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General Session

Moderator: Neil Parmenter

Speakers: Joel Albizo
Michael E. Gabon
Dr. Peter S. Heller

Summary: Educated at Trinity College (USA) and receiving a doctorate in economics from Harvard University, Dr. Heller taught economics at the University of Michigan in Ann Arbor from 1971-77. Since then, he has worked for the International Monetary Fund (IMF), working largely on fiscal policy issues in countries as diverse as China, India, Somalia, Thailand, Japan, Ethiopia, Korea, Kenya, Indonesia, Israel, Jordan, Bosnia, Slovenia and Russia. He has published extensively in a number of areas relating principally to fiscal policy, economic development and poverty reduction, aging populations, public expenditure policy, health care reforms in developing countries, pension and civil service reform, climate change, privatization and globalization. In recent years, he participated in the World Health Organization's Commission for Macroeconomics and Health and is presently a member of the Millennium Task Force of the Millennium Project of the United Nations. He is the author of the recent book, Who Will Pay? Coping with Aging Societies, Climate Change, and Other Long-Term Fiscal Challenges*.*

MR. NEIL PARMENTER: Good morning, everyone. This meeting is called to order. I'd like to welcome all of you to New York and the 55th Annual Meeting of the Society of Actuaries. We'll begin by acknowledging and welcoming the special guests with us today. It is with pleasure that I introduce and welcome 12 past presidents of the Society of Actuaries. They are Jack Bragg, Barbara Lautzenheiser, Dwight Bartlett, Daphne Bartlett, Steve Radcliffe, Sam Gutterman, Dave Holland, Anna Rappaport, Norm Crowder, Rob Brown, Jim MacGinnitie and Harry Panjer.

Note: All handout materials are available through the link on the table of contents.

Please join me in welcoming our current president-elect, Steve Kellison, and our incoming president-elect, Bob Beuerlein. I'd also like to take this opportunity to introduce Sarah Sanford, the executive director of the Society of Actuaries.
We will now recognize the members newly elected to serve on the Board of Governors. Elected as vice presidents are Warren Luckner, Bruce Schobel and Judy Strachan. Elected as members of the Board are Mary Bahna-Nolan, Errol Cramer, Mary Hardy, Pat Pruitt, Max Rudolph and Ken Steiner. Please join me in welcoming them.

It is my pleasure to welcome several dignitaries from other actuarial organizations. From the American Academy of Actuaries, welcome Barbara Lautzenheiser. From the Conference of Consulting Actuaries, we have President Bill Bluhm. From the Institute of Actuaries of Japan, please welcome past General Secretary Masaaki Yoshimura. From the International Actuarial Association, we have President Luis Huerta. From the New Zealand Society of Actuaries, welcome President Richard Geisler. I hope I didn't miss anybody. I'd also like to welcome 30 members of the Institute of Actuaries of Japan, led by Mr. Hidenori Ishigaki, who are attending the SOA Annual Meeting as part of their overseas educational program.

Next, it is my honor to welcome the newest members of the profession. We have 44 new Associates attending their first meeting. One of the most pleasant tasks I have as president is to welcome new Fellows into the fold of the SOA. This year, President Steve Kellison and I had the pleasure of meeting many new Fellows at the Fellowship Admission Course held in The Woodlands, Texas; Montreal, Canada; and McLean, Virginia. Please join me in congratulating the 118 individuals attending their first Society of Actuaries meeting as a Fellow.

Now I'd like to introduce Joel Albizo. He is the Society of Actuaries' managing director of communications and marketing. He will give us an update on the profession's important image campaign.

MR. JOEL ALBIZO: I'd like to give you a very brief introduction to the image campaign for the actuarial profession. I'll cover why we are conducting an image campaign, how we are going to meet our goals and what we can expect for our efforts. Last, but certainly not least, I'd like to take a few moments to get your feedback on three potential campaign themes.

First, let's answer a very basic question. Why does the actuarial profession need a serious long-term campaign to enhance its image? Here's why. SOA has conducted two rounds of formal employer research. Some conclusions are that employers perceive actuaries as one-dimensional technicians and that employers don't understand the full value of the actuarial skill set. While many in the profession are enjoying stable, productive and challenging employment, the future is not looking as bright as it did 10 years ago. Today, opportunity is at risk. According to our research, accountants, MBAs, Ph.Ds and other credentialed professionals are seen by traditional employers as providing risk management value but with better communication and business skills than actuaries. When you couple this with profit pressures, this means more intense competition and a greater need to demonstrate value. In the fast-growing broader financial services sector, where the actuarial skill set has substantial relevance, there is a large awareness gap. While this isn't surprising, due to the profession's lack of representation in these firms, this lack of awareness puts actuaries at a severe competitive disadvantage against better-known professionals, like those who hold the Chartered Financial Analyst designation.

Clearly there is a need, and your profession is responding. SOA's strategic plan calls for an image enhancement program to prepare the profession for opportunity. To deliver on this strategy, SOA is leading a coalition of North American actuarial organizations through the Image Advisory Group. With the guidance of the newly established SOA Marketplace Relevance Strategic Action Team, chaired by past President Norm Crowder, and the active involvement of the Image Advisory Group, we are planning and will execute an aggressive and focused campaign to present a more dynamic and relevant image of the profession. We have goals, resources and a plan.

Our success strategy has four pillars that build on the profession's best. First, we will involve the profession by seeking input on the campaign theme. We will create a practical means to involve every single member of the profession. This will be part of our January 2005 launch. We will engage those pioneers and change agents who have demonstrated the ability to learn, grow and project a dynamic and positive image for the profession. They will, in turn, help us engage others in the campaign.

Second, we will focus our resources on reaching out to those audiences that have the ability to influence many others. This is often called "influencing the influencers." The key media and business leaders, like CEOs and chief financial officers, are an early target. Third, we will promote the profession's recognized strengths. These strengths are—to name a few—strong ethics, the ability to solve complex and difficult problems, and thought leadership.

Finally, we will present the profession as both dynamic and relevant to today's business challenges. For example, we have a strong message on how enterprise risk management can help a company make good decisions, enhance governance, and build and protect shareholder value. That's a strategy. The rest is good execution.

What can we expect from our efforts? The actuarial profession has been around for over 100 years and has changed its image more than once. We can do it again, and we will. We must. A new image will not appear overnight. We will cultivate it gradually and progressively, one achievement at a time, one milestone at a time, over as much as a decade. While a new brand is a long-term prospect, we can take positive and meaningful steps in that direction beginning today. We can identify, activate and celebrate our pioneers. We will introduce a profession-wide pioneers' program in our first 100 days. We can become the authority on risk. In fact, the September/October 2004 issue of *Contingencies* featured a very thought-provoking commentary on this very point. We can be the voice of enterprise risk management. We will use our Enterprise Risk Management Symposium in May to tell our story to the media and business. We can begin building a new image within the profession, one actuary at a time, and we can begin today. In fact, we can begin right now. Today, you will become an active participant in the actuarial profession's image campaign. The Academy and the Conference of Consulting Actuaries have already participated. Later this month, the American Society of Pension Actuaries (ASPA), the Casualty Actuarial Society (CAS) and the Canadian Institute of Actuaries (CIA) will join in.

Through an extensive and exhaustive process of research and analysis and the involvement of the Image Advisory Group, we have developed three potential campaign themes. These themes were designed to accomplish three things: to create a more dynamic and relevant image for actuaries in the minds of the employer, to position the value of actuaries around the critical marketplace challenge of the evaluation and management of risk, and to create a story that generates energy, awareness and understanding of the profession's value. Your feedback and that of your peers at other fall meetings will help us to select a theme that is best suited to the goals of the campaign.

Our first theme option focuses on the unique value of the actuarial skill set in the area of risk management. It positions actuaries as the "owners" of enterprise risk management, whose insightful understanding of risk allows business leaders to make better decisions. The second theme plays on "navigate" and "count," a word that represents both mathematics and reliability. It positions actuaries as reliable advisors who can be trusted to provide valuable, relevant and precise information to inform key operational and strategic decisions. The final theme emphasizes the positive contribution of risk management with a tagline that peaks curiosity and interest. It positions actuaries as the sought-after advisors who hold the secret to success, which is that valuable insight and information help business leaders choose the right risks.

Here are the themes. "Delivering insight in a world of risk. Actuaries." "Navigating risk is part of business. Actuaries. Count on us." "Turn risk into opportunity. Actuaries. The best-kept secret in business." Now it's time to hear what *you* think. On your seat you'll find a ballot. Open it up and place a mark in the box by your favorite theme. It would be most helpful if you gave us your initial reaction. You can drop your completed ballot in a box by the door, or you can take it to the registration desk before the end of the Annual Meeting.

In closing, I'd like to thank you all for helping us take the first step in launching your image campaign. It was the philosopher Plato who said that the beginning is the most important part of the work. Today is the beginning of a new, more dynamic and relevant image for your profession, and you have taken the most important step.

MR. PARMENTER: Thank you, Joel. We would like to recognize you for sharing your time and for helping us in this campaign. It is important that we pick the right image. Now, if you are currently chairing any SOA committee or SOA task force, or if you are a member of the Board, would you please stand so that we can recognize you? Thank you for all that you do to make our profession better. I also want to thank our all-volunteer Annual Meeting Program Committee. They've worked hard all year to make this meeting happen. The committee consists of representatives from all SOA sections and other actuarial organizations. The names of these committee members are in your program. Thank you for all your hard work and dedication to putting on a first-class annual meeting. One of our major volunteer roles is chairperson of the Annual Meeting Program Committee, and we owe a great debt of gratitude to this year's chairperson, Mike Gabon. Mike has a few words to share with you.

MR. MICHAEL E. GABON: Over the past year, the Annual Meeting Program Committee was challenged with developing forward-thinking sessions and opportunities for socializing and networking. We diligently consider your feedback. In the spirit of a certain talk show that shall remain nameless, here's the Top Ten list of highlights: (10) This meeting is informative, interesting and fun. Best of all, Donald Trump isn't here. So participate, because no one will be fired. (9) There are 65 presenters here today that are nonmembers. This provides us an opportunity to hear perspectives from persons outside of our own group. (8) Meet the authors. The Society has sponsored a mergers-and-acquisitions textbook coming soon to a bookstore near you. This takes actuaries outside of the profession. (7) Welcome to the fellowship class and 1994 members who are here and having their 10th anniversary reception here tonight. Congratulations! (6) The new Risk Management Section is exceptionally popular, reflecting a keen interest in enterprise-wide risk management and chief risk officers (CROs) in the marketplace. To that end, there are six sessions sponsored by the Risk Management Section for your enjoyment. (5) Sarbanes-Oxley. Enough said. (4) Networking. Opportunities abound. (3) The Society of Actuaries staff. This meeting would not be possible without their good work. Thank you for your assistance over the past eight to nine years. (2) The Annual Meeting Program Committee. I'm proud to have served as chair of this year's team. They did a great job. I'd like to thank each and every one of them for their hard work. (1)The number 1 highlight is you, the participants of this meeting. Your participation and feedback are essential for the continued success of our organization.

Circling back to the image of actuaries, I'd like to leave you with a final thought. Edmund Haley is not ordinarily remembered by the general public for developing the first mortality table back in 1693, but for his observations of the sky. As Royal Astronomer, he mapped longitudes and latitudes to assist others in the art of navigation. As actuaries, we have the ability to map and navigate both risk and opportunity. Here's my question to you. How do you want to be remembered? What are you willing to do about it?

MR. PARMENTER: Thank you. Here we are at the General Session of the Society of Actuaries Annual Meeting and my farewell address to all of you. In a few minutes, I'm going to try to sketch for you what we've accomplished over the last 12 months. I'm also going to allude to some very big and exciting changes on the horizon, but I'm going to leave the bulk of that for Steve Kellison to deliver to you tomorrow. My remarks today are primarily geared toward providing you with information both as to (1) what we've accomplished and (2) how hard we have worked to position ourselves for the changes to come in the next year. To remove any possible suspense, let me say simply that in both of those areas we're in great shape.

After sitting through more than my fair share of presidential addresses during my 40+ years of membership in the SOA, I've come to the realization that a simple recitation of accomplishments isn't always riveting stuff. So with your plight as a somewhat captive audience in mind, I beg your indulgence as I attempt a somewhat dramatic approach here. Those of you with especially keen memories will remember that in both my campaign speech and my acceptance speech for president-elect, I stated that my position was to take a step back from adding more initiatives to our already full plate and focus on implementing and completing initiatives that were already on our plate, such as: enhancing the value of the SOA to members, advancing the actuarial profession, redesigning education and examination (E&E) to better fit the needs expressed to us by our consumers and customers, increasing the demand for actuaries, increasing the value of the credential and increasing the value of the actuary brand.

These items have not been entirely completed yet (in some cases, far from it), but the honest truth is that many (perhaps the majority) of our members care primarily about member satisfaction and not all these items. To me, that's perfectly normal. I certainly think of myself in those shoes for my many years of membership sitting in the audience. To those of you in that category, my message is quite simple. Yes, we have addressed those issues listed. Yes, we continue to address those same issues. Yes, the Society of Actuaries remains focused on total member satisfaction.

What I think is crucially important, and what I want to focus on today, is that the SOA is currently in the process of implementing big-picture ideas; implementing the strategies that will enhance the actuary brand; and increasing the demand for, relevance of and competitive advantage of actuaries in the marketplace in both traditional arenas and in the broader financial services market. The goals of these strategies are clear: increase actuarial employment opportunities, increase the value of the credential and increase the satisfaction of all SOA stakeholders, such as employers and members.

For the last 12 months, the single most important objective of your leadership team has been implementing the SOA's strategic plan. Central to this is a new business model that is a dramatic departure from traditional corporate organizational systems. The new model introduces new terminology as well as new methodology. Although this far-reaching initiative might not seem to have an immediate effect on your career, simplified SOA governance structure will allow us to identify and act on critical issues facing the profession. Steve Kellison will be discussing this in greater detail with you tomorrow. Additionally, as I indicated a year ago, we have been blessed with strong financials as an organization, with significant additional funds residing separately in Section assets. The SOA has the resources to carry out its mission. Nonetheless, we also need to adopt a new mindset.

During my tenure on the board, we seldom encountered a project that we didn't like and were not eager to fund and initiate. The mindset must change. We have reached the point where we have so many expensive and important items on our plate that we must carefully prioritize our activities and be aware that member equity is not an unlimited source of funds. To this end, the Finance Committee has developed a template to apply to each initiative in order to assess its value relative to other initiatives and to direct the most emphasis toward those initiatives of highest priority to our organization. This mindset also recognizes that some member services expenditures may exceed dues, so that funding of your direct member value must come either from basic and continuing education programs, which is presently the case, or dues increases well in excess of inflation.

Rest assured that my comments are not intended to imply any negative financial position for our organization—not at all. My comments simply suggest that we must score the value of new services in financial terms. Although relatively transparent to the membership, the SOA leadership has been in transition for the last two to three years as part of a corporate governance change. The volunteer board has learned and adopted different, more effective association management procedures and related evaluation metrics to be sure that we are spending your dues dollars wisely going forward.

Bear with me just a moment while I talk about a reality within our organization that may not directly affect your pocketbook or your career today, but continually hovers in the background of our organization. I'm talking about balancing the inherent tension between satisfying current member needs and employer needs on the one hand and leading the organization into the future on the other hand. Without going into detail, here are three areas of potential tension: the constant back-and-forth of examination content, the ongoing debate over the role of academia in the credentialing process and how to partner with others on new opportunities such as risk management. In my view, we can borrow a page from the medical and legal professions in involving the academic community in our qualification process. We must reach out to other organizations.

Part of the challenge is overcoming our fear and reluctance to change. It is safe to say that our members tend to be risk-averse. However, to some extent it is also undoubtedly in our best interest to take more risks in the future as an organization, or else we will be viewed as stagnant and obsolete. Addressing the future sometimes means a break with tradition. That can be painful. That can be uncomfortable. That can be controversial. In my opinion, some things have just sat on our plate for too long. We must forge ahead. We must break tradition, and we must initiate change. On top of all that, there are, not surprisingly, some initiatives that could be considered brand new horizons, whether they are completely new or simply improved endeavors from the past. Consider, for example, *SOA News Today*. This new electronic newsletter currently comes monthly, but theoretically it could come daily. Doesn't *The Actuary* magazine look great? I think we've all seen it.

Regarding business skills training, the SOA is exploring how to best and most economically increase essential but non-quantitative competencies for our members. The new Governance Committee is charged with identifying and developing the criteria, the roles and a recruitment plan for future SOA leaders. With respect to sections, our organization is establishing a better connection with the grassroots. This intent underlies the practice area section evolution underway, which Steve Kellison will delve into more tomorrow. As well, the formation of two new sections, the Taxation Section and the Younger Actuaries Section, is a deliberate step to meet member needs and interests.

I'd like you to pay attention to a few more items that I'm going to quickly mention. They're important, and I think you should be aware of them. With respect to the SOA's strategic initiative on external relations, many new and expanded existing relationships with organizations outside the SOA have been formed. Examples include activities in conjunction with the Professional Risk Managers' International Association (PRMIA), the Global Association of Risk Professionals (GARP), LOMA and the Life Insurance Marketing and Research Association (LIMRA), just to name a few. These activities relate to both our education and our research mission.

With respect to the image campaign that Joel just talked about, the intent is to position the actuary as an elite professional with distinctive, high-value skills, and to challenge the back-office, green-eyeshade image of the actuary who knows the right answer but has difficulty communicating it. A goal of the campaign is to increase leadership opportunities for actuaries in the traditional sectors and to open doors in the area of broader financial services. I'm very excited about this new image campaign. I'd also like to recognize Barbara Lautzenheiser and Bob Wilcox, past president and president, respectively, of the American Academy of Actuaries, for their recent public support of the image campaign. As Barbara so eloquently stated in her departing remarks last week as the Academy's president, we need to proactively endorse this campaign, and "we" means you and me.

The objectives of the E&E redesign initiative are to provide a syllabus more relevant to the practicing actuary, prepare our graduates for the future and reduce travel time. Conversion rules have been established. The preliminary examination syllabus has been released, and the validation by educational experience (VEE) process has been announced. Also, the Fundamentals of Actuarial Practice and the FSA components of the new structure have been designed and are now under development. There is considerable ongoing discussion of how to incorporate the subject of financial economics into the syllabus and how much to include. Our volunteers are working hard to ensure that the subject is adequately covered and meets the needs of all our practitioners into the future.

Internationally, one of the SOA's guiding principles is support for the global actuarial profession. This principle anticipates close coordination with the International Actuarial Association and collaboration with other individual actuarial organizations from all over the world. As you well know, there are numerous international business, regulatory and professional business issues looming on the horizon. The actuarial profession and the SOA will be impacted, and you will be happy to know that the SOA is well represented at the International Actuarial Association table.

In the area of research, there is a long list of accomplishments, but time does not permit me to list them all. Some of you may have seen Moshe Milevsky's Retirement Probability Analyzer, which was mentioned in *The Wall Street Journal*, on CNN's "Financial News" and in other prestigious publications. Maybe you have seen the recent *TIME* magazine cover story on living to 100, which also happens to be the topic of an SOA symposium that we will be hosting in January 2005 with over 30 international partners. Both of these projects represent definite success in the research area. I would also like to mention that the task force on services to Canadians completed its work and published its findings, including recommendations on introducing CIA membership value, appropriately representing Canadian perspectives into SOA activities and creating formal liaisons between CIA and SOA committees.

Now we arrive at a favorite part of the presentation, my opportunity to humbly offer some suggestions relating to our organization and our beloved profession. Speaking of the Canadians, I would like to borrow some excellent ideas expressed by my colleague and good friend, Mike Lombardi, that he made last May as outgoing president of the Canadian Institute of Actuaries. I thought these observations were critically important then and perhaps even more so now.

First, I would encourage each and every one of you here today to investigate and study issues facing the SOA and the profession from the aspect of beyond your particular area of practice. I think you'll find that your fellow members in other spheres of influence are facing parallel issues that go to the heart of actuarial concepts and the heart of professionalism. Second, innovate. Step outside of your comfort zone. Take risks. Challenge the status quo. Third, use what you've learned and what you find to take bold steps and to make a future you want to see happen a reality. Let me give you an example of what I mean. It doesn't take much clairvoyance to foresee public regulation of the actuarial profession in the not-too-distant future. Public regulation of the accounting profession is already on the map, and in all likelihood our profession will surely follow. Now, if we can see it coming, we need to be proactive in dealing with it. Let me ask you this: If public regulation is not an "if" issue but a "when" issue, who would you rather have as your regulator—other actuaries or headline-hungry government officials? We all know the answer to that one.

In Australia, for example, non-actuaries are already involved in the discipline process, but they are chosen by the actuarial profession. In the United States, security brokers regulate themselves. Why not actuaries? I'm not trying to throw a scare into this meeting, but I am trying to make sure that we have a wake-up call. The profession needs to be vigilant, proactive and open to the possibility of public regulation. Of course, to be successful from the perspective of public regulation, full cooperation among all U.S. actuarial organizations and all other actuarial bodies is imperative for the SOA.

In closing, I'd like to say that as your president, this year has been all that I expected and much, much more. Although the role is quite demanding, it is simultaneously very educational and very personally rewarding. For the many thank-yous I have to deliver, I'll hold off until tomorrow's luncheon. I do, however, want to leave you with one closing thought. That is the overwhelming sense of optimism I feel, which I hope was reflected in my comments. The SOA has the human and financial resources, the intellectual capital, the necessary skills and the *esprit de corps* to face our challenges and leverage them as opportunities going forward. I am optimistic about the future of the SOA and of the profession. I truly believe we are at the crossroads of opportunity, and we are ready to go forward.

Our keynote speaker this morning is Dr. Peter Heller, who is deputy director in the Fiscal Affairs Department of the International Monetary Fund. He has also served as a consultant for The World Bank and the Agency for International Development. He is an expert in fiscal policy and emphasizes the importance of thinking ahead in fiscal planning. Today, he'll be addressing the impact of the costs of aging societies and other long-term fiscal challenges within the framework of today's budgetary decisions.

DR. PETER HELLER: Thank you very much for this opportunity to speak before such a distinguished group, members of a profession that have had, and I think will continue to have, a very important impact on virtually all aspects of our society. It's particularly remarkable that you've invited me, an economist, as your keynote speaker. I'm very familiar with the many jokes that are often told about actuaries and the comparisons that place you unfairly with that other wild and rollicking profession, the accountants, and yet you have chosen perhaps a speaker from the only other profession that is your rival in being perceived as boring.

But there's also something wonderfully evocative for me to be speaking here. Back in 1966, as a college sophomore, I spent a fascinating summer as an actuarial trainee at The Equitable in New York, a program which, if my recollection serves me well, was run by one of your more esteemed colleagues, Dan McCarthy, who probably is sitting in this room. Dan shepherded us through a course on life contingencies and gave us exposure to the many aspects of the life insurance industry. One of his colleagues asked me to write a computer program. In 1966, I didn't know what a computer program was. I learned very quickly, and I wrote one. I passed the first three actuarial exams, and perhaps if I had not been seduced by that ultimate rarity, a charismatic professor of economics, I would have been sitting in this room with you. I would be attending probably my 30th anniversary as a Fellow in the Society of Actuaries, if I hadn't made that fatefully wrong turn in my life. Perhaps it is not surprising, in a deep-rooted, almost Freudian way, that my actuarial unconscious surfaced in my career at the International Monetary Fund as an economist.

In my career there, I have been heavily centered on issues that are very much the bread and butter of actuaries, including writing a number of papers exploring the fiscal implications of aging populations in the spheres of pensions, health care, long-term care, and more recently, in this book that I just wrote, *Who Will Pay? Coping with Aging Societies, Climate Change, and Other Long-Term Fiscal Challenges*. It's a welcome opportunity for me to speak to you to try and see the interface between the public policy issues that I was addressing in my book and the challenges that actuaries will face in coming years.

I have five key messages for you this morning. First, history may prove an unreliable guide in helping us prepare and plan for the challenges of the 21st century. The reason is that we are experiencing structural changes that I think are unprecedented in a number of ways. Looking back at the empirical data may be somewhat of a thin reed in basing our financial decisions for the future. Second, industrial governments are particularly vulnerable to these challenges, reflecting both the extent of legislative commitments of future budgetary resources and the role of government in society as a risk-absorber. Third, in the 21st century, governments will need to pay much greater attention to risk management (and actuaries have a very important role to play in this regard). Fourth, governments have over-promised what future generations will be able to finance in taxes. Thus, there's likely to be a shifting of risks back to the household and business sectors. The insurance industry's role will probably be much more important as a consequence. The final point that I'm going to make this morning is that actuaries, as a profession, face considerable challenges looking ahead in grappling with the uncertainties and risks of the 21st century, in responding to the way in which governments will change their policies perforce and, finally, in responding to competition from new professionals in the field of risk management.

Let me explore these themes further. (I was also taught in college to be a debater. You're supposed to tell them what you're going to tell them, tell them, and then tell them what you told. That's my approach to life, I guess.) The first point is that history may prove an unreliable guide to helping us prepare and plan for the challenges of the 21st century. Now why is that? In my book I talk about what I call "uncertain certainties." Many of the uncertain certainties that we face in the 21st centuries involve structural and unprecedented changes for which history may yield only limited insights.

We start with demographics, of course. Fertility is doing things that nobody ever expected us to do. It's gone down to unprecedented levels. Fertility is below replacement in many countries of the world. Will it continue to stay that low? It's very hard to see the pressures that will raise fertility rates. It's not only in industrial societies. It's in emerging market countries, such as China, Southeast Asia and many of the Far Eastern emerging market countries. Even in developing countries where fertility rates used to be seven, they're now five or four and a half. Life expectancy is also improving much faster than expected. There are some blips. Russia is a serious blip in terms of life expectancy. But throughout most of the world, certainly the industrial world, we're seeing unprecedented increases in life expectancy, making it much more difficult for you to figure out at age 65 how long people are likely to live.

Globally, as you know, the population will rise. It will go up by about a couple of billion people between now and 2050, but it's all going to be centered in Sub-Saharan Africa, South Asia and the Middle East. In the industrial world and much of the emerging market world, the world is aging in an unprecedented fashion. The share of the elderly in the population will be rising sharply in all industrial countries. I mentioned the fact that the population will increase globally because inherent in that are some real regional and global tensions between the world's population growing in the poorest parts of the world and conceivably a shrinking of population and certainly a rapid aging of the population with the share of the elderly rising in the richest parts of the world.

Basically, if you project out to 2025 and then to 2050, you're going to see a decline in the share of the youth population across the world. This is going to have ramifications that we're still trying to understand in terms of savings and investment behavior. It's certainly going to have important ramifications on governments in terms of fiscal policy. This is important because it adds a very important layer of uncertainty to your lives in terms of trying to understand what's going to happen within a country of aging populations, but also in terms of your looking at investments in the financial side of your work and in terms of trying to understand where global capital markets will be. What are the implications of a rapidly aging industrial population across the world? What will be the implications for interest rates? For exchange rates? Looking out several decades, it's a matter of tremendous conjecture when you've got this kind of locomotive of industrial societies all getting older, and this is going to happen very soon.

There's no doubt that the world's climate is changing and is going to change very dramatically in the next 100 years. There are many uncertainties that we're still trying to grapple with in understanding how that change will take place. How fast will the world warm? Will it warm at the lower bound of maybe two degrees or 2.5 degrees Fahrenheit, over the next 100 years, or will it warm at something like nine degrees Fahrenheit over the next 100 years? There will be dramatically different consequences depending on where we are in that spectrum. The scientists, quite frankly, don't know whether we're at the lower end or the upper end. It will certainly lead to a greater frequency and intensity of extreme weather events, events and issues that will pose great challenges probably more for actuaries in one of your other societies than for you, but it is certainly going to be an important phenomenon.

The sea level is expected to rise. Projecting out to 2160, whether the sea level rises by half a meter or even a meter is very much conjectural at this point. Changes in precipitation patterns will take place. There will be parts of the world which will have much more extreme rainfall. There will be other parts of the world where there will be much more drought. This will have important consequences, principally for the developing countries, but even in countries that we see as net gainers from climate change (the United States being one), where the improved temperatures may actually on balance have a net positive economic impact. Don't kid yourself. There will be winners and there will be losers in this country. There will be many economic sectors of the United States that will be affected adversely by the prospective climate change that we're going to see. Let me show you a chart that gives you some sense of the pace of change in the global costs of extreme weather events (see Heller slide 1, page 6). What makes this interesting is to see what proportion of those costs are not insured. Most of them are not insured.

There are other events that will be fundamental looking ahead. One is the pace of technological change. We've all lived this in our lives, and there's no question that there has been an accelerating pace of technological change. The world is certainly much more interconnected. Societies are much more interconnected. The speed of awareness of trends and of unexpected developments is remarkable. The speed at which capital markets can respond to unanticipated events is instantaneous.

Market demands change. When I was on the leave during which I wrote this book, I spent part of the time in London, but then I went to New Zealand for three months, from January to March of 2002, and then I went to Copenhagen. You wouldn't believe how dramatically the events of September 11 had affected the New Zealand economy and the Danish economy. Tourism just plummeted. The world is very much interconnected, and there's rapid speed at which events in one part of the world affect the economies of others.

There are other obvious trends. We're going to see continuing dramatic changes in technology. That's going to have wonderful effects in many ways, but we also know that in an area that's going to affect you, medical care issues, it's going to have very uncertain impacts. Most of us think that it's going to increase the cost of medical care, and it's going to put tremendous pressure on governments. I asked one of my colleagues at Harvard, an emeritus professor in health economics, "How are we going to contain the rapid rise in the cost of medical care?" He said very simply, "Just close the National Institute of Health. That's all you need to do." Technology will be very important.

There are security risks. Terrorism and risks of weapons of mass destruction are not far from any of our minds at this time, with potentially important economic impacts and fiscal impacts with which we're all still grappling, with which we will continue to grapple and which are fundamentally affecting the economic climate in which we function.

Globalization is another trend. I've mentioned the intensifying interconnectedness that we have, and that very much affects governments. It affects us in terms of tax competition that governments feel. Governments are much more exposed to capital markets. They're under much more pressure from capital markets to maintain disciplined fiscal positions. There's only one government in the world that seems to be unexposed to these pressures, and we won't go into that.

Natural resource limits is a final point that I think is worth mentioning. Natural resource limits are being breached in some regions—water, forestry products—globally. There are many who speculate that the world's reserves of petroleum products will be peaking in the next 10 to 20 or 30 years. It's not clear whether technological change will be able to fully address that kind of pressure.

The second key point I want to make is that industrial governments are particularly vulnerable to these challenges that I've outlined. Their fiscal positions are very exposed to the risks associated with these developments. Why is that? There are two important reasons. One is that industrial countries have developed, over the course of the last 50 years, a very complicated, elaborate system of social insurance. I don't think that we ever intended the social insurance to bankrupt our governments, but the demographic trends that we're experiencing are certainly conceivably likely to do that.

The aging of the population is creating a much larger group of people who are entitled to retirement benefits. Then you combine the force of demography with the force of technological change, as we're seeing in health care around the world. It's not only the simple mechanics of more elderly and more retirees, but the fact that more elderly exposed to the opportunity for the most advanced technological options are demanding it. When you look at people who are looking out ahead 20-30 years at the prospective costs of medical care, whether it's the Congressional Budget Office in this country or the Treasury in Australia or the Chancellor of the Exchequer in the United Kingdom, all of them are seeing medical care costs spiraling upward and potentially creating tremendous fiscal pressures.

Many of you are perhaps aware of recent estimates of the size of the implicit—not explicit—debt of the United States through all these promises. It's something like $44 trillion in net present value terms, which is very large. If you're a European and you're following the recent estimates of the European Commission, you will see that the projected trends for age-related expenditures on pensions and health care are rising dramatically as a share of the gross domestic product (GDP). This next chart (see Heller slide 2, page 7) shows the cost of public benefits for the elderly for selected industrial countries between 2000 and 2040. The bottom dark lines reflect the higher costs that you're going to see in 2040.

There's another reason why governments are vulnerable. The reason is that governments play the role of shock absorbers. Governments play the role of social shock absorbers absorbing social risks. We know that there's unemployment compensation. We know that if United Airlines ditches its pension scheme and some of the other airlines follow, and the PBGC finds itself short, then the government will inevitably have to bail it out. You can read almost every day in the newspaper some way prospectively in which governments may be exposed to additional risks, in terms of shouldering risks that were unanticipated. Cushioning the blow for households of unanticipated shocks in terms of natural disasters is something we've been watching on our news screens in the last month or so in Florida. In Germany and central Europe in 2002, all these uninsured risks from flooding were covered by the government. When there are terrorist incidents, governments step in. Governments step in and cushion the blow of unanticipated shocks at times for business. Note the terrorism insurance of post-9/11. Subsidies were provided to the airline industry. There's the role of the reinsurance in the face of hurricanes in Florida.

Now, there are forces operating against governments stepping in. Clearly, governments want to avoid moral hazard effects. They don't want it assumed that governments will pick up the tab, but there are significant pressures, and the experience is that governments do, in fact, pick up some of the tabs. When you combine the legislative commitments of governments (in the form of Social Security, Medicare, pensions in the United Kingdom or in Germany or France, and so on) plus the government's role in absorbing shocks, governments are very exposed and very vulnerable. As a result, most importantly, across the industrial world serious questions are being raised about the sustainability of fiscal policy. Can governments pay the bill of their current legislated promises? Looking ahead, can they provide the basic, core functions of government? Can they maintain a financial capacity to respond to the multiple challenges that societies will face in this century, such as natural disasters, security threats and terrorism risks?

It's an interesting question, and in my book I explore this a bit. If you look at many of the industrial governments, their tax burdens are already high enough, in the 40 percent to 50 percent of GDP range, that I don't see much room for governments to raise taxes. In our country and maybe in Japan, there is more room to raise the tax burden if there was a political economy will to do it. So perhaps in our country we have a little bit more scope if we are willing to deal with some of these threats, but in many parts of the world there's not much scope, and governments are going to have to do something about it.

This underscores the importance of governments paying much greater attention to risk management. Here is where actuaries should play a key role. It seems obvious that governments should be addressing the panoply of risks to which they're exposed, the extent of their risk exposure, the costs of their risk exposure and the implications for tax rates if there are adverse shocks that they have to address. It seems obvious that governments should be in the business of worrying about the risks to which they as governments are exposed and worrying about their capacity to function in that context. What is quite remarkable to me is the limited degree to which governments systematically think about long-term trends.
Few governments systematically and on a continuous basis engage in long-term-scenario analysis. In the United States, it's principally the military, in the context of procurement decisions, that do this. But for the rest of United States government, relating to civilian and foreign policy issues, I can tell you quite authoritatively that the analysis is largely on an occasional basis. It's fragmented across agencies. It's rarely comprehensive in its assessment of risks, and only to a limited extent does it focus on the economic ramifications. It's rarely the focus of policy consideration at the highest levels of government, the presidential level.

This is not to diminish the important work of the actuaries of the Social Security Agency and of the actuaries dealing with Medicare, the valuable work of the Congressional Budget Office or even of the National Intelligence Council. In about a month and a half, you're going to read a very interesting document from the National Intelligence Council called *Global Trends 2020*. It came out with one five years ago called *Global Trends 2015*. *Global Trends 2020* will lay out a whole range of interesting scenarios about what the world will look like in 2020, but this is done very infrequently. It commands the attention of our authorities for about six minutes, and then they move on. There is no place where the independent challenges faced on the security front, the environmental front and the social insurance fronts are considered as a portfolio of risks facing government. They focus principally where there are numbers, where they can do it.

In the business world, in your world, in the insurance world, you actuaries are acutely aware of the need to examine the portfolio of risks faced, the probability distributions of different risks faced and the economic consequences of different outcomes. In looking at your mission statements, it says, "In a dynamic and rapidly changing world, actuarial knowledge must be continuously expanded to meet increasingly complex problems and to enhance the value added by actuarial analysis." That's what you do. You private sector people are aware of the need to do this, and yet it's remarkable that there's little comparable effort undertaken for governments.

In principle, governments have an intrinsic advantage over those in the private businesses. First of all, for many risks they can rewrite the contract. They can just pass new legislation saying that you have to retire later. They can levy taxes, and they can print money. So in some respects, you could say that governments don't have as much of a problem worrying about risks. But we in the International Monetary Fund and in my department in particular, which worries about fiscal affairs, are very much aware of the financial vulnerability of governments and the constraints they face in a globalized world. Even for a country as the United States, there are many of us expressing concern over the rising level of debt, explicit and implicit, and the mounting current account imbalances that we face with the rest of the world.

I heard someone as eminent as Larry Sommers raising the alarms recently that there is something to worry about. I think the answer is that a far more prominent role needs to be placed on risk management techniques by governments. You have a seminar that will follow this session at which I'm speaking that will talk about defining catastrophic risks, tracking aggregations of risks, modeling natural perils, modeling terrorism risks and evaluating the functionality of reinsurance pricing. That's what governments should be doing. You should be playing a much more prominent role in assisting governments in this effort.

As an aside, I participated in a meeting organized by the educational wing of the actuarial profession and the International Labor Organization about a year ago. The key point of that meeting was that there's too limited an amount of education being received by actuaries in the areas of social insurance. Many countries in the world (there are many of them) that are now trying to set up social insurance systems are lacking in terms of actuarial skills to formulate, manage and administer the development of social insurance schemes. I think there is a very important role that actuaries can play across the world in government.

This brings me to the fourth key point, which I think is a very interesting one and something to which I've given a lot of thought. Because governments have significantly over-promised what future generations are likely to be willing to finance, there may be a shifting of risks back to the household and business sector. That means to me that the insurance industry's role, your role, will become much more vital as a result. There are other governments where there may not be a shifting of risks back, but there will be a leaving of risks with the household and the business sector, particularly in the emerging market countries, places like China. Governments will be forced to trim expectations and the benefits that they can promise. We know it's going to happen. We know. There's no way in fiscal terms that governments can avoid this. They will push back the retirement age. They will reduce the replacement rate for Social Security and for pension benefits around the world. They will be placing greater limits on health-care promises, reducing benefit indexation and limiting coverage in the event of natural disasters. This is inevitable. For fiscal reasons they're going to have to deflect more risk back to the household and business sector.

The question will be, how will the household and business sector respond? Presumably they will increase savings to prepare for a higher burden of potential future risks. Presumably there will be a much greater role for insurance. It will presumably create a greater demand for products in the insurance industry. One has to imagine that there's going to be a demand for more interesting and sophisticated forms of annuities as all these people—all my Baby Boomer friends—start retiring with their defined contribution plans. They've got this lump sum of money, and they're going to want a more complicated form of annuity. That's for sure. We economists assume that the insurance markets will be able to respond. I'm not sure if that's a completely accurate assumption. We look at what's happening in terms of casualty and property insurance in places like Florida, and it's not clear that the insurance industry is willing or that individual households are willing to pay the premiums that the market would presumably demand for flooding insurance or hurricane insurance. Thus you have state reinsurance pools emerging. This is going to be a complex process. The insurance sector may choose to reject some of this risk-shifting, as I'm saying is the case in Florida to some extent. Similarly, moral hazard considerations may lead households to effectively try and shift the risk back on government. People may feel that they'll just go on welfare and not save, or you have Medicaid-type schemes where people rely on government in that way. It's a very complex process about how this risk is going to be shifted back and forth between the government and the private sector.

The interface with governments, even if the government does try and shift the risk, will be much more complex, with the focus shifting much more toward the character of the government's regulatory policies. One wonders whether government regulatory policies may have been part of the source of the threatened demise in defined benefit plans. The fact that the government made it very difficult for private pension schemes to overfund during the boom years of the late 1990s may have made it much more difficult when the market turned south. Adding to the complexities, you actuaries will be forced to try and anticipate the implication of policy shocks—a change in government policies.

Finally, my fifth key point is that as a profession, actuaries face considerable challenges looking ahead in grappling with these uncertainties and risks of the 21st century, in responding to how government policies will change and in competition from new professionals in the field of risk management.

In terms of grappling with the changes of the next century, is historical experience in the equity risk premium likely to be valid? What assumptions should you be using about long-term interest rates, looking ahead 10 to 20 years? What should you be assuming about exchange rates? Longevity risks? When I started to write my book, the U.K. actuary was forcefully dismissing contentions that the United Kingdom was too conservative in its projections on life expectancy. When my book was published less than two years later, the U.K. actuaries had revised their estimates upward. Climate change risks are becoming much harder to judge. What do you assume about the costs of medical care looking ahead? Should you assume the rate of medical care inflation of the last three to four years? Of the last 10 years? Of the last 40 years? You've got real problems there.

You also have to anticipate how the prospective changes in government policy, in terms of social insurance programs, are going to affect you and how they will affect what your own private coverages will be. Finally, you have to worry about increased competition from other risk management professionals. Before I gave this talk, I did read all of the newsletters that were coming. It was quite clear that this is an issue of concern to the profession. You're seeing competitors in experts coming from business schools applying risk management techniques and value-at-risk analysis in the banking sphere. There's less focus on identifying risk classes and more focus on modeling and managing the risks in a portfolio. There's a lot of competition out there in the risk management business, and it's not clear that actuaries will necessarily prevail in this. There is a challenge, I think, and that was certainly echoed in earlier statements this morning.

Let me conclude. I think we are entering a challenging and difficult time. Government policies will have to change. Herbert Stein, a very famous economist, used to say, "If something is unsustainable, it will stop." That even includes the fiscal and external policies of the United States. Actuaries are well positioned to help governments confront the policy challenges of today. Strengthening the risk management approach of governments is essential. It's very important. I think the role of the insurance industry will become, if anything, much more important, but I think the complexities of the challenges that you will face will be greater. I think actuaries in the private sector will be equally confronted by important trends in development, for which history is only a very limited guide at the present. Dealing with these uncertainties will be your very important challenge.

MR. HARRY PANJER: We are in a world in which the changes are in different directions, in different magnitudes and in different parts of the world. Africa is going in one direction in many aspects, and the Middle East and the United States and Canada in other directions, both in terms of longevity and fertility and also economically. Where do you see all this leading? You've raised a number of the questions. What's the new equilibrium going to look like 50 years from now?

DR. HELLER: I just sat with a group of people who were thinking precisely along those lines, and they ended up with four states of the world. They could easily envisage four different states of the world, which encompass a range of scenarios. I guess I am an actuary at heart. I am risk-averse. I'm not very optimistic about Africa, despite the enormous amount of effort that most of us put into Africa in trying to deal with economic development. One can't be very optimistic about the state of the world in the Middle East. I see a world of very large imbalances between what you're seeing in this aging industrial society and this very young, poor, and politically tense world in the Middle East. That creates a number of challenges. One aspect is certainly the pressure of migration. It's hard to imagine all these people, these additional 2 billion people, bottled up in South Asia and Sub-Saharan Africa and the Middle East, poor and looking at an industrial world that even with very modest per capita income growth will be much wealthier. I think the pressures of migration will be intense. One has to be honest that the concerns about terrorism and concerns about political instability are going to be very pressing. I think that it's going to be a very difficult world in that regard. Climate change will adversely affect those parts of the world profoundly. Certainly you have very important issues as to how China and India will proceed. That's where an enormous amount of play will be in this world. China is a large country. It is growing at an enormously rapid pace. It will be a powerhouse. When you look at the world of 20-30 years from now, the economic center is moving toward Asia, in that direction. How China goes and how India goes will affect capital markets and where an industry is. It will be very challenging.

MR. GENE ECKSTUT: I sort of feel that the most important element of the future is economic dynamism. For example, you were talking about the Middle East and Africa. They just aren't dynamic. The United States is more dynamic. Ireland is lately dynamic, as is New Zealand. Some countries have a more dynamic way of allowing its citizens to develop their economy, and others have less. That seems to have more effect on future history than anything else. I'd like you to talk a little about the different concepts of economic development in different parts of the world.

DR. HELLER: One of the interesting questions about dynamism in society is how these demographic trends will affect that. One wonders whether you're still going to see the same level of dynamism in Western Europe with a rapidly aging population as you'll certainly see in India and China. One wonders whether we'll be able to compete and whether we'll be able to experience the same rate of productivity change as you're going to be seeing in places like China and India. One worries about education and research. Are we putting enough money into research and development now? It will clearly be needed. One worries about the effect of energy sources and how the prospective limits and the higher cost of energy may affect technological change and the viability of some of our economies. It's going to be a very interesting world. The important point I wanted to make is that it's going to happen much faster than we're inclined to think. We tend to think that things take care of themselves, and I think that the kind of world we're going to be experiencing in 10 or 15 years is going to be very different from what we're accustomed. I used to think that 10 or 15 years is a long time away, but then I reflect that I've been at the International Monetary Fund for 27 years, and I was 14 when John Kennedy was inaugurated. That was 44 years ago. So 2040 isn't far away. The kinds of changes I was talking about earlier are going to be on us within our lifespan.

MR. DAVID MERKEL: I'm an actuary who works for a hedge fund. In my travels, I've talked to Asian central bankers, some of whom wanted to invest in our funds. Their comment to me was to take a look at the U.S. current account deficit. It's being financed largely by emerging markets like China, India, Japan and a few others. My question is this: When do you think the eventual adjustment to the dollar happens? After that, what are the knock-on effects going to be? You still have the Chinese currency linked to the dollar, which could set off a round of competitive devaluations again.

DR. HELLER: First of all, I'm speaking in personal terms. I'm certainly not speaking for the International Monetary Fund, which weighs in on these things. When I went on my sabbatical in 2001-2002, the euro was something like 80 cents to the dollar. The euro is now $1.20. That's a profound change already. I don't see how you can avoid a further deterioration in the current account balance looking ahead. It wouldn't take very much of a change in the portfolio behavior of some of the Asian central banks to start really affecting exchange rates. That's the first point. I think there are limits, because then they, of course, will suffer very significant capital losses if the dollar depreciates dramatically. So they have their own interest, and certainly they have their own interest in competitiveness terms in not allowing the dollar to depreciate dramatically vis-à-vis their currencies. I think you will start seeing flexibility in the Chinese currency. I think that's a matter of time, but one can expect that to happen. Larry Sommers made a very important point that you're going to have to see two things happening in this country. You're going to have to see the exchange rate depreciate, but it's going to have to be coupled with an improvement in the U.S. national savings rate, which at the moment is historically about as low as it has ever been. That means that you're going to have to see a major turnaround in the U.S. fiscal position, which explains much of the deterioration in the decline in the savings rate over the last five years, but you're also going to have to see household savings—private sector savings—rising. Both these things will have to happen (and very soon) because it's not clear at all that we can sustain the level of current account imbalances that we're presently experiencing and the level of debt to which we are exposed.

MR. BRUCE D. SCHOBEL: Dr. Heller, you mentioned a couple of things that I'd like to bring together. You mentioned social insurance obligations quite a bit and the fact that governments have this huge future economic burden. You also mentioned historical risk premium on equities. Of course, probably everyone in the audience knows that Social Security privatization proposals have been founded on the notion that if Social Security taxes could be invested in equities rather than turned over to the government, that people would do much better. Of course, if you don't get the historical risk premium on equities, then that's not true. Would you comment on that whole subject?

DR. HELLER: I participated in a couple of interesting seminars run by a private investment group. They brought together these portfolio managers. These were people running major pension funds, like the California Public Employees' Retirement System (CalPERS). They sat these pension fund financial managers in a room. There were 30 to 40 of them. They asked them, to try in a Bayesian kind of way, to give their views as to where markets are going. Is history a good guide looking to the future? What was fascinating was the extent of divergence between the official projections of these managers for their companies and their private perspectives on where things were going. Universally there was a much more pessimistic view in their own private minds as to what that equity risk premium was going to be compared to what they were officially putting on their balance sheets or in their prospectuses, which was quite interesting to hear. I took a lot away from those discussions. I think that is a more pessimistic conclusion in terms of how optimistic you can be. In this country, in the United Kingdom and in many of the European countries, we're still going to have to rely importantly on a second tier, which involves defined contribution-type schemes where people are saving for their retirement. It just means that people are going to have to save a lot more and have to be much more realistic about what can be expected in terms of the amount of assets that they can build up looking ahead. Equally, I think there's some scope for the role of international diversification of investments to try and push up that equity premium, but I don't think very much. I think what it boils down to is that one has to be much more conservative about what one's expectations are going to be in terms of what one is going to get out of savings. I think the United States has a reasonable system. I think that the amount of public promises in Social Security, at least in pensions, is not generous. Nobody expects to live lavishly on their Social Security income, and I think that's probably a reasonable promise compared to what you see in much of continental Europe, where the promises are for much higher replacement rates that are just unaffordable. That means that Americans are reliant much more on whatever they can save, but it's still not going to be as rosy as one would have expected from the past. The World Bank has certainly backed away substantially from that. The real question is, what's the role of the state? How much should the state provide, and how much do people have to provide themselves? There's a very interesting debate going on right now in the United Kingdom. As many of you know, the United Kingdom in the 1980s sort of moved their state pension simply indexed to prices, which meant that in replacement rate terms it just dramatically shrunk. Now suddenly they're looking and they're realizing that more people are going into the welfare system than getting the state pension, because the welfare system is more generous. There was a major report that came out recently by Adair Turner precisely on this question. So even where you thought you had a fiscally viable solution, it's not viable, and they're going to have to improve what they do as a minimum, as a social safety net.

MR. PARMENTER: I'd like to thank Dr. Peter Heller. I forgot to mention when I was talking about the image campaign that the CCA and Bill Bluhm have also publicly endorsed it to their annual meeting. The Academy, the Society and the CCA have done this. That's a reminder.