



SOCIETY OF ACTUARIES

Article from:

# The Actuary

December 1994 – Volume 28, No. 10

# The Actuary

1993-94 SOCIETY OF ACTUARIES YEAR IN REVIEW

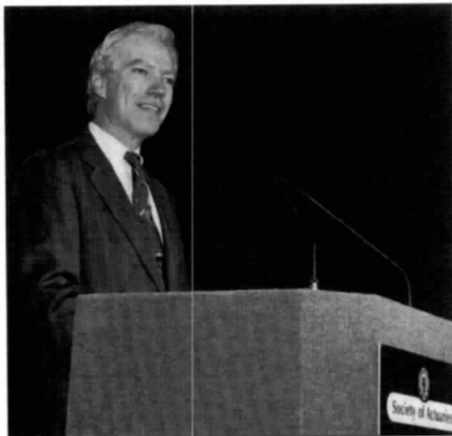


**Our Foundation Is Our Future**

---

**PRESIDENTIAL ADDRESS**

# Actuarial science Our foundation and our future



by R. Stephen Radcliffe  
President, Society of Actuaries  
Address at Annual Meeting  
October 18, 1994  
Chicago

**A**s my year as president draws to a close, I would like to reflect on it and share some perspectives with you. It has been a terrific year, and I can't believe it went by so fast.

Serving as president of the Society of Actuaries is a rare privilege, and I sincerely thank all of you for this opportunity. It was a very busy year. Carrying out my responsibilities would have been literally impossible without the support of John O'Connor and his extremely capable staff. We accomplished more than I had hoped this year, but much remains to be done.

### **International highlights**

Most significantly, this was a year of new initiatives for the Society of Actuaries. We witnessed expanding international horizons, involving both educational and professional issues. I had some geography lessons along the way and learned that events from around the globe are going to dramatically affect our thinking.

One highlight this year was successful negotiations with Canada and

Mexico under the NAFTA agreement, which concluded in October in Mexico City. The actuarial profession is one of the first to arrange for international practice among the three countries. The positive relations we have established with the Mexican actuarial profession will benefit each of us.

---

### **Actuaries can play a major role in Russia's and other Eastern European countries' conversion to a free market economy.**

---

The highlight of my year was a trip to China, where the Society is doing critically important work. I traveled to Nankai University with Past President Harold Ingraham and Dr. Kailin Tuan, professor emeritus at Temple University. We celebrated the graduation of the second class of actuarial students. More than seven years ago, under the leadership of Harold and Dr. Tuan, we helped Nankai start an actuarial science program, and it has been tremendously successful. We also organized financial support, so Nankai students could afford our exam fees. Their pass ratio has been over 80%, almost twice the pass ratio for all students. We have nine new Associates from this program. Next year, we may have more than 20.

From Nankai University, I went on to Beijing to visit Peoples University and Peking University. Harold and Dr. Tuan went south to visit Hunan, Fudan, and Shanghai universities. These represent the top universities in China. A few have already started actuarial programs, and the others are intensely interested in doing so. The Society now

has new exam centers in Beijing, Tianjin, Changsha, and Shanghai, all in mainland China. More than 50 students will take exams in those centers this year. Our biggest foreign exam centers are in Hong Kong and Taipei, where more than 500 students are taking exams. Clearly, the Society is important to the development of the actuarial profession in China. We are highly respected and much appreciated in that part of the world.

We are also starting an actuarial program with Moscow State University in Russia. This is a joint venture with the British Institute of Actuaries, and it parallels our activity in China. The needs of Russia and other Eastern European countries are comparable to China's. These countries face the tremendous task of converting to a free market economy, and actuaries can play a major role in this conversion. It is important that the Society continue its support of these developing actuarial programs.

---

### **The Society of Actuaries is emerging as a global player, a significant and challenging role.**

---

I also traveled to London last November to meet other leaders of the actuarial profession from around the world. A new section of the International Actuarial Association (IAA) will probably emerge from that meeting. This spring, at a follow-up meeting in Orlando, we approved a proposal to form the International Federation of Actuarial Associations (IFAA), which was presented to the IAA Council in September. The council asked that this proposal



*The statue of Chou En-lai, former premier of China, outside Nankai University makes an impressive backdrop for visitors President Steve Radcliffe (left) and a visiting lecturer.*



*Radcliffe and other SOA members involved in the Nankai program visited faculty and students enrolled in the three-year course.*

continue to be refined under an expanded steering group. SOA Board Member Paul McCrossan and Past President Walt Rugland are members of this group.

---

***If I contributed one thing during my year, I hope it was to guide our profession toward strengthening its foundation by advancing our science.***

---

The IFAA's purpose is to unite the actuarial profession globally, a position we must achieve if we are to have an impact on the issues of the day. The federation would seek common ground for an international approach to:

- A code of conduct
- A discipline process
- Practice standards
- Basic requirements for actuarial education

Forming this federation won't be easy. Uniting large organizations like the Society of Actuaries, with 16,000 members, with other organizations of fewer than 250 members will be challenging. Furthermore, actuaries are fiercely independent. Finding common ground on these four issues will be difficult. Because all actuarial practice is local, the federation also must accommodate the laws, customs, and practices of actuaries in all regions of the world.

The Society of Actuaries is emerging as a global player, and it is a significant and challenging role to play. One step toward implementing our international agenda is establishing a new ambassador program to connect us more effectively to our foreign members. Under this Board-approved program, Society members will serve as liaisons or ambassadors in a designated country. These ambassadors will then convey the needs and interests of members in that country to the SOA for consideration and action.

*(continued on page 4)*

## Presidential address (continued)

### Education and examination overseas

While it's important to recognize our members outside North America as customers, we cannot overlook two other major customer groups. The first is people taking exams. For this group, we have emerged as an international organization, especially for Associate level exams. Out of nearly 300 exam centers, more than 60 are in foreign countries.

Our second customer group consists of those who have passed exams and are now practicing professionals. For this group, we provide continuing education opportunities like this meeting, seminars and symposia, teleconferences, and other educational opportunities. Our publications also are primarily oriented toward the practicing professional.

We try to offer products that appeal to all practicing professionals, but in reality those products and services often address U.S. topics. It has been particularly difficult to serve the Canadian

segment of this customer group. Part of the reason stems from the success of the Canadian Institute of Actuaries (CIA). The CIA has consistently provided high-quality meetings and member support, thus leaving limited opportunities for the SOA to do so. Frankly, we have not tried to serve practicing actuaries in other countries, because we believe such support should be primarily handled in the country of practice. The Society of Actuaries' resources are better utilized internationally on basic education, examination, and research.

This international commitment to education, however, raises other issues. For example, because of income differential, particularly in the Third World and developing countries, we must consider some accommodation of our examination fees. Under the current structure, our exams are simply not affordable in many parts of the world. The Committee on International Relations is studying this problem and will recommend a policy to the Board.

A bigger issue from an international perspective is the need to re-examine the E&E structure. We need to find a way to separate the testing of fundamental actuarial principles from the testing of nation-specific material. Foreign students will not be interested in taking our exams that focus on U.S. and Canadian topics. Raising Associateship from 200 to 300 credits has complicated this issue, because the appeal of the ASA may now be limited for foreign students if the extra 100 credits contain material focused on the U.S. and Canadian systems.

---

***If our profession is to thrive, we must translate our knowledge into a form other industries can understand. Only then will they realize what we have to offer.***

---

We also have strong competition from the British Institute of Actuaries in exporting examinations to other countries. The Institute recently restructured its exam series to test only the fundamental core subjects an actuary needs. The continuing education portion of its certification addresses nation-specific subjects, such as legislation, taxation, and accounting rules. This restructuring could ultimately make the Institute's examination process more attractive than ours internationally. We should look at our exams with this in mind.

We formed a task force to review our E&E structure from a fundamental perspective. Its charge is to define and articulate the distinctive competencies actuaries must have for the future. It also will review methods to develop and demonstrate those competencies.

**Actuarial science, our foundation**

The main theme of my talk is also the theme of this meeting: "Actuarial



*A commitment made this year to help develop the actuarial profession in Russia is sealed by a handshake between SOA Immediate Past President Walt Rugland (center) and Professor Stas Ashmanov (right), president of Moscow State University's Financial and Actuarial Center. Professor Gennady Falin (left), vice president of the center, and other SOA representatives, Warren Luckner and Warren Adams, also participated in the discussions that led to two signed agreements in principle.*



*(Above) Wife Janie watches as Steve Radcliffe displays the framed badge of office. Ending his presidential term at the Chicago annual meeting, Radcliffe transfers the office to Bob Berin (below), the 1994-95 president of the Society of Actuaries.*



Science — Our Foundation Is Our Future.” I’d like to quote from the program for this meeting:

The growth of financial security systems in our economy has provided many opportunities for the actuarial profession. Actuaries have been the scientists, architects, and engineers who have helped develop, build, and maintain these systems. Our intellectual core — actuarial science — has been the foundation. It is the foundation that is also our future. We must build on it through our education and research to provide practical solutions to issues involving the financial consequence of risk.

Our keynote speaker, Colin Powell, told us that the key to success in the future will be the ability to adapt to fundamental change. The worldwide changes taking place in economic and social structures are almost incomprehensible. We must address this changing global economy. We are up to the task. We have the smarts; we have the initiative; and now we need leadership to provide direction.

---

***I believe that, without principles, we are without a science. And, without a science, we are without a profession.***

---

If I contributed only one thing during my year as president, I hope it was to guide our profession toward strengthening its foundation by advancing our science. This requires retooling existing paradigms and creating new ones. Most importantly, we must recognize that our past successes will not guarantee our future. As a matter of fact, the future is not clear. Job security will be a major issue for

*(continued on page 7)*

## Presidential address (continued)

actuaries in the next few years, something new for us. Traditional actuarial work will shrink as industries currently employing actuaries mature and consolidate. What will provide a sound claim on the future? How do we, as a profession, develop the ideas and tools for the financial security systems of the next century?

### Foundation for education and research

We are addressing this issue head on. The most important achievement for the Society this past year, and what I believe is a landmark development for the actuarial profession, is the formation of a foundation for research and education. Its purpose is to advance actuarial science through innovative research and creative educational initiatives. It will enable the Society to form partnerships, collaborations, and affiliations with other organizations to leverage available research dollars. It will also link the profession more closely with universities, an objective we have had for years. But most importantly, I believe this foundation is also our future. It will allow us to build professional foresight so we can reach out and nurture relationships with

other specialties. If our profession is to thrive, we must translate our knowledge into a form that other industries can understand. Only then will they realize what we have to offer.

I hope you will join me in supporting the development of the Society of Actuaries' Foundation in whatever way you can.



SOCIETY OF ACTUARIES FOUNDATION  
Preparing for tomorrow's possibilities

### Actuaries Online

Another significant achievement for the SOA was the establishment of Actuaries Online, our new electronic bulletin board. If you're not plugged in, I urge you to try this new computer network. This will be the most significant communications link for actuaries in the future. To be informed and remain competent, you'll need to be connected with the profession, both nationally and internationally. Don't be left behind.

### Actuarial principles

One objective did not advance as far as I had hoped: the adoption of actuarial principles. This process involves hard work and many political considerations.

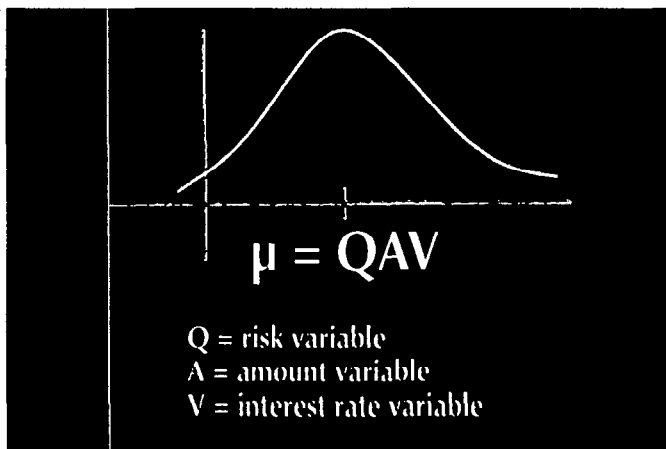
However, our combined effort on this with the Casualty Actuarial Society (CAS) did achieve important milestones. I'll be patient and wait another year for the adoption of our first actuarial principles. I want to offer special thanks to Arnold Dicke for his leadership on this project. Without his dogged persistence, we would not have accomplished as much as we did.

I know many of you think we don't need principles. Others think that principles don't exist. I believe, however, that without principles, we are without a science. And without a science, we are without a profession. I believe this very deeply. Sometimes I get discouraged and think others are right. Maybe we don't represent a science. Maybe we are only a bunch of bright people who work on insurance and employee benefit problems. Or maybe we are just pricey puzzle solvers. I can't hold on to that thought too long, though, because there is no future in it.

Principles are just a method of documenting the paradigm. Perhaps the real problem is that we are trying to document the paradigm right in the middle

(continued on page 10)

## Actuarial paradigm shift



*Old paradigm is based on single point estimates of risk using mean values.*

### NEW PARADIGM

- Broader description of risk
- New risk variables
- New paradigms — Chaos theory, game theory, etc.

*New paradigm encompasses broader ranges of risk and wider dispersion of risk variables.*



## Presidential address (continued)

of a paradigm shift. The old paradigm, which is now 150 years old, is based on single point estimates of risk using mean values. This structure worked quite well when the distribution of risk was clustered around the mean.

However, this required an environment of low risk and predictable variables. Now the environment requires that the paradigm encompass broader ranges of risk and wider dispersion of risk variables. Instead of just studying the first moment of the distribution function, we must now focus on the second and maybe the third moments. We have used crude approximations of the deviation from the mean by using scenario testing. We are evolving to more sophisticated models to describe risk, but much remains to be done. As an aside, many of our customers still want single point estimates of risk, even when that doesn't make sense. This makes the job of communicating the consequence of risk even more difficult.

Despite this chaotic environment and the changing paradigms, I still think it is worth the effort to document the paradigms. This defines the

uniqueness of our work. It also provides the language and currency upon which to trade the ideas bubbling up in this crazy, changing world.

---

***We earned respect by focusing on doing the right things, as guided by the principles of our science.***

---

### Character of an actuary

I would like to close with my view of the true character of the actuary. In many of my speeches and writings, I have characterized actuaries as the scientists, architects, and engineers for financial security systems. This makes the definition of an actuary perfectly clear for me. We are scientists — applied scientists who use rigorous mathematical models to describe, analyze, and quantify risk. We are architects — financial architects who design financial security systems to

provide payment of benefits when needed. We are engineers — social engineers who can build and maintain financial security systems to withstand the stress of economic ups and downs. This is our unique heritage, and it is immensely valuable. Some would like to shed our stereotype as nerdy number crunchers, and I agree with that objective. But, we cannot forsake our core competencies in the process. We must remember that the value we have is the skill and ability to do analyses that no one else can. This will always be our primary strength.

I am left with a poignant memory from my international travels this year. Everywhere I went, I found the Society of Actuaries held in the highest regard. This reputation holds for the entire profession as well. It makes me proud to be an actuary.

Would it be too bold to say that we are one of the most respected professions in the world? We earned this respect by focusing on doing the right thing, as guided by the principles of our science. Yes, I believe actuarial science is the foundation of our future.

## Annual treasurer's report (continued)

and examinations activity and 25% of member dues. The target for member services, etc., activity is the desired addition to member equity, taking into account the contributions to cover general overhead costs, 75% of member dues, and the investment income earned.

We believe that the new financial budgeting and reporting structure will provide a better set of tools for the planning and management of the Society's finances in the period of restructuring that lies ahead. We recognize, however, that while this structure is appropriate for today and the foreseeable future, circumstances will change over time. For example, increased competition may not permit us to achieve our program and net income goals for the basic education

activity; new income-producing or service activities may arise; the SOA Foundation may significantly reduce the research funding burden on the SOA. We believe that the new financial approach can be adapted to any such changes in circumstances.

The restructuring of the Society's operations will require several years. To assist in the planning and execution of the restructuring, the Board of Governors has agreed that the SOA should operate on a break-even basis over the five-year planning period. If a break-even operating result is achieved for this period, the resulting member equity at the end of FY 2000 would still constitute more than 25% of the expenses for the following fiscal year.

In addition to the concentration on the Society's financial management and

reporting structure, the Committee on Financial Affairs has, over the past two years, reviewed the policies governing the investment of the Society's assets. As a result of this review, the Board of Governors adopted revised investment policies and guidelines at its June meeting. Under the revised policies and guidelines, the great bulk of the assets not required for cash management purposes will be invested in a laddered portfolio of Federal government bonds with five year maturities at the time of purchase. The remainder of the funds will be invested over a period of three years in U.S. and Canadian common stock index-type funds. We believe the new policies will provide greater returns and cash flows with minimal added risk.