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**FUTURE FOCUS: THE NEXT FIFTEEN YEARS--
A REVIEW OF THE WORLD FUTURE
SOCIETY MEETING IN NEW YORK**

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o This session will review the World Future Society meeting held in July, 1986, covering such topics as business, emergency management, finance, new technologies, work, careers and more. The panelists will offer an actuary's perspective of this gathering of futurists from various backgrounds and perspectives.

MR. FREDERICK W. KILBOURNE: The topic is a review of the World Future Society (WFS) meeting held July 1986 covering such topics as business, emergency management, finance, new technologies, work, careers and more. I think the topic list gives some flavor of the breadth of WFS meetings. The panelists will offer different actuaries' perspectives of this gathering of futurists from various backgrounds and perspectives.

There were about 1,500 people in attendance at the meeting, approximately the size of this meeting of the Society of Actuaries, but there were some stark differences beyond the coincidence of the same approximate numbers. To my knowledge, there were no more than a handful of actuaries in attendance at this

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particular meeting, which reflects, if anything, a slight decrease in the actuarial attendance of previous WFS meetings. I attended a meeting in Toronto, the first big meeting they had, and there were about 5,000 in attendance with perhaps a double handful of actuaries.

Subsequent meetings of the WFS have been held annually with each having some kind of specific focus. The theme of the New York meeting was billed as "Future Focus: The Next Fifteen Years -- Crisis Management and Conflict Resolution." The WFS works hard and well to cover the waterfront and bring in a variety of groups of people who consider themselves futurists or who have an interest in futurism. There are no more than a couple of handfuls of people who can make a living by calling themselves futurists, although it can be said that actuaries are futurists by nature. The substance of actuarial science deals with futurism as it is the intersection of future and money. I see good reasons for us to be actively involved in the futurism movement, if there really is such a thing. The World Future Society itself, when I visited their world headquarters two years ago, consisted of, again, no more than a handful of people working at an office over a used clothing store. However, they put together these massive meetings and have, I'd say, quite a bit of influence.

I'd like to give a brief outline of some of the highlights of the meeting without getting into any particular substance. Then I'll turn the microphone over to our two panelists. We also have remarks prepared by a third panelist who could not be here.

The program was designed to attract futurists and other people to the meeting. I suspect that Ed and Sally Cornish, the founders and moving force behind the WFS, don't really know, when they set out to organize one of these meetings, just how many people are going to be there. I think the standard deviation is considerably greater than for a Society of Actuaries meeting.

Some of the people who were prominently featured in the program included such futurists as Alvin Toffler, Isaac Asimov, Stafford Beer and other luminaries from various fields (some of whom spoke without any particular attention to the theme of the program) such as Roger Smith, the CEO of General Motors, Senator Albert Gore from Tennessee, Charles Bowsher, the Controller General of the

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United States and the head of the General Accounting Office, and Julius Becton, a retired General in the United States Army who is the head of the Federal Emergency Management Agency (which I guess does have something to do with crisis management). There were also several luncheon speakers, including John Heimann, Vice Chairman of Merrill Lynch Capital Markets, and Harlan Cleveland, the Dean of the University of Minnesota's Institute of Public Affairs.

The conference was set up in a very eclectic way. It had plenary sessions, concurrent sessions, preconference courses, and a postconference event. There were special evening events which had the full thrust of the WFS behind them, and then there was an open opportunity to have a session on just about anything, subject to a certain amount of screening. At the Toronto Conference in 1980 I decided to have such an open session. I was not very well attended and I think some of the people there were under a misapprehension. I called it something to do with "security systems," intending to talk about Social Security and insurance and so forth, but about a third of the people that showed up thought I was in police work. The WFS meetings also have receptions, and the exhibition format that's brand new to us works well for them. They have a book store that's open throughout the meeting and they have a large number of conference exhibits, exhibitors, people who are selling things, people who are selling ideas -- ideas on the far left, the far right, the far out -- very much of a mixed bag.

The concurrent sessions have nine tracks, or categories, that for the most part are followed. One track deals with business, another with science, others with government, health, education, defense, futurism as such, and so on. Some of the topics included medical science in the future, corporate strategic planning, AIDS, computers and health, good and hard times in the futures field, what works and what doesn't. There was a session on terrorism which I didn't attend, so I don't know whether it was a "how-to" session or not. Other topics included the future of aging, infant mortality in the year 2000 and liability insurance -- the dangers ahead. The evening events had even more variety to them and the people exhibiting in the exhibition hall included The American Bar Association, The American Humanist Association, The Institute of Noetic Sciences, the World Federalist Association, The United Nations Publication

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Outfit, The World Bank Planning & Forecasting Consultants and the L-5 Society. There was considerable variety throughout the whole conference.

MR. SAM GUTTERMAN: My presentation will cover four areas this morning: my overall impressions of the meeting, a brief description of the concurrent sessions that I attended, one approach to problem-solving and issues analysis that a futurist might use and some of the more significant futurist thoughts that an actuary can use, both in business and in nonbusiness life.

I went to this meeting hoping to benefit as a person and as an actuary. I received benefits in both areas. The conference was well organized and well run. The speakers in all the sessions that I attended were well prepared and knowledgeable, although I've heard that not all the sessions had such luck. In addition to the panel members, other experts were in attendance at each session; it was a very high-quality conference overall. Most of the speakers were not futurists per se; rather, most panels consisted of experts in their area or those working on the cutting edge in their field, presenting their impressions of the future or the present, or describing a single scenario or forecast of the future. Few of them thoroughly discussed their assumptions and biases. However, most of these became evident as they spoke. A few panelists had a lively debate among themselves or among the panel and the audience.

I noticed one dichotomy between speakers and attendees. One segment relied on technical approaches to problem solving, such as technology, new methods of communicating and obtaining information, and also relied on the marketplace. Another quite different group relied on a more humanistic approach. They were concerned about how decisions would affect the quality of peoples' lives and the future of human values. There was a third group that looked at both sides; I believe that all the actuaries in attendance were in this latter group.

Most sessions emphasized a practical approach to problem solving, working at the local level of society to create solutions, the level closest to the problem. Many panelists, as they readily admitted, had tried or experimented with the big project or "mega" project (particularly those coming from the Third World) or looked for a single answer or solution that was good for all individuals, trying for a brushstroke solution. Most of these individuals had

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failed. One speaker, Senator Albert Gore, put it this way: "If the only solution you have is a hammer, then all problems will start looking like nails." Most people seem to realize that a single solution to a problem could not work in all locales or for all people, as many have different needs and different values. Many seem to be more willing now to test alternative approaches and to risk failure, which I certainly didn't hear when I attended my first World Future Society Conference in 1980 in Toronto. In particular, they were willing to risk failure if they were guaranteed an opportunity to do it better the next time.

There was a tremendous selection of concurrent sessions offered. I'd like to very briefly discuss those I attended. In the health area, I was at a session entitled "Computers and Health." The panelists discussed the future use of the "smart card," which would contain all personal health information and is very similar in size to the credit card. In the event of an emergency, immediate access to all of your medical records information would be available. They also discussed having provider incentives to keep you well, as opposed to the many financial incentives that exist in the current health delivery system that work in the opposite direction. Also, they discussed new drugs and high-tech medicine and the use of the computer in assisting psychologists to tend to their patients.

Another session in the health area I attended was "Personal Health in the Future: How Much Can We Control?" This was a discussion about people taking greater charge of their health through prevention, exercise and nonsmoking. I notice here in the room that most actuaries have learned at least some of this preventive medicine, as I can see the preponderance of people in the nonsmoking area. Also covered was a discussion of trends in medicine, including the future identification of genetic predispositions to diseases; there are predictions that this could happen within the next 10-15 years. Also, job change interventions will be important, including techniques of stress management; and changing the structure of individuals' jobs was discussed.

The last session that I attended on health was on infant mortality by the year 2000. This emphasized the widespread and severe problems of hunger, particularly in the Third World, how improvements are possible in the future, and how

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different countries are seeking these improvements. They mentioned some pilot projects, such as those in Ecuador and Indonesia, which are providing a lot of help to young children, guarding against infections such as influenza.

I attended two sessions on environmental issues -- urban solid waste management and the water supply in the year 2000. It seems as if ideal solutions continue to elude everyone. The goals of business and environmental groups appear to be getting closer however, even though they disagree on the methods used to achieve those goals. There still remain significant differences in their view of the relative importance and effectiveness of different technological solutions and the appropriate size and allocation of the cost of those solutions. At least they're talking together now.

I attended two sessions that covered various life stages. The first one was "Children in Crisis -- Teenage Pregnancy and Adolescence Conflicts." If you have children, you certainly are aware of some of these; but what made this fascinating to me was the coverage of topics such as the significant increase in pregnancies in girls under age 15, a phenomenon that isn't isolated to the inner cities but is occurring at all income levels -- and in all racial groups in the U.S. There is a high frequency of abortion and suicide among young teenagers and adolescents, as well as a large number of homeless both in and outside of cities. The financial costs of these human, or rather inhumane, conditions were discussed. In a session called "The Coming Conflict: The Future of Aging," there was a lot of disagreement among the panelists. The panel couldn't even agree whether there will be an intergenerational conflict in the future. There was a wide-ranging debate about whether Social Security will be around in the future. All the speakers quoted perfectly valid actuarial statistics, and they appeared very knowledgeable about Social Security financing to make their points, but they came to completely different conclusions due to the complexity of the system, their own biases, and particularly the points they wanted to make. In other words, they chose what data they used, all of which actuaries provide, to say whether Social Security is extremely sound on the one hand, or that it's going to be failing in the next century. This is a subject that actuaries should continue to communicate to the public; to effectively provide more comprehensive information about Social Security. Also discussed was the likelihood that in the future a higher

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percentage of our GNP will be going for health care costs and there will be increased medical care inflation, simply due to the aging of society and the increasing requirements of the elderly in terms of increased health care. Other items discussed in that session were potential future definitions of retirement, something which will continue to evolve, approaches that can be taken so that the elderly can become a more productive segment of our economy, and an issue that concerns many actuaries -- long-term care facilities and their financing.

I went to several sessions covering international topics including "The Changing Global Economy, Future Dynamics of International Debt, Trade and Finance," in which I was surprised by the high degree of internationalization of finance. Actuaries should be paying much closer attention to this area in the future for a couple of reasons. There are new forms of financial instruments constantly being created. I didn't even recognize the acronyms that were used including RUFs, NIFs and COLTs; there seemed to be a panoply of zoo animals as mnemonics for various securities. The international investment arena is now enormous and is continuing to grow rapidly, which is a phenomenon of the last couple of years. Technology, the speed of information flow, and deregulation in many countries may lead to further financial volatility and instability, which will impact both the economies of the U.S. and Canada and will cause new types of financial regulation. My second international session, "Approaches to Third World Development," covered the growing use of the marketplace and personal incentives in the Third World countries that will allow more efficient decision making in economic terms. Many in the Third World appear to be disillusioned with *mega-projects and the extremely rapid urbanization that's occurring, and* are coming to the conclusion that these generally create more problems than they solve. The last of these sessions that I attended was entitled "Internationalization of the Media," covering the gradual increase in coverage of international events in our media and the significant impact of the increase in the speed of the communication and suppression of news by various countries.

In addition to these sessions, I attended a preconference course entitled "Interpreting Trends," put on by J. F. Coates, Inc. It emphasized futurist methods of a qualitative variety, as opposed to those of a quantitative variety that most actuaries use. They included, but were not limited to, a general

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futurist's model of problem analysis, historical analogy, scanning, issues management and scenario analysis. Some are techniques on which our Futurism section is disseminating information, and will continue to do so in the next couple of years.

FUTURIST APPROACH TO PROBLEM SOLVING AND ISSUE ANALYSIS

The preconference course that I attended was, in essence, an expanded methodology of a typical actuarial model-building approach. It might be interesting if I briefly go through the steps involved with the model and mention some of the futuristic approaches with each of the steps.

1. Define the problem or issue at hand.
2. Identify your client's interests and role in the model -- a very important step.
3. Identify all the players involved and determine who is impacted by the particular issue, problem or system being reviewed. Another speaker at the conference noted that if all the players involved are not satisfied, any negotiation or joint issue resolution is bound to eventually fail. I'm sure you can recognize this in your work.
4. Define the model or describe the system's elements involved.
5. Identify the forces acting on the system. This may be most important. Futurists attempt to identify any causes for deviation from straight line extrapolation and any potential discontinuities; they look separately at each element of the system or model and all outside influences that may impact the model. Methods used include a Delphi study or scanning.
6. Define all the assumptions inherent in the model or system and how the forces could or might impact the system. This involves a thorough review of the environment in light of the problem or issue being addressed for potential interactions, threats and opportunities.

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7. Identify the trends and potential discontinuities in the forces involved. Simple extrapolation of past trends, as we've often seen, will often not be sufficient. Futurist techniques here include Delphi, general brainstorming and scanning.
8. Construct alternative scenarios of potential futures using the trends and discontinuities developed earlier. Traditional actuarial methodology has typically included only a single most likely forecast of the future. The scenarios developed here may consist of simply a pessimistic and optimistic projection as well as a most likely one, or equivalently, a confidence interval. However, in view of our ever changing world, a more sophisticated approach or analysis may be worthwhile, depending on the nature and significance of the issue involved.
9. Recommend appropriate actions or plans needed in case deviations from the expected result occur, as well as identify for the client the probable range of costs and risks associated with the scenarios. This includes not only providing a solution, but identifying what to do if the particular scenario assumed doesn't occur.

Another approach is to reverse this model. First, determine the desired results, then determine what type of modifications to the projected trends are needed to produce those results. Finally, examine these modifications to see if they can be made; but if they can't, determine how much the alternative scenarios developed will cost. In addition, feedback loops can occur at several stages of this process.

This model appears complicated, and for many problems that actuaries face on a day-to-day basis, some of these steps will be combined. However, assumptions must always be reviewed to assure reasonable recommendations, including a review of potential discontinuities that may occur in the future. It's instructive in reviewing this approach to review the major reasons why forecasts by futurists or actuaries fail. I'll list a couple of the most significant reasons.

1. Limited or misplaced expertise

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2. Lack of imagination
3. Unexamined assumptions
4. Neglect of constraints
5. Ignoring early warning trends, which includes the lack of review of outliers in the data being analyzed
6. Excessive optimism or explicit or implicit pressures to end up with a favorable conclusion
7. Mechanical extrapolation of trends
8. Overspecification, or a lack of flexibility or preconceived ideas

MESSAGE FOR ACTUARIES

I've seen actuaries guilty of each of these "errors" in forecasting in the past. Futurist techniques and approaches can be utilized effectively to overcome some, although not all of these. Unfortunately, we cannot foretell the future, although we are often expected to do so. Senator Albert Gore made another good point, although a bit facetiously, when he said that we must "make clear the unclear, make certain the uncertain, but screw the inscrutable."

We must prepare for future problems and crises now, rather than wait to react after they happen. Fighting fires for many has become a way of life. We need to meet tomorrow's problems with tomorrow's solutions, not today's solutions.

However, Roger Smith, CEO of GM, pointed out that it is possible to anticipate too much. Planning can get out of hand. It can freeze your operations, build up excessive bureaucracy and result in an inability to make decisions. Attention must be placed on both the short term and the long term, but an emphasis on action is valuable to focus attention and achieve results.

Alvin Toffler, author of *Future Shock* and a speaker at the conference, cautioned that it is very easy to extrapolate current trends and focus attention on only high-probability, low-impact events, while ignoring the low-probability, high-impact ones. Both these types of trends or occurrences are important to try to grasp.

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Overall, there are plenty of problems that can benefit from the futurist's perspective -- problems of an actuarial, business, political and personal nature. It is only the rare, exceptional individual who can change the world alone; however, if everyone makes a contribution of one type or another by actively participating in an issue he or she chooses, almost anything can be accomplished. One very important lesson I got out of the conference was the message to take action. Get involved with a cause or a problem that you feel is worthwhile, or to which you can contribute. If enough people do this, the world can become a much better place.

MR. WILFRED A. KRAEGEL: I was especially interested in Sam's comment about seeking the future definition of retirement. That's what I've been working on during the past three years -- trying to find out what retirement is all about. I retired from Northwestern Mutual Life in January 1984 and became a full-time student. I'm still trying to finish my doctorate in urban social institutions, so I haven't really thought about "actuarial things" for quite some time. On the other hand, I am increasingly struck with the importance of the actuarial way of thinking for many of the problems which society faces -- if it were appropriately applied.

How many of you are members of the World Future Society, or if not members, how many of you see the publications through your organizational channels on a fairly regular basis? (Show of hands.) It's a very small number, and I think actuaries are missing a marvelous opportunity by not becoming more involved in this. Let me explain why. Both Fred and Sam have alluded to a point with which I agree -- that the actuary has long been a futurist. I'd say we were among the earliest futurists in the professional realm. However, there are two kinds of forecasting. One of them looks back and determines what may happen in the future because of what happened in the past and exists in the present. The other looks to the future and determines what the alternatives are, what their consequences are, what the desirable future is and how we get from here to there. If you are an actuary who concentrates on the past -- the exploratory or the extrapolative approach -- you are going to have one kind of mindset. You are not going to see the possibilities of the future. On the other hand, if you are an actuary who looks only at the future and forecasts in terms of what could be, which is called the normative approach to forecasting, you may

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very easily miss some of the really significant realities of today which have to be taken into account. So it's really the combination of the two which is significant and useful. I think that actuaries, long skilled in exploratory or extrapolative forecasting, have much to learn in this new, normative way of forecasting in order to use the combination to best advantage.

I've been a member of the World Future Society since 1970. I joined because the life insurance industry at that time developed a trend analysis program, and I was one of the original monitors. The publication assigned to me was *The Futurist*, published by the World Future Society. It was then an avant-garde publication, but is no longer. The future has really caught up to us in a great number of ways. There is a tremendous amount of material now that didn't exist in the past. The WFS meetings are fascinating and comparable in value to Society of Actuaries meetings.

The agenda of the 1986 General Assembly of the World Future Society, held July 13-17 in New York, provided a full and rich fare for professionals whose work requires consideration of the future. The following notes cannot do justice to the speakers or the sessions, but they are intended to offer a flavor of that part of the conference which I attended. They present selected ideas which may be of interest to those with a broad perspective toward the role of business in society; the selections are highlights which I found to be particularly innovative or controversial or provocative. My editorial comments are given in parentheses. For more detail, cassette tapes of most sessions are available from the World Future Society.

ISAAC ASIMOV

Asimov was presented the WFS Distinguished Service Award. He has 348 books published, and 16 in press. (In a "publish or perish" world, apparently he is seeking immortality.) Asimov commented that his book about using slide rules came out the very day the first pocket calculator came on the market -- a development which he had predicted sixteen years earlier. He noted this as proof that he doesn't pay attention to some of his own predictions. (Do we as professionals sometimes use assumptions in one part of our thinking which are inconsistent with our understanding in another, but related, area?)

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SIR STAFFORD BEER

This famous author and leading practitioner of management cybernetics spoke about the hazards of using inappropriate realities. Each of us lives in a "surrogate world," seeing only a tiny slice of the total. Just as the stars at night form a picture that does not exist (since each light point comes to us from a different time), other aspects of our "reality" are also fictions created by experts to describe their part of the world as best they can. As one example of an inappropriate assumption -- health care means curing people of their often self-inflicted maladies, assuming they will change their habits. "What we need is nothing less than a world government to hold ourselves together ecologically and sociologically. Jefferson and Franklin saw this in the America of 200 years ago, but today's leaders don't have the same vision in today's world."

ALVIN TOFFLER

Toffler, author of *The Third Wave* and other future-oriented books, talked about the futurist movement and its direction. Conflict is the great reality and problem facing us in the future, because we cannot achieve such massive changes in the system without conflict. Further, trend extrapolation becomes extremely treacherous, because it emphasizes probable futures instead of "incredible," revolutionary changes. Trends do not continue -- they reach a point of radical change. Recent examples include the Bell system break-up, AIDS, China opening up, and the Republican party resurgence. Therefore, we should spend less time on extrapolative forecasting, and more on identifying improbable futures with great consequences (of special relevance to actuaries, the preeminent extrapolators). Toffler suggested three areas which are especially important for futuristic thinking: the 200th anniversary of the constitution; presidential and political power, which is still modeled on conditions in colonial times; and a binational United States-Mexico task force to seek alternatives for avoiding political collapse -- one of those "incredible" but possible events.

SENATOR ALBERT GORE JR.

Gore addressed the overall theme of conflict resolution. International conflict is taking new forms, e.g.; terrorism. We must resolve the growing conflict between north and south. The United States-Soviet conflict is still

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in an ancient pattern, based on "war is the answer." However, the human is not destined to be forever aggressive. We have moved beyond human sacrifice and slavery, and we can do the same with nuclear war. That requires an interaction, a synergy of technology and the human mind.

Gore commented on the growing conflict between the physical environment and the way we live. One example is the recently discovered hole in the ozone layer over Antarctica. Another is acid rain. A third example is the greenhouse effect (increasing levels of carbon dioxide), which has moved in six years from being a fringe issue to a widely recognized critical issue. The action needed is simultaneous, global approaches to reforestation and reduced use of fossil fuel, but it is difficult to imagine how to accomplish that. Fortunately, more and more people are asking longer term political questions, and he sees repeated evidence that a single individual can have an enormous impact.

PANEL -- NEW THINKING FOR COMMUNITY FUTURES PROJECTS

(This is a form of citizen participation in urban planning. It relates to citizen involvement in the choosing of goals for the city or state, as experienced in projects across the country, such as: Atlanta 2000, Goals for Dallas, Illinois 2000, Goals for Greater Milwaukee 2000, and Seattle 2000. Call me if more information is desired.

JOHN HEIMANN

Heimann is vice-chair of Merrill Lynch Capital Markets and former Superintendent of Banks in New York State. He spoke on new approaches to global finance. Major forces changing all aspects of the world financial system are: institutionalization of savings; technologies -- a sixty-second world for disseminating information; spread of free market and deregulation; increasing knowledge and access by participants; and recent economic developments -- inflation, interest rates, exchange rates.

The financial picture in 2000, because of these forces, will see 25 or 30 dominant financial institutions; many will be commercial banks, some investment banks. There will also be niche institutions -- geographical or product, as

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well as smaller, local financial institutions, and the discounters. The monetary system will never be as stable as it was, but it can be more stable than it is. Exchange rates could be stabilized to a degree. Finally, the failure of computer systems is a new kind of risk.

PANEL -- URBAN PLANNING FOR THE 21ST CENTURY

Richard Knight, professor at Wright State University in Dayton, discussed the idea of a global city. We don't really understand what causes a city to develop over time, but the global city idea is new. It is in tune with the shrinking world, via communication and transportation technology. It enjoys improved world trade, and the wealth being created is primarily knowledge. There is a restructuring of economic activities; routine production activities are being "deskilled" and decentralized, while knowledge-intensive activities are expanding though spatially concentrated. Development must be intentional. The global city can be small, but its institutions have world class resources. The key factor in deciding city of residence will be quality of life. We now need a national cities' policy, which ensures that all have access to information.

JULIUS W. BECTON JR.

Becton is director of the Federal Emergency Management Agency (FEMA). The mission of FEMA is to coordinate civilian response to peacetime emergencies; e.g., floods, earthquakes, and nuclear power disasters; and to national security emergencies; e.g., civil defense, mobilization. Comments of special interest:

1. The probability of an earthquake on the San Andreas Fault is 50% within thirty years.
2. Our aging infrastructures will tend to increase disasters; e.g., of 60,000 dams in the United States, 130 are so unsafe as to require emergency action.

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3. In 1987, flood insurance will become self-sufficient. FEMA is trying to get out of the insurance business.
4. Our technological advances and demographic trends have increased the potential for disasters with increasing numbers of people affected; the population itself is increasingly less self-sufficient.
5. He still believes civil defense is important, though some cities and states have refused to cooperate, believing that efforts to prepare for nuclear war would give a false sense of security to the likely, overwhelming devastation. (I have some strong personal feelings about that, but I will leave those for the question period, if anyone wants to know.)

HARLAN CLEVELAND

Cleveland, who is dean of the University of Minnesota's Hubert H. Humphrey Institute of Public Affairs, spoke about international governance. Information is our new dominant resource (vs. land, resources, energy), and is much more accessible. Politics is still being conducted as if political lines have not been blurred; policymakers must think more globally than ever before. He is forming a new group of imaginative thinkers around the world for rethinking global governance. We have to figure out how to have postwar restructuring without having the war first. Some of our international institutions are working well -- weather forecasting, use of outer space, Antarctica, multinational corporations -- and some are not; what is the essence of the successful ones? Why not ask the research and development people to design the qualities of peace and then ask scientists to design the technologies to achieve it?

PANEL -- APPROPRIATE GOVERNANCE IN AN AGE OF CRISIS

According to the WFS program, "governance includes leadership, representation, processes for considering changes and their impacts, and seeking consensus on needed public policy changes;" i.e., government, education, child development, etc. (The prestigious members of this panel have been meeting five days each year since 1981. They are grappling with the dilemma of society's increasing

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demands for autonomy, while simultaneously becoming more interdependent systemically. This session was too complex to treat in the time and space available here.)

PANEL -- CAPITALISM AND DEMOCRACY IN THE INFORMATION AND ENVIRONMENTAL ERA

Essentially, four perspectives were presented. The first speaker was William E. Halal, professor of management at George Washington University, who is completing a new book entitled *The New Capitalism: Democratic Free Enterprise in Post-Industrial Society*. Its main thesis is a new system of business and economics for the information age. He takes an optimistic view in spite of current confusion. We'll see a tenfold increase in industry in the next few decades. Smart growth will shift from the material/external to the inner domain -- a frontier of unlimited possibilities and potential. Institutions will get a lot bigger. The big thrust will be a transition from a hierarchy of decision to a federation of entrepreneurs which gives flexibility, adaptability, and enterprise. A synthesis of democracy and free enterprise is the dominant development of the future, though it won't be easy or inevitable. The related primary human values are efficiency and quality of life. Business is switching from its old emphasis, *selling*, to servicing.

Frank Riessman, editor of *Social Policy*, talked about self-help groups, a whole new voluntarism of people desiring to regain control over their own lives through helping others -- 500,000 such groups involving 15 million people. Women are the vanguard of the 1980s.

Robert Theobald heads Action Linkage, a national issues-awareness group. Our situation is desperate because we intelligent people are so different in our perceptions. We do brilliantly in suboptimizing to follow through on our own perceptions rather than try to optimize the larger situation. We tend not to put the pieces together; e.g., the importance of the environment and the disturbing information about what we are doing to it. We need to talk about living within limits, and to recruit people to help develop the new approaches.

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Donald Michael is Professor Emeritus of Planning and Public Policy at the University of Michigan-Ann Arbor. He envied the conviction of the three previous speakers, because they seemed to know what to do, while he didn't. We do not have a shared, explicit, reasonably valid theory of social change. We are only beginning to understand something about change in limited physical systems. We are confused, but not sufficiently conscious that we are confused. We are subject to major ecological and social disasters -- ground water pollution, plague, starvation -- but we don't have a fix on it. (The session was really a debate of differing perspectives.)

ROGER B. SMITH

Smith is chair and CEO of General Motors. This is an age of perpetual, unprecedented change. Therefore, business must plan for change, must lead change, not follow -- must work with nature, not against -- must literally create its own future. Having an effective plan is 90% of the solution, but balance is vital -- you can go broke with too much insurance, or become paralyzed with too much planning. The key is to select a positive long-term course of action for a positive, possible, plausible future.

About 1982 they took a long-term look at their future, what General Motors wanted to be in the 21st century. They decided on three strategies:

1. Reorganization -- to product lines and geographical areas; the new units are responsible for all aspects; Saturn is a whole new way of making cars.
2. Diversification -- spread the risk over a broader base, with greater emphasis on financing, robotics, electric motors, artificial intelligence.
3. Acquisition -- EDS for data processing and computers; Hughes Aircraft for systems engineering; the LOTUS group in the UK for design; four robotic vision firms; an artificial intelligence company. Partnership with Toyota is not acquisition, but related.

Smith emphasized the importance of people and their education and training. We need more liberal arts graduates, people who can deal with many subjects, with

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fundamental understanding -- history for perspective, art for judgment, literature to understand. "We are getting too many lawyers."

PANEL -- THE NEW POLITICS: SYNERGISTIC TECHNOLOGIES CONFLICT RESOLUTION

Barbara Marx Hubbard, moderator and speaker, is an author and the creator of SYNCON, a conferencing process of synergistic convergence. (She is a board member of WFS, probably the only one who could be called avant-garde.) She ran for vice-president of the United States, surprising even her supporters when she penetrated the system to succeed in being certified as a candidate at the Democratic National Convention in 1984. Hubbard sees the new politics as, in essence, a part of the old politics; it is a vision of being -- unity, harmony, cooperation, healing -- qualities embedded in the human race. Her platform as a candidate proposed an important new role for the vice-president of the United States: first, to be in charge of a Peace Room in the White House, and second, to work toward the design of a positive future for the nation and the world through a cabinet-level Office of the Future.

Hazel Henderson is an author and widely known futurist, with an emphasis on economics. To her the new politics is the creation of alternative futures. We must think globally and act locally. We should develop "service leadership," exemplified by Ghandi, King, Tutu and Aquino, leaders who keep have kept calm and their serene presence. We are at the stage of the great transition; globalization is speeding up. Peace is the answer. Justice is the answer -- a just distribution of resources through enlightened entrepreneurship. We must save the environment through sustainable, economic activities. It is not growth versus no-growth, but what is growing, what is dying, and what stays the same.

Eugene Callender is director of the New York State Office for the Aging. He emphasized the spiritual aspect of the new politics. Our founders had both great human vision and spiritual vision as well. No human achievement is worthwhile unless it is in harmony with peace, love and brotherhood (not to mention sisterhood). This requires a lot of work to determine who we are, to recognize the quality of consciousness and to move toward a global agenda.

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Jack Gordon, a member of the Florida Senate, commented on how difficult it is for politicians to take a long view of the future. Almost 1,000 people per day are moving to Florida; that forces some future thinking, but it is still piecemeal. At the national level, he has mentioned defense expenditures in almost every speech for 10-15 years; he never receives disagreement that the current approach doesn't make any sense; yet it continues.

GERARD I. NIERENBERG

Nierenberg is president of the Negotiation Institute, and spoke on dispute resolution and the negotiation process. He advised to watch the other side, learn from failure, and bring the two sides together. Emphasize the areas of agreement, not the differences. Instead of shooting it out, talk it out. He was trained as a lawyer to be an adversary, to win for his client; but look what it does to the other side. There are no good losers in law; every time he thought he had won, the other side did something else which escalated the problem. The solution is to make the other side a winner too. If everybody doesn't win, it doesn't work.

CHARLES A. BOWSHER

Bowsher is Comptroller General of the United States and head of the General Accounting Office (GAO). He titled his talk "Avoiding Financial Crises: The Importance of Sound Financial Management is the Lesson Learned from Prior Crises." He spoke about the current federal financial crisis. He doubts the accuracy of two assumptions: first, that future growth will take care of everything; and second, that costs will be controlled. The budget overruns in fiscal 1986 equal \$11 billion -- what Gramm-Rudman-Hollings cut. Outside influences will force the day of reckoning. The technical people know and understand the problem, but they can't seem to convey that understanding to the top; e.g., large retirement costs -- more Air Force officers on pension than active -- and Navy costs up from \$2 billion to \$20 billion.

Lessons can be learned from three other crises:

1. In New York City, costs were outrunning tax receipts. They had a balanced budget requirement, but that was circumvented by moving programs out of

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the operating budget into the capital budget. The solution was the union pension fund plus the Financial Control Board. The lessons learned have helped to make tremendous progress in state and municipal budgets in the last ten years.

2. At Penn Central (Penn plus New York Central), after the merger, revenues did not keep up with costs. They asked the federal government for \$200 million, but were refused. They went bankrupt and the government had to take over and put in \$7 billion. Now the road is in good shape, ready to sell for \$2 billion.
3. At Chrysler, Lee Iacocca takes full credit for the turnaround, but the Loan Control Board deserves much of the credit.

The lessons learned: you need plans, a system of control over rising costs, and a budget and financial system that will give you the facts.

Getting back to the current situation, the debt crisis in the Third World is due generally to poor financial control; they don't even know how much debt they have. In agriculture, the farmers can't service the debt they have incurred and are looking for a bail-out of \$15 billion to \$20 billion. At the federal level, we have gone from a \$1 trillion to a \$2 trillion debt in the last four or five years. The interest costs of \$140 billion in a \$1 trillion budget are crowding out programs. The debt is being largely financed by overseas sources, especially Japan. We must face up to the facts at the federal level, as we have in cities and states. The budget system needs to be modernized. We need stronger controls, especially in the Department of Defense. They have increased their budget so rapidly that they have lost control, similar to what happened to social agencies in the war on poverty.

CONFERENCE SUMMARY -- FIVE VIEWS

Pat Choate is senior policy analyst with TRW, Inc. and co-author of *America in Ruins: The Deteriorating Infrastructure*. It is important to identify those actions that can effect the changes we desire. How do we improve our capacity to adapt to the future, and the willingness to make that adaptation? The

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essential ingredient of survival is the capacity and willingness to change. To do this in the United States, we must redefine our role in the global economy -- be dominant, but do not dominate; we must redefine the role of government -- no longer is it adequate to control via fiscal and monetary policy alone; workers must anticipate frequent changes over a lifetime -- occupation three times and job six times.

Jay Ogilvy is head of SRI International's project on human values and co-author of *Seven Tomorrows*. There is a sense of movement in the futures field. Two ways of looking at it -- the chessmaster, who tries to anticipate all possible moves, and the game warden, whose objective is not victory, but survival. Crisis management leads to the hubris of technology; i.e., mastery over nature, but "more" security leads to "less" security. Conflict resolution leads to political mastery. In order to involve the great bulk of people in the process in a meaningful way, we should move from professionals to paraprofessionals as we have in medicine and law. We need paratechnologists -- not "no technology" but appropriate technology. We need parapolitics -- not "no politics," but interactive group politics, individual politics. Note the decline of two super power politics to multipower politics. We are evolving, transforming. How do we accept that we are one, but not the same? We may be approaching a discontinuous phase shift, as in physics when ice turns into water. Cooperation is very important in that kind of evolution. Evolution is not all becoming the same, but emphasizing the commonalities while accepting and appreciating the differences and changing together.

Elizabeth L. Young is vice-president of marketing for Comsat General Corporation. She observed two themes: who decides, and how can individuals intervene or contribute? With the space shuttle tragedy, we have temporarily lost it for exploration, and perhaps permanently for civilian purposes; e.g., manufacturing in space. Policy gets made in D.C. by a very small handful of people, sometimes inexperienced, young staffers. This affects many bottom-line business decisions for the future. What can futurists do? We must take the small steps to move forward: keep ourselves informed, including opposite ways to thinking; keep the policymakers informed; educate people, especially young people, about technology to ensure that creative uses go on; begin to bridge gaps between technologists and humanists, technologists and spiritualists.

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Willis Harman is president of the Institute of Noetic Sciences and long with SRI International. In a sense, two cultures are intermingling here: one, changing the world's future shape through technology by following and improving past trends; the other, the future is shaped by what we think and feel. They overlap, but are significantly different. One example of the latter is the native American culture, which is based strongly on two ideas: everything in the universe is alive, and we are all relatives; with that worldview, it is normal to ask, "What will be the effect of a decision seven generations hence?" There was a fundamental shift in the 17th century, the scientific revolution; a new way of thinking challenged an old authority system, the church. How may we identify the current fundamental shift? It may seem heretical to question the system of scientific control because it has seemed so reasonable, but it is no longer working very well. We have a new idea that nonscientific forces may also be important, that inner-conscious awareness is also a causal factor in the universe, as described by Nobel Laureate, Ilya Prigogine. There is not only matter/energy stuff, but maybe also mind/spirit stuff. The whispered new heresy: the world is not the way you learned in science class. Going through such a change creates some tumult, but the new approach will show us new and more holistic ways to define reality. So the tumult is more like labor pains.

Gerald Meyers, former chair of American Motors, had three points:

1. Crisis management of business is coming of age. For years CEOs have ducked the issue of an orderly body of information for dealing with bad times. Most CEOs are very poor crisis managers, especially those who don't permit associates to doubt or fail. But boards are now waking up to the importance of dealing with this, and 2/3 of the top 92 corporations are developing crisis management plans.
2. Professional help does not exist. Of all the business schools, only Carnegie-Mellon is assisting so far. There is no body of knowledge; no are tools available.
3. Help is on the way. He organized a round-table of 35 CEOs three years ago, including Harry Gray, T. Boone Pickens, and the head of Union Carbide. They developed the beginning of a crisis management approach,

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which is described in his new book, *When It Hits the Fan: Managing the Nine Crises of Business*.

MR. KILBOURNE: I have a few comments and then I'll ask for contributions from the audience. There was a theme concerning the different natures of people at the conference. There is the exploratory versus the normative. I have heard it expressed as the technical versus the humanistic. Some might say the left brain versus the right brain. This dichotomy does seem to be very much in evidence, not so much at Society of Actuaries meetings, but certainly at World Future Society meetings.

One of the speakers talked about people spending a lot of time on high-probability, low-impact events with not enough attention to low-probability, high-impact events. Of course, we actuaries deal almost exclusively with the latter category.

I think that the actuaries in attendance appreciate more the normative approach, or maybe our right brains have become a bit swollen. (I won't say anything as to whether there was a corresponding atrophy of the left brain.) I suppose you could assume that the small group of actuaries who have gotten substantially involved in futurism are in a particular category. Are we on the cutting edge -- or are we the lunatic fringe -- or both?

This brings me to Roy Anderson. Roy is a good friend of mine and I consider him to be squarely in both of those categories. He is unable to be with us today, but he did prepare some remarks which are an extract of the session at the WFS meeting at which he was a panelist. He was, I believe, one of two actuary/panelists at that meeting, with Wil Kraegel, being the other. I will share some of Roy's remarks with you.

Roy talked at the session, "Liability Insurance -- The Dangers Ahead," and he explained that he regards liability insurance as one of the many systems of our society that is in the process of an organic transformation -- a system that has been mortally wounded and which began the process of decline some twenty years ago. He feels that the liability system will probably end or be massively transformed within the next fifteen years. However, this transformation

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of liability insurance will be only a part of the much broader process of transformation of the larger external systems of our society. He feels that both liability insurance and tort law are man-made systems, but he wants to point out that they're both organic systems, that they will ultimately run a natural course including birth, growth, maturity, decline and finally death. The major troubles of the various lines of insurance are rooted in the troubles of the underlying systems they insure. For liability insurance, this is tort law. For health insurance, it's related to medicine. Life insurance rests on the economic social systems. (And sometimes these relationships are hard for us to see in clear perspective because we are so deeply involved in their operating parts.)

He gives an example that I found interesting -- the metamorphosis of a caterpillar to a butterfly -- contending that whenever biologists try to interrupt the process at the magical moment of transformation, open up the pupa only find mush. (And perhaps that's why we have so much difficulty in understanding this traumatic upheaval that Roy and I think a substantial proportion of futurists believe we are currently undergoing.)

The major challenge is not that of attempting to forecast the future. The real challenge is to perceive the realities of the present. That perception must include an understanding of the events of the past that have led up to the present. Once you've accepted that your own internal system of reality is all messed up, you become very gun shy, especially when you start thinking about a system as complicated as the system of liability insurance. You start looking at it in new and different ways. At least I do, says Roy, and I think I've understood that liability system quite well.

He refers to someone else who had come to the realization that these futuristic scenarios should not be thought of as alternative scenarios of the future, but rather as alternative presentations of the present. I am convinced that this perception of the use of scenarios would give us a far better understanding of the realities of the present, if only because we are much more likely to take a realistic look at each of the scenarios and how each has evolved from the past in relation to other systems. This process should give us a better handle on how to deal with the events of the future.

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I have a couple of comments concerning the meeting from notes that I took and also from one of my associates who was in attendance. We did have some notes concerning the wrap-up but we might save that for the wrap-up of this session.

There were a number of things that struck both of us. The session on the future of business had, as a running theme, the continued decentralization and greater local authority within different businesses. I've heard a lot of talk about that and had seen some action, but I also see a lot of consolidations and increased centralization. I think that story is yet to be told. Concerning the future of health care, there did seem to be a general agreement on the need for reducing the control by physicians of the total health care system. Of course, also discussed was the need for better data to measure quality and a greater role for the consumer in the health care delivery system, and much more attention to prevention of diseases.

The liability session was quite a contentious debate, with the insurance industry blaming the lawyers and the lawyers blaming the insurance industry; a good deal of heat was generated.

The variety of the other kinds of meetings, especially the evening sessions, was quite impressive. I attended one session on the privatization of prisons, which is an interesting concept. It was a fascinating discussion and presentation by, a chief of police. It was a poorly attended meeting that should have had a lot of interest, as it is one aspect of society that has a good deal to do with all of us.

The World Future Society meetings are open to various perspectives and to contributions from different people. I recall at the 1980 conference there was a great deal of attention paid to nonrenewable resources, how they were running out, and about conservation. There was talk about the forests, about fossil fuels, about food. It occurred to me that one nonrenewable resource was running out at a steady rate and no one had any idea how much of it was left at all -- and that was, of course, the future. And although there may be a great deal of time left for us as individuals, I haven't heard anyone seriously argue that the human species has an infinite life ahead. And, if not, what is it? Is it in a millennium, or is it in hundreds of years, or how much? There seems

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to have been no solid research done into that subject. So I proposed, with conservation in mind, the formation of a special section to deal with the amount of the future that remains to us. And in the interest of conservation, I said that the initial meeting of that section will be held yesterday, and it was a great success.

I think that we are now at a point where we could involve the audience. I'd like to call on Barry Halpern, the chairman of the Futurism Section of the Society, for just a few comments on his participation at the conference.

MR. BARRY S. HALPERN: *In our discussion this morning, we decided that I would be better as a prepared questioner, rather than as an unprepared panelist. One comment I'd like to make is while there were only a few of us actuaries at the meeting there were probably three times that number of insurance industry representatives, so hopefully the message will get back to the actuaries at those companies. I have some additional comments, in no particular order.*

I attended the panel on the potential aging conflict. I came away with a distinct impression that the panelists felt that there was no problem or that no intergenerational conflict was going to develop, particularly since they seemed to feel that we were addressing the issues to date. They were concerned that the elderly were going to exceed 25% of the population in the future, and that we needed to spend more time than we have in addressing the potential problems. They advocated the creation of another cabinet position, essentially a Department of the Future. I believe there is legislation in Congress which is proposing such a department. I don't know what the status of it is at this time.

Roger Smith spent a few minutes speaking about how, out of General Motors' reorganization, came the Saturn division. Since the time of his remarks, I believe there has been less emphasis on the Saturn division, and his remarks were perhaps short-sighted in that respect.

As Fred and the other panelists mentioned, there were a number of different tracks at the meeting, ranging from the lunatic fringe to the far out, and yet

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there was also a track which related to and involved business people. The common theme to all of those sessions was that there is too much information. We can't have one individual or a group of individuals master the amount of information that is available and make the proper decisions. Rather, we have to learn how to access that information. That's something that we as actuaries are probably recognizing, have been recognizing or should be recognizing; there's just too much out there for us to master completely. The work of the Future Education Task Force is addressing that -- if not explicitly, then implicitly. One thing that came out of the Future of Business session regarding with regards to this overflow of information was the term "negative information" which is that information which causes you to know less after you have learned it than you knew before.

Another session was led by a group of people who call themselves futurists, most of whom I believe had their own consulting business. They were in an open forum discussing what futurism was, and their successes and failures. I got the impression that a lot of them were at the World Future Society meeting to drum up some business. But they did answer some questions and I'm going to read from my notes.

What is futures research? It is a field in which we make conjectures as to what will be, or what the environment will be, and how it impacts what we do. We don't know for sure what the future will be, and the prediction and assessment of impacts is an art and not a science. At past Society of Actuaries meetings, we've debated whether futurism is an art or a science.

A futurist is a researcher, director, designer and promoter of ideas. Why do we study the future? We know that the importance of today's decisions will impact the future. Therefore, we want to make better decisions today. And it is very important for a futurist to learn to use common sense and intuition, and that's something that might be strange to an actuary. We should challenge the common and the routine. This gets into the use of the right brain as opposed to the analytical left brain.

Another point that was made was that it would be very difficult for one of us to walk into a corporation and ask for a job as a futurist. You wouldn't get a

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job. You have to be something else. But basically, futurists are anywhere in the corporation. They don't necessarily have to be planners; they may not call themselves futurists. Only one person on our panel today calls himself a futurist. But I believe that all of them are futurists. A key to knowing if you're successful is when people start calling you for information and your opinion about the future.

I want to conclude by asking a question of the panel that has been asked before. What advice would you give to actuaries who want to use this information about the future? How can they apply it in their work and possibly develop the right brain sense that they haven't yet tapped?

MR. KRAEGEL: In one of my earlier talks at a Society meeting (Philadelphia, April 1983), I had a chart which I think is useful for answering that question. The topic of the panel was Futurism -- An Art and a Science. We didn't say *or*, we said *and*. The chart has four circles -- the lower right hand side is operational planning -- the upper right hand, strategic planning -- the lower left, issues management -- the upper left, futures management. The scales of these four circles, which are interlinked and overlapping, are horizontally, the orientation (as to internal or external) to that particular organization, and vertically, the timeframe. Strategic planning and operational planning are essentially internally focused. Issues management and futures management are essentially externally focused. Short-range is on the bottom with operational planning and issues management, and long-range is on the top with strategic planning and futures management. I think the key to taking the future into account is to get balance into the perspective within which decisions are made. If you look at your own company, primarily with a short term orientation, you are going to miss a great deal of important information that could be available to you if you took the time to look. You're missing the longer term, even in your own organization, that strategic planning could give you, and you're missing the external look which involves a lot of things which will influence your organization, your industry, your employees, yourself. That would be a framework. Then within that framework there are a lot of things you can do to increase knowledge and understanding of a futurist approach in your organization.

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MR. GUTTERMAN: My only addition or suggestion is to constantly challenge yourself and challenge your assumptions. As actuaries, we too often take things for granted; for example, that the interest rate yield curve is going to be such and such, or mortality is going to be constantly improving over the next twenty years. Those are areas that we should constantly question and ask ourselves what could happen to upset those nice trends. The question is What is the possible? I'm not sure whether I go so far as to always ask, What's the incredible? But certainly, one has to think of the potentialities. Everything isn't just a mean. Also, things aren't just simple, normal bell curves either. Challenge yourself and don't take things for granted.

MR. KILBOURNE: If an organization were contracted to build a tunnel under a river, there should be solid, technical experts who would know about how to keep the water out, how to move ahead with the drilling, and how to deal with the extrapolation of the tunnel from yesterday's digging to tomorrow's digging. But it would also be nice to think that there was somebody in charge of making sure that we met the team on the other side that was going to be drilling out to meet us halfway.

MR. KRAEGEL: One of the marks of our society is that there are so many things happening with no one claiming responsibility for how it's to be done. That's a very important reason why professionals, such as actuaries, should become more interested and involved, because these issues need input from a variety of sources and they need consensus building. I think we, as actuaries, have to offer our input; first, so that our interests are recognized, and also because we have something to contribute.

MR. EDWARD F. COWMAN: I think it's refreshing to note, how at least in one area of our expertise -- that of the valuation actuary -- we're moving from considering only high-probability, low-impact events to the low-probability, high-impact events in the realm of the plausible as opposed to the reasonable. So maybe we're moving in the right direction as professionals using the expertise of the futurist movement. Also, Mr. Kraegel, I would be most interested in hearing your strong feelings about civil defense.

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MR. KRAEGEL: I think civil defense is obsolete because war is obsolete. The essential question regarding civil defense relates to our basic assumption: what's the best way to resolve international conflict? In the past, there has been primarily one -- war. There have been instances where negotiations worked, but the ultimate resource for conflict resolution at the international level has been war. Some say that conflict resolution through violence is fundamental to human nature, but others suggest evidence that the tendency toward violence is learned, not innate, behavior.

Another very important factor about war is that, in the past, there usually was a winner and a loser. The winner gained something, whether the winner initiated or quelled the aggression. The winner gained something -- may have lost something, too, in the process -- the loser was the double loser: first, the losses sustained in battle and then further losses because of being the loser. We have a new situation now. The kind of war that we had in the past is still possible; we have evidences of it around the world today. But, we are right on the edge of a very serious situation. If we have a major nuclear war, then we no longer have the possibility of a winner. In fact, not only are the two antagonists both losers, but there is a very strong probability that everybody in the world will also be a loser. Look at what happened with one small nuclear plant having a problem in Chernobyl, Russia, and multiply that many times with a major nuclear conflagration. It's inconceivable, even if there weren't the problems of radiation and a nuclear winter, that we could recover from that kind of a crisis. And add to that the atmospheric carrying of radiation and the atmospheric darkening from those tremendous quantities of materials that were blown up and burned, blocking out the sunlight. What will that do to life virtually everywhere on the planet? Will the radiation and incineration particles go from the northern hemisphere to the southern hemisphere? I don't know. Several studies have produced conflicting results, but it is likely that there would be some kind of a nuclear winter. The uncertainty is how serious and how long. Would nuclear war kill only several hundred million people, or all of humanity? That is a profound actuarial question.

Well, with that prospect facing us, it's time that we gave some thought to alternative ways to resolve conflict. And that is going on. There are now

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academic programs, there are consulting organizations, there are experts in this field. We have learned a lot; we have much to learn. We can move in that direction. If we take the tack that we cannot trust the other side, and therefore, we should do nothing, then nothing will be accomplished. But if we take the tack, "Yes, we can't really trust the other side and probably they can't trust us either, but, both of us have more to gain than we have to lose by reaching some accommodation," then it's likely that some accommodation will be reached. I believe that war has reached the same status as some other grotesque human practices. We used to have cannibalism, human sacrifice and slavery, but they are now unacceptable. Our goal should be to make war (and torture and terrorism) equally unacceptable.

MR. GUTTERMAN: I would like to make one comment about civil defense in general. When civil defense comes up, most people think about what to do in the case of nuclear war and how you can defend yourself as an individual against nuclear war. However, there's another aspect of civil defense that is more practical, that being natural disasters and catastrophes. For example, earthquakes in Mexico and potential earthquakes in the San Andreas Fault are catastrophes that can be planned for, with some sort of defense system built, whether it be better construction of our infrastructure or whatever. This defense is the area to which we should be paying more attention. In general, there is relatively little attention paid to planning for these catastrophes.

MR. KILBOURNE: We could probably get a good microcosm of the World Future Society meeting, at least one track, by going right here with Sam's comments and perhaps with a debate between Wil and me. I'll just content myself by saying that the Los Angeles Times a year or so ago had an article about civil defense that was well presented. It prompted me to write a letter accusing them of doing something hazardous to our national safety by talking about civil defense, because we were doing so well with our current program; we had tricked the Soviets into spending well over ten times as much money as we did for civil defense.

MR. ALASTAIR G. LONGLEY-COOK: Mr. Kraegel, could you speak a little more about the need to change values which you mentioned? Is Mr. Stafford Beer the gentleman who wrote about this?

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MR. KRAEGEL: Yes, he was one who mentioned that.

MR. LONGLEY-COOK: You mentioned that there was another discussion session where that came up. Could you elaborate a little bit in what way they are recommending we change values?

MR. KRAEGEL: That's a very large area, of course, and I don't know if I can do it justice in a couple of minutes. When we speak of changing values, a good way to look at it is to think of all the situations in which we have traditionally thought of *either/or* and we should now think of *both/and*. For example, we have *competition and cooperation*. We view this as a competitive world, a dog-eat-dog kind of world -- at least that's the way many people in government and education view business. There is some truth to that -- and I have seen examples in government and education as well as in business. That, in my mind, is not the way to get things done. Competition certainly is important, but it's important for motivation, not for defeating your opponent. And, so, I think we have overemphasized the competition in our lives and we have underemphasized the cooperation. Think of the tremendous amount of cooperation that takes place in the insurance industry, within the Society of Actuaries. If we think about our areas of common ground and emphasize cooperation, that is a change in values.

The change in male/female roles is another illustration of changing values. Again we have the makings of conflict in the differences between the male and female approaches. But if, instead, we reconsider what each of them provides, they can become complementary strengths. Actuaries tend to be very much left-brained (analytical, male-oriented); by becoming more right-brained, we can enrich our lives, understand more easily what others are saying and reach accord more quickly. And that applies in one direction or the other, both to left-brained and right-brained types, both to men and to women. So when women come into the business world we don't want them to become new men in women's clothing. They must learn new ways of thinking, but we want them to bring the kinds of thinking that they have traditionally held -- the so-called caring approach and often the more creative, intuitive approach.

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Still another change in values is occurring in the whole area of religion and science. Many years ago we talked about the war between religion and science. And science won, because few important decisions are made on the basis of a religious view. We have taken science to be the answer to most questions. But increasingly, that perspective of life doesn't adequately embrace a number of experiences that we are having. There are very interesting and inexplicable things going on. For example, the placebo effect has been called a major problem in conducting medical experimentation. It distorts the results of the test. But, look at it another way; the placebo effect says there are some strange and wonderful relationships between the mind and the body. And it isn't something which distorts our experiments; it's something that we can use, because people have control to some degree over their illness, both in contracting it and in being cured of it. In many ways, the power of mind and spirit is supplementing the scientific views of cause and effect.

MR. GUTTERMAN: It was emphasized in many sessions that values were changing in almost all fields, whether it be gradually or with significant, immediate changes. I think the favorite phrase is "changing paradigms." Another aspect of values, however, is our international value system and the fact that we often assume our own outlook is everyone's outlook, and that our own values are everyone's values. We forget about the fact that in Africa or Asia or other areas they may have a different set of values. We don't necessarily want to change their values to be the same as ours. There is merit in having differences -- different attitudes and different perspectives.

MR. KRAEGEL: I would like to add that values are integrally tied in with our perceptions of survival as individuals and organizations in society. Values influence the way that we look at things and the importance we attach to things, so that what we think is important in life will continue. That has an enlightened self-interest aspect to it, but that's nothing to be ashamed of. It is a very natural pattern, which will help us to survive as a human species. The important thing is that values are changing, and that it is very worthwhile and interesting to find out how they're changing and how to nudge them in more desirable directions.

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MR. KILBOURNE: One thing that I found at the WFS meeting that was very much in evidence, but not spoken about very much in terms of values, was the value of freedom. This is something that the masses have long spoken of and voted for with their feet. It is something beyond economic security and something that's very much evident in this country. It was also very evident in the amount of freedom exercised at the World Future Society meeting in July, but it was not very much spoken of and was rarely included in all the value-laden speeches.

MS. ELLEN M. TORRANCE: Related to that is the changing philosophy out of which decisions come. For example, when insurers were offering excess cover asbestos liability insurance at 50 cents per \$1,000 they never guessed that juries in the 1980s would say, in effect, that individual executives made bad decisions in the 1930s, 1940s and 1950s and so now we will punish. Somebody suffered; therefore, somebody must be guilty; therefore, somebody must be punished -- and it doesn't have to be the same somebody. So they're handing out the multi-million dollar awards to hurt present stockholders, such as pension plans, and present liability insurers, because of decisions made by people who are now dead or retired. It never occurred to the people who issued the liability coverage that the juries would feel this way. Are there any projections about other swings in philosophies in the future, not changes in technologies, but philosophies that may influence business?

MR. KRAEGEL: I think of one that is very scary, and that is the recent efforts on the part of various groups to diminish the ability of insurance companies to distinguish among risks by the classification of the risk. If that were to be extended, it could completely eliminate our ability to provide insurance along the current lines.

MS. TORRANCE: A logical step after AIDS discrimination or sex discrimination, of course, will be age discrimination. And I wonder what insurance will do when age discrimination becomes illegal.

MR. KRAEGEL: Another idea with a reasonably high probability of occurrence is significant extension of the maximum human life span. Some of my actuarial friends agree with me that this can happen, while others disagree

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completely. And there are influences on the other side, too, which could actually shorten life spans: unknown, long-term effects of toxics in the environment, for example. Gerontologists are now researching what the secret of aging is. When Jean Mayer (nutritionist and president of Tufts University) spoke at a Society meeting in Boston in 1977, I asked him if there is a secret of aging. He said, "I think there is, and if there is, we will find it." And that will have profound effects on the insurance industry and on virtually every institution of our society.

MR. GUTTERMAN: Two items -- first is free health care. We've talked about this for a long time, What would the role of the insurance industry be in this potential eventuality. Second is the future definition of careers and the definition of retirement. What impact will that have on the insurance industry in terms of retirement or pension planning? You can go on. These are just examples of how you've got to look at the values that you currently have and question them.

MR. KILBOURNE: Consider the possibility of extension of the life span and of the costs involved. Think about our national government pension plans and who's going to be around to pay for their costs. I'd like to point out that neither at the WFS meeting nor at this meeting has there been any proof whatsoever for the oft-repeated rumor that the Social Security Administration is a prime contributor to the tobacco industry lobby or to the anti-abortion lobby.

MR. RODNEY C. WILTON: It seemed to me a few years ago that futurism looked at the breakdown of compound growth in our society, in our personal lives and in our businesses. It seems to me that normal management is an attempt to maintain compound growth. All the companies want 15% compound return on capital and to grow in marketshare. The cataclysmic or abnormal events that occur are when these compound growth rates break down in population or in gross national product or whatever. We had limits to growth a few years ago and there's been no comparable discussion in your description of the conference in New York. Has futurism gotten away from this breaking down of growth?

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MR. KRAEGEL: I think that the question of compound growth as an issue is largely a given at this point. Even those who are basically extrapolative in their approach see some major changes. For example, in *The 2025 Report*, Norman Macrae (Deputy Director of *The Economist* and an extremely optimistic futurist), forecasts that by 2025 we will reach a point where we will waste nothing. Everything will be recycled. We will have bugs that go through garbage and there will be bugs that pull out this kind of thing and bugs that pull out that kind of thing. There will be metabolites to prevent them from going beyond what they're supposed to do, so that they don't get into something that we don't want to have destroyed. There will be different bacteria that will go into oil shale and pull out the oil much more easily than the high-tech approaches that we could use. Growth is a relatively easy thing to understand, particularly for actuaries. Human and material growth cannot go indefinitely, at least within the constraints of Planet Earth. There are limits of space, resources and the capacity to absorb pollutants. On the other hand, with a change in values, growth can continue if the growth is in terms of knowledge, of information, of human capabilities, of talents of various kinds.

MR. GUTTERMAN: I heard several discussions of the life cycles -- life cycle of industries, life cycle of products, -- the birth, the growth and the death stages of these. You can look back to the 19th century at the horse carriage industry as an example of one that should have continued to grow forever; look what happened. Life and death processes occur in many areas; many futurists utilize this analogy in their studies.

MR. WILLIAM DAVID SMITH: Could I belong to the World Future Society by paying some modest amount of dues? Would get notices of meetings and perhaps reports of the proceedings? Have I been offered a chance to belong to this and somehow overlooked it? If so, could I be offered a chance again?

MR. KILBOURNE: Yes, and that leads to one of my comments. Membership in the World Future Society doesn't cost as much as in the Society of Actuaries. WFS meetings are less expensive; they're held in less grand surroundings. Futurists on the average, at least the people that attend the meetings, earn somewhat less money than actuaries, which is of some interest perhaps. There

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is, as you can see from our discussion, a variety of things available through participating and becoming a member of the World Future Society.

MR. KRAEGEL: There are four kinds of membership in the World Future Society: basic, professional, comprehensive and institutional. The first three are individual and the fourth is organizational. Basic members receive *The Futurist*, a bimonthly periodical, with annual dues of \$25. Professional members receive in addition the *Futures Research Quarterly* (a professional journal), occasional newsletters, and a listing in the Society's directory of individuals; the annual dues are \$75. Comprehensive members receive, in addition, all the other publications of the Society, including *Future Society* (a monthly abstracting service) and several books; the annual dues are \$120. Institutional members also receive all the Society's publications, plus special recognition and services; annual dues are \$185, except for nonprofit educational institutions, which pay the special rate of \$145. Each membership category also receives various notices and preferential rates for conferences. You can contact the World Future Society at: 4916 St. Elmo Avenue, Bethesda, Maryland 20814-9968. The phone number is 301-656-8274.