses actuarial science. The activities of the partnerships could range among high level creative research, the development and testing of a new basic or continuing education tool, or computing and data collection in connection with an ongoing actuarial research project. A new candidate for partnership activity is for academic faculty to serve as mentors for the continuing education requirement of the SOA new education program.

The first objective of a partnership would be to enrich the collegiate experience of actuarial students. Clinical experience can be valuable for actuaries as well as doctors. A second objective is to utilize more fully the talents of both actuarial faculty and practicing actuaries. The third objective is to develop and test new ideas. Ultimately, the success, or even survival, of any scientifically based profession depends on the continual generation of new ideas to enhance the application of the science. A strong research program is facilitated by academic (and multidisciplinary) involvement. Funding of university programs depends on availability of research funding which enhances the credibility of the academic programs beyond being a source of students.

### **3. The general public and government view the academic community as having the ability to provide objective expertise on topics of public interest.**

Academics are viewed as a better source of research input than representatives of trade associations, who are viewed as supporting a fixed point of view and interest group based on their

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membership. Some academics have elected to become heavily involved in policy issues, and have secured appointments on government and other advisory groups. In areas such as pensions and Social Security in the U.S., policymakers turn to leading academics for support. A stronger base in academia would support greater public policy credibility for the actuarial profession.

### 4. The respondents to the survey distributed in 1997 by the SOA Research Effectiveness Task Force believe a close relationship between the academic community and the actuarial profession is important to both the actuarial profession and the academic community.

The SOA Research Effectiveness Task Force distributed approximately 4,700 surveys: 2,800 to SOA members either identified as chief actuary or from a random sample of other SOA members; 1,750 to individuals who had recent involvement in some aspect of the SOA research activity process, including non-SOA members, and 150 to current and recent SOA Board and Section Council members. A total of 642 usable responses were received. The response rates were approximately 12% general, 14% research, and 31% leadership, resulting in an overall response rate of 13.6%.

The survey asked respondents to rate their level of agreement with statements that a close relationship between the SOA and the academic community is important to various organizations and activities. The organizations and activities listed were: the actuarial profession, the SOA, the academic community, SOA research activities, SOA educational activities, academic research activities, application of actuarial science in the business community, and recruitment of qualified students to the actuarial profession.

Generally, a strong majority of the survey respondents agreed that a close relationship was important. The respondents agreed most strongly at least 70-75% agreeing that a close relationship was important to the SOA and its education and research activities

and to the actuarial profession in general. There was somewhat less agreement, though still at least 55-60% agreeing, that a close relationship was important to the academic community and its research activities, to the recruitment of qualified students, and to the application of actuarial science in the business community.

## New Competition for Future Members and Jobs

### 1. Other disciplines have developed academic programs that are attractive alternatives for the students who have the interests and intelligence that the actuarial profession would like its future members to have.

A recent paper by Dr. Richard Holmes, from HIM&R, Inc., titled *Opportunities for Mathematicians in Finance and Investment*, did not even mention the actuarial profession, despite the past positive impact of being named the top-rated profession twice in the *Jobs Rated Almanac* (1988 and 1995 editions).

The 1997 Consultants Advisory Panel of representatives from the large consulting firms identified increasing the supply of the right people going into the profession as a critical issue. Firms are most interested in getting help from the professional organizations on this issue.

Many of the best potential actuaries are choosing other careers, such as computer science, financial engineering, or other quantitatively focused business careers because they can get the same or better rewards without the time and effort required to pass the required examinations. Rewards include both money and prestige.

Some of the best graduates of actuarial programs (Laval and Waterloo, for example) are being hired to practice in risk-related fields that do not value professional actuarial designations. This is particularly disturbing because these areas are well-suited to actuarial skills and represent potential growth areas for the profession.

In different arenas, employers are hiring others who may be equally or even less qualified. For example, in the pension

area, employers are often choosing a less qualified group of people rather than bearing the cost of having fully qualified actuaries. In some cases, this is more economical but in others not. In 1992, both the life insurance and the mutual fund industries had about \$1.7 trillion in assets. At the end of 1997, the life insurance industry had \$2.6 trillion (9% annual growth) while the mutual fund industry had \$4.8 trillion (22% annual growth). Bright students will go where the action is. Right now that is on Wall Street, not in the insurance industry. Talented graduates will take the path of least resistance where careers look promising.

The Task Force has reviewed material describing financial engineering programs at various universities. These programs offer the allure of risk management careers through the pursuit of a graduate degree, a significantly shorter professional path than Fellowship in the learned actuarial societies.

Additionally, there is a shrinking pool of candidates graduating from college with quantitative skills and a shrinking number of candidates who are writing actuarial exams. The Conference Board of Mathematical Sciences surveys enrollment in undergraduate mathematics courses offered by four-year colleges and universities. From fall 1990 to fall 1995, overall enrollment decreased 9% with a 19% drop in advanced level enrollment. In 1993 the number of candidates writing SOA level 100 exams was 31,130. In 1997 it was 23,012.

## We Can Learn from Other Models of Actuarial Education and Professional Qualification in the Emerging Global Actuarial Profession

The globalization of the profession provides models of actuarial education and professional qualification from which we can learn the potential benefits and

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potential difficulties of a partnership with the academic community.

The CAS and SOA appear to be among the few actuarial organizations in the world using an actuarial education and professional qualification system that gives little or no formal recognition to academic work. In most countries, actuarial education and professional qualification are much more university focused. For example, in Mexico, actuarial education and professional qualification are completely university focused, as it is in many European countries. In addition, in the UK and Australia, there is good experience with allowing exemptions from examinations on the basis of a limited number of accredited university programs.

Approximately 25% of SOA members work at 15 large consulting firms whose work is international. These firms already recognize the professional qualifications of actuaries who have been credentialed through universities in the United Kingdom and Australia.

The SOA gives ASA membership status to Fellows of the Faculty, British Institute, and Australian Institute. The SOA will give ASA membership status to actuaries from other countries who have received their status by university accreditation, when it is the only qualification route in that country, and they have passed SOA Course 150, Life Contingencies.

The Institute of Actuaries in the UK, the CAS, and the SOA are all recognized on an international basis as providers of actuarial education. The International Actuarial Association is expected to play an increasing role in defining a common minimum standard for actuarial education.

### Objectives of a Partnership

The Task Force has identified the following objectives of a partnership between the actuarial profession and the academic community, with the understanding that the actuarial profession must retain ultimate responsibility and accountability for the actuarial education and professional

qualification of its members.

#### 1. To produce a sufficient number of qualified students and employees.

The product of the education function of the academic community (students) is consistent with the skills needed to fulfill the mission and vision of the actuarial profession. Individuals who can be successful and are desired by employers are attracted to the profession.

#### 2. To produce a sufficient amount of theoretically sound and practical research.

The product of the research function of the academic community (ideas), developed in partnership with the actuarial profession, contributes to the advancement of actuarial science and actuarial practice. The research function of the academic community advances both theory and application and serves the needs of those who can benefit from actuarial analysis.

#### 3. To enhance public recognition of the profession.

The independent, objective thinking promoted in an academic community and a faculty knowledgeable about actuarial science and actuarial issues enhance public recognition of the expertise of the profession. Research, education, and comment on public policy issues to which actuarial analysis can add value need to be supported by academia.

#### 4. To optimize the use of the combined resources of both the academic community and the actuarial profession.

Balance the use of members of both the academic community and the actuarial profession between where they are best qualified and where they can most benefit from interaction with each other. The academic community is an underutilized resource with regard to the actuarial profession while practitioners may be better utilized in providing support to other volunteer areas. Academics need and want a better understanding of real world problems and access to practitioners to work with in solving such problems.

Practitioners want to understand better how to apply research and the link between the tools academics can provide and the problems to be solved.

#### 5. To create and maintain a flexible and dynamic educational system.

Create and maintain a basic education system and a continuing education system that can quickly respond to:

advances in actuarial science, in actuarial practice, and in educational methods; and  
the changing environments in which actuaries work.

These objectives need to be coordinated and consistent with changes in the basic education processes of the CAS and the SOA.

#### 6. To address issues associated with the globalization of the profession.

Create and maintain a basic education system and a continuing education system that can best accommodate current models of actuarial education and professional qualification used in other parts of the world. Qualified actuaries will be recognized regardless of where they qualified.

### Questions to be Addressed

The Task Force's discussions to date have raised a number of questions to be addressed and the desire for additional information.

1. How can universities best be used to enhance the process of actuarial education and professional qualification and the quality of actuarial research and practice? Should criteria for special recognition of select schools of actuarial education or research be developed? If so, what are reasonable criteria? Is it reasonable to give formal recognition of university-based actuarial education as part of, or as an alternative to, any of the professional qualification requirements?
2. What can be done to enhance the interchange between academics and practitioners for addressing practical actuarial problems?



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3. How can the profession initiate partnerships among professional societies, academic institutions, government agencies, and private enterprises using actuarial science?
4. Is there an inherent difference in the university systems in Canada and the U.S. that warrants different approaches

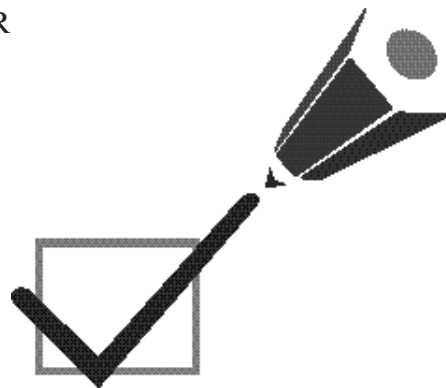
- to partnership between the actuarial profession and the academic community in these countries?
5. Is there any evidence that indicates how well university-educated actuaries succeed relative to other actuaries?
6. Is there any evidence that indicates how well actuaries coming from non-traditional routes do relative to other actuaries?

7. What are the trends in the available pool of individuals who have the interests and intelligence the actuarial profession would like its future members to have?

The Task Force welcomes your comments and suggestions. Please contact Warren Luckner at the SOA office, 847-706-3572; fax 847-706-3599;

## *It's Not Too Early to Mark Your Calendars for the next Actuarial Research Conference!*

**T**he next Actuarial Research Conference (ARC) is being hosted by Drake University and the Principal Financial Group in Des Moines, Iowa. The conference will be held on August 8-11, 1999. The annual ARC provides an opportunity for academics and practitioners to meet and discuss actuarial problems and their solutions. The 34th ARC is particularly focused on enhancing relationships between researchers and practitioners. This conference will be held off-campus in an easily accessible downtown setting. It will have sessions organized by topic so that attendees can choose to participate in parts of the program (single-day registrations available), and will have breakout sessions for additional interaction. Additional information on the conference can be found on the Web site: [www.drake.edu/cpba/AR](http://www.drake.edu/cpba/AR)



# Back to School Teaching at the Nankai University in Tianjin, China

by Dominic Lee

For three days in September 1998, I found myself giving lectures at Nankai University, Tianjin, China. I am by profession an actuary who has practiced the trade for over 30 years. Never have I dreamt of taking on the role of a lecturer especially at this point in time and in China. It was a most memorable experience.

It began in May 1998 when I met Mr. Fu Anping of the People's Bank of China at the Beihai Actuarial Conference. He invited me to visit Nankai University in Tianjin to deliver some actuarial courses. I gladly complied with much excitement. The invitation was not only a new venture and challenge for me, but also would help to promote actuarial education in China.

The final arrangement resulted in a 10-hour course on the insurance environment and the actuarial issues in Southeast Asia. I decided on this topic because it offered practical knowledge that cannot be obtained easily in any current actuarial textbooks. I hoped that students without actual exposure to the real-life operation of the insurance business would find it stimulating and useful (and hence, would boost attendance at my lectures).

Nankai University has a very large campus, with a current enrollment of over 10,000 students. In the daytime, you can see numerous taxis driving along its main avenues, which are adorned on both sides by wavy willow trees and bushy evergreen shrubs. Endless numbers of students seem to be everywhere, cycling in every alley and side lane between the old and somewhat dilapidated red-brick buildings. At night, it is so peaceful that you can nearly hear every insect singing its own song. But, beware, you are the potential

target of mosquitoes. In short, the campus gives a country flavor, yet not without a hustle and bustle side when in action.

My daily routine of the past 30 years changed completely. My cycling skill was far from adequate to serve me well in commuting, and it was a 20 minute walk to the lecture room from the lecturer's quarters. Each day, I had to take this exercise four times. However, I enjoyed the walk thoroughly (especially with a laptop at my shoulder), because it meant exercise and sweating something very healthy and much needed for a man coming from a highly urbanized region and an air-conditioned office.

I was greeted by smiling faces and anxious looks in the lecture room. For every session there were about 20 students from the insurance and actuarial divisions. In view of this different orientation, at times it was difficult to tailor the contents of my lectures to satisfy their varied needs. Nonetheless, students remained attentive and inquisitive. I was somewhat taken by surprise that some of them had very good knowledge on not only basic issues, but also relatively complicated ones. I particularly enjoyed questions from the floor. They were not only sensible but also critical. The discussion that ensued facilitated mutual understanding and initiated a person-to-person interaction, which I treasured immensely as an outsider.

Despite the tight teaching schedule, I managed to squeeze in time to talk to the students and the teaching staff. As we enjoyed a cup of Chinese tea and a slice of roasted duck over the dining table, I listened with all ears for every problem and need. It came to light that there was major difficulty in procuring lecturers from

North America to teach actuarial courses. Post-graduates were waiting anxiously for the arrival of lecturers and, in the meantime, needed to pursue studies on their own. Updated versions of some textbooks and study materials were also not available. Requests for additional sponsorship and arrangement for internship were raised. The situation seemed gloomy. However, President (elect at the time) Howard Bolnick's visit to the Nankai University on September 24, 1998, brought new hopes. Solutions would be forthcoming in the foreseeable future, and the Greater China Committee of the Society of Actuaries was assigned to give special attention to the Nankai program.

The teaching experience in Nankai University is undoubtedly a valuable one. It deepens my understanding of the problems affecting the smooth implementation of the actuarial program as drawn up between the SOA and the Nankai University. More importantly, it allows me an opportunity to identify the needs of both students and teaching staff in terms of teaching input, practical exposure and financial support. Being the chairman of the Education Subcommittee of The Greater China Committee, it is my earnest desire that I can contribute my best towards the implementation and continued improvement of the Nankai program. This will have ultimate impact, a positive one I hope, on the future development of the actuarial profession in China.

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# Newton vs. Einstein

by Joseph J. Buff

**D**r. Lester Thurow, famed MIT economist and business school professor, gave the keynote address at the recent Society of Actuaries Annual Meeting. His speech touched on many titillating topics, including one which sparked debate during the Q&A session at the end. The question raised was, who was smarter, Isaac Newton or Albert Einstein? This isn't just something fun to think about. There may also be allegorical value for the SOA membership, as we address issues such as the actuary of the future, banks and insurance, and financial engineering.

Einstein's theory of gravity superseded Newton's. Does this make Einstein smarter than Newton? Not necessarily. Since Einstein was born some 250 years later, he could draw on Newton's work and much else



besides. Someday, Einstein may be superseded too his theory of gravity remains irreconcilable with modern quantum mechanics, so something has to give. Would that make Einstein any dumber? No.

One line of argument to adjudicate the Newton/Einstein point could be, which of the two great scientists made more discoveries? This might be barking up the wrong tree as well, subject as it is to the need for a rigorous definition of discovery and for standards of primacy, i.e., who got there first? For instance, the German mathematician Gottfried Leibnitz is often credited (especially in Germany) with inventing calculus before Newton did. (Leibnitz gave us the notation  $df/dx$  for a derivative, while Newton used the

alternative notation  $f'$  and, of course, we're not talking about caps and floors here, either). Similarly, does the Theory of Relativity count as just one discovery or as two? The General Theory and the Special Theory were published separately, and they address different aspects of how the universe functions.

It may shed some light to consider each man in the context of his times. Newton, lauded in his own day for his math and science work, said that if he could see further than most, it was because he stood on the shoulders of giants. In other words, his efforts would not have been possible without the foundation laid by his predecessors. At a minimum, others like Galileo, Copernicus, and Kepler helped ask the right questions. Einstein had much in common with Newton in this respect. Einstein was also a team player, extremely popular inside and outside academia because of his humble sense of humor and lack of ego over his achievements. Einstein also drew on the work of other scientists, including Maxwell and Schrodinger, Marie Curie, and Lise Meitner.

Newton, however, lived in an age of much more general ignorance and illiteracy than Einstein. Perhaps this makes Newton smarter, since he was forced to cut through the fog, and he succeeded. One indication of his handicap is that Newton himself spent a decade or more engaged primarily in alchemy, trying to perfect a Philosopher's Stone that would turn lead to gold. In the process, he grew gravely ill from heavy metal poisoning. Newton, along with his contemporaries, took alchemy quite seriously not because they were stupid people, but because they simply didn't know better. I would argue (not entirely tongue-in-cheek) that this makes Newton smarter in another way: he had that much

less time free to spend on work we still take seriously today. For several years he was also Great Britain's Master of the Mint. Einstein, in contrast, lived in an age of great discoveries, all of which dispelled the fog: quantum thermodynamics, molecular chemistry, radio, and electromagnetism, to name a few.

It was up to Einstein and his contemporaries to enable transmutation of the elements through advances in nuclear physics. Here, perhaps, we find both differences and commonalities between the two researchers. To my knowledge, Newton did not invent any weapons. Einstein helped President Roosevelt see that uranium could make a bomb, but Einstein was a dedicated pacifist, willingly ostracized from the Manhattan Project. Newton lived when bubonic plague could ravage populations and force leading universities to close for years. Einstein lived when polio and influenza raged, but also in a century when man himself in two World Wars and many smaller ones became the greatest killer. Yet Einstein got to see the discovery of antibiotics, which revolutionized health care (and strongly impacted insurance claim statistics, too).

Both savants, each in his own way, also could not escape religious questions. Newton spent many years poring over the Old Testament, trying to discover hidden messages and prophecies encoded in the text and he had to do it all by hand. With desktop computers performing the decryption, this became the subject of a recent national bestseller. (I'll let the



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**Newton vs. Einstein**  
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readers judge for themselves whether a book on the Bible Code is fiction or non-fiction.) Einstein said that God does not play dice with the univ

# Highlights of the Education and Research Section Council Meetings

**August 8, 1998—Atlanta, Georgia**

(based on John Beekmans minutes)

Irwin Vanderhoof was elected Chairman for 1998-1999. Sarah Christiansen and Tom Herzog agreed to arrange Section-sponsored sessions for the 1999 Spring and Annual meetings, respectively.

The Education and Research Section recommends that the AERF award the Halmstad Prize for the publication year 1996 to Edward Frees, Jacques Carriere, and Emiliano Valdez for their paper, *Annuity Valuation with Dependent Mortality*, published in the *Journal of Risk and Insurance*.

Our list server is up and running. We are the first Section to have a list server.

The 1999 Actuarial Research Conference will be held on August 8-11. Organizers are Stuart Klugman from Drake University and Sarah Christiansen from the Principal Financial Group. The theme of the conference is Building Bridges between Theory and Practice. The 2000 ARC will be held at Laval University in Quebec City. Tentatively, the 2003 ARC will take place at the University of Michigan. It will celebrate the centennial anniversary of actuarial science education in the United States.

The Council decided that ads for positions in companies or universities could be placed on the handout table at ARCs. Also, the Teacher Bank, which provides information about possible positions teaching actuarial science in overseas institutions, was discussed.

It was agreed to recommend that AERF serve as the holding vehicle for financial contributions to ARCs.

The Council offered to help the Task Force on Ties with Academia, headed by Steve Radcliffe.

Regarding the new exam system, there was strong agreement to advise the SOA to set reasonable fees for Courses 1 and 2 for years 2000 and later. The Council also wanted to urge the SOA to hold a training session for academics as they prepare to teach courses involving the materials tested by Courses 3 and 4. This could be done on Sunday, August 8, 1999, in Des Moines. There was also discussion regarding the role of academics in the development of test questions.

Irwin Vanderhoof explained a possible research project at NYU. There was discussion regarding dissertation research being funded by the SOA when the student is not destined to be an actuarial science professor, but the dissertation topic is of interest to actuaries.

Arnold Shapiro appealed for paper submissions for future issues of *Actuarial Research Clearing House*.

As of June 1998, the Section had 746 paying members and a balance of \$9,311.

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## Council Meeting Highlights

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### October 20, 1998—New York, New York

(based on Jeff Beckley's minutes)

Outgoing chair Curtis Huntington presided over the meetings. For the 1998-1999 program year, the continuing members are Irwin Vanderhoof (Chairman); Esther Portnoy (Vice Chair Research); Sarah Christiansen and Tom Herzog (Program Committee liaisons); Jeff Beckley; and John Beekman. The new Council members are Faye Albert (Secretary/Treasurer); Sam Broverman (Vice Chair Communication); and Pat Pruitt (Editor *Expanding Horizons*). Departing Council members include Curtis Huntington, Marjorie Rosenberg, and Gordon Willmot.

The treasurer's report was distributed, showing a fund balance of \$9,311 as of June 1998, but it did not reflect payments for the last *Expanding Horizons* or \$1,000 for the CD-ROM for the Actuarial Research Conference (ARC). The Council decided to maintain dues at \$15 for the coming year.

Esther Portnoy volunteered to serve as the U.S. academic member of the Ph.D. Grants Task Force.

Tom Herzog reported on the plans for the 1999 Annual Meeting in San Francisco. The Section can sponsor up to six sessions. Among them will be the Section Council Breakfast; Report from the Academic Ties Task Force with Steve Radcliffe; and a Session on Actuarial Principles with Stuart Klugman.

Additional suggestions for meeting sessions included the top 10 actuarial developments in our history, with Steve Haberman; a retrospective look at Anderson's projections, with Al Easton; financial economics; credibility in A&H insurance; and a forum with academic practitioners to identify ideas for research.

Curtis reported that Sarah Christiansen has identified topics for three sessions at each of the Spring Meetings. She is in the process of recruiting for these sessions.

Esther Portnoy stated that she had nothing significant to report as the representative of the Continuing Education Coordinating Committee.

The Council spent a significant amount of time discussing the preliminary report of the Academic Ties Task Force. Additionally, the Council asked Rob Brown, who is a member of the Task Force, to be our liaison and report back to us on developments within the Task Force.

Curtis also reported on the Board of Governors meeting that occurred on Sunday, October 18. Much of the BOG meeting was spent on budget issues since the budget initially proposed was a deficit budget. The BOG discussed numerous alternatives to eliminate the deficit including several that would affect research and academics. In the end, the Research area budget was reduced by \$75,400.

The SOA Research Library has a Cowman Index that was complete through 1989. Additionally, there are indexes prepared for 1989-1993. These need to be updated to the current date. CKER had agreed to contribute \$5,000 to this effort. The Council agreed to make a modest contribution, as well.

The 1999 Actuarial Research Council will be in Des Moines. The following Web site address has information: [www.drake.edu/cbpa/ARC/arc99.html](http://www.drake.edu/cbpa/ARC/arc99.html).

The Council discussed Actuarial Research Clearing House (ARCH), which is typically published twice a year, once with papers from the ARC and once with other papers. Subscribers are currently charged \$40. One of the proposals of the BOG was to increase that charge to \$45 to help reduce the deficit budget. However, the Board chose not to accept that option. For future issues, it will be strongly encouraged that the articles be submitted in an electronic format.

Jeff Beckley and Rob Brown informed the Council that a significant amount of study material needs to be developed before the implementation of the new Education System in 2000. They hope that the members of the E&R Section will be active in the development of that material. Jeff will distribute information to the Section Council shortly.

Irwin stated that two points of emphasis for the next year will be: analysis of financial risk management and support for young academics. Suggestions on the latter item were discussed. One of the major methods of providing support would be to provide opportunities to publish in a refereed form. Suggestions included setting up a formal refereeing process for SOA study materials or adding a refereed appendix to the ARCH.

The Council thanked Curtis Huntington, Gordon Willmot, and Marjorie Rosenberg for their long and illustrious service to the Section and decided to continue their current level of compensation during their retirement from the Council. The meeting was then adjourned.



Meeting in the Big Apple: Education and Research Section Council members pose for a picture during their October meeting. Back row, L to R: Patricia Pruitt, Faye Albert, Jeff Beckley, Esther Portnoy, Tom Herzog. Front row, L to R: Gordon Willmot, Irwin Vanderhoof, Curtis Huntington.



## Moderated List Server

The Education and Research Section is the first Section to have a moderated list server. We encourage all our members to join. Interested persons can join the moderated list server via the Special Interest Sections area of the SOA Web site. The button to join is on the Education and Research Section page.

Once the button is clicked, the individual receives prompts on how to join.

It s that easy!



