## RISK newsletter

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# International Strategy For Chemical Safety

(In addition to describing the use of risk assessment at the U.S. Environmental Protection Agency during her address at SRA's 1994 Annual Meeting, Lynn R. Goldman, M.D., assistant administrator for the EPA Office of Prevention, Pesticides and Toxic Substances, reviewed current international chemical safety activities, which are summarized below.)

During her address at the plenary session of the Society's 1994 Annual Meeting, Dr. Lynn R. Goldman pointed out that efforts to harmonize the actions of various governments on assessing chemical risks have been under way for some time. However, coordination of global activities was accelerated early in 1994 with the creation of the Intergovernmental Forum on Chemical Safety by the concerned governments of 120 nations.

The international strategy of the forum is to (1) agree on international guidelines for testing chemicals for toxicity, (2) use the test results to classify and label the substances and to perform chemical risk assessments, and (3) set regulatory standards and promote chemical risk stewardship.

#### International Test Guidelines

Largely through the Organization for Economic Cooperation and Development (OECD), countries are agreeing upon international test guidelines, with the initial focus on industrial chemicals and some pesticides. To illustrate the importance of international agreement in saving resources, time, and laboratory animal usage, Dr. Goldman said the U.S. pesticide registration program has around 300 test guidelines, making each test lengthy. With agreed-upon guidelines, a given substance would need to be tested only once to satisfy regulatory authorities in many different countries.

The number of substances to be tested is monumental. EPA alone has an inventory of about 80,000 chemicals, and few of these have been tested. Through a cooperative venture of OECD governments and industries, 250 industrial chemicals that are produced in large volumes are currently being screened for health and ecological effects, with U.S. industries assuming responsibility for about 25% of them.

#### Classifying and Labeling Chemicals

Countries are working to develop a uniform system that will use the test results to classify and label the substances for potential hazards, both in the work place and during transport. "International harmonization of classification systems is no small task," Dr. Goldman admitted. "However, achieving it is vital to decrease confusion, increase compliance with the label provisions, and increase public health and safety and environmental protection worldwide."

Thus far, classification efforts have focused on identifying endpoints for acute toxicity and dangers to the aquatic environment. The plan is to next deal with the physical hazards (such as flammability and explosivity) and the more

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# Record Number Of Abstracts Submitted

The 1995 Society for Risk Analysis Annual Meeting, which will be cosponsored by the Japan Section of SRA and will be held at the Sheraton Waikiki Hotel in Hawaii, has attracted a record number of abstracts—"more than we've ever received before," said SRA Executive Secretary Richard J. Burk Jr.

The SRA Secretariat's office received around 350 proffered abstracts and more than 25 symposium proposals, some of which require two or three sessions. The Japan Section received an additional 38 abstracts and four proposals. The theme of the meeting, which will be held December 3-6, is "Learning from Cross-cultural Comparison."

The 1995 meeting marks the first time in the Society's 14-year annual meeting history that an annual meeting has had a co-sponsor and the first time it is to be held outside the continental United States.

Initially, the meeting location had raised some concerns among members that a meeting in Hawaii would have a low attendance. While the record number of submissions appears to belie those concerns, economics indicate that there will be fewer attendees from U.S. government agencies than in the past.

The 1995 Annual Meeting Committee, chaired by SRA President-elect John D. Graham of the Harvard School of Public Health, met with the Secretariat staff on July 7 to organize the program, and the Secretariat sent out letters of confirmation of accepted papers the second week of August. The preliminary program will be mailed the first week in September and will include information about pre-meeting

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## SRA-Japan Announces '95 Annual Meeting Plans

The Japan Section of the Society for Risk Analysis expects approximately 50 of its members to attend the 1995 SRA Annual Meeting in Hawaii, which the section is co-sponsoring.

The section's Executive Committee for the Joint Meeting in Hawaii has organized four symposia and 38 oral and poster presentations for the meeting. The committee's chair, Dr. Eiji Yokoyama, former dean of the Institute of Public Health, will speak on "Health Risk Assessment in Japan" at the opening plenary session on Monday, December 4.

**Symposia.** The section's president, Saburo Ikeda of the University of Tsukuba, is organizing a symposium roundtable on "Environmental Policy for

Reducing Human Risk in Japan," which will focus on the scientific basis, research programs, decision process, administrative execution of policies, and other issues related to human risk management in Japan. Former SRA President D. Warner North of Decision Focus Inc. will join Japanese representatives on the panel.

Two symposia will address "Perceived Risks of Nuclear Power and Other Dreadful Risks," interpreting risk perception in the socio-cultural context based on the results of questionnaire surveys taken in France, Japan, and the United States. Committee member Hirotada Hirose of Tokyo Women's Christian University and former SRA President Paul Slovic of Decision Re-

search are chairing the sessions, which will include speakers from Japan and the United States.

SRA Councilor Tohru Morioka of Osaka University and Atsushi Takao of Kobe University are organizing the symposium "Risk Management and Crisis Management in the Kobe Earthquake," which will include presentations on fire risk, risk management in rescue and life support, and risk perception and risk-related behaviors associated with the earthquake of January 17, 1995.

Japan Section Track. The Japan Section's symposia and presentations will be organized in one track, which will run throughout the meeting at one location. All presentations will be made in English.

## Kemp Is SRA-Europe President

The new president of SRA-Europe is Ray Kemp, who also recently became director of risk management with the London-based international environmental consulting firm EnTec UK Ltd. He was formerly a managing principal with the engineering consultants Dames and Moore in London. He specializes in controversial projects and has extensive experience in working with govern-



Ray Kemp

ment and industry in the United Kingdom and Europe on major developments with environmental impact and risk implications.

President Kemp, a member of SRA-Europe since 1988, is committed to the principles and objectives of the Society for Risk Analysis and wants to see its membership develop throughout the evolving European region. "I am particularly keen to find ways of encouraging both practitioners and young scholars in the field of risk assessment to join the Society and to develop their analytic and communication skills in tackling practical environmental problems," he said.

After receiving his doctorate in planning and the nuclear industry from the University of Wales in Cardiff, Kemp worked on the Sizewell Inquiry Review Project at the University of East Anglia in Norwich, England, and later joined the

university's Environmental Risk Assessment Unit as its first post-doctoral researcher, specializing in the public acceptance of risk, risk perception, and risk communication for a number of environmental problems. He also became a lecturer in planning and environmental risk assessment and later the coordinator of the university's World Health Organization Collaborating Centre for Environmental Health Risk Assessment and Communication.

In 1992, SRA elected Kemp as a councilor, his term ending this year. SRA-Europe elected him to its Executive Committee in 1994, and he has also served on the organizing committees of three SRA-Europe conferences.

## **Executive Committee Members**

Current members of the SRA-Europe Executive Committee include the secretary, Britt-Marie Drottz Sjöberg of the Stockholm School of Economics' Center for Risk Research in Sweden; the treasurer, Martin Brüstlein of F. Hoffmann-La Roche AG in Switzerland; the membership chair, Catherina Zwetkoff of Faculté de Droit in Belgium; the publications and journal chair, Philippe Hubert of the Institut de Protection et de Sûreté Nucléaire in France; Vitaly Eremenko of the Kurchatovsky Institute's Russian Research Center in the Russian Federation; Paolo Vestrucci of NIER in Italy; and the past president, Detlef Müller of Procter & Gamble GmbH in Germany. Also on the committee are Ortwin Renn of the Center of Technology Assessment in Baden-Württemberg in Germany, who organized the 1995 SRA-Europe Annual Meeting, and Ragnar Löfstedt of the University of Surrey's Centre for Environmental Strategy in the United Kingdom, who is organizing the 1996 Annual Meeting.

## 250 Participate in SRA-Europe Meeting

Featuring the theme "Risk Analysis and Management in a Global Economy," the 1995 Annual Meeting of the Society for Risk Analysis—Europe drew more than 250 participants from 30 countries. The Center of Technology Assessment in Baden-Württemberg organized the conference, which was held May 21-25 in Stuttgart, Germany.

"The conference succeeded in bringing people from different disciplines and professional backgrounds together," stated conference organizer Ortwin Renn in a special report to the RISK *newsletter*. Renn, a director of the Center of Technology Assessment in Baden-Württemberg, also said that most participants switched sessions from one track to another and searched for dialogue beyond disciplinary boundaries.

Attendees presented 120 technical papers and 48 posters in the following four thematic tracks:

- The contributions of professional risk analysis to risk management and policy implementation in Central and Eastern Europe: Bridging the gap between Western and Eastern practice. *Chair*: Adrian Gheorghe of ETH Zürich.
- Insurance of environmental and industrial risks: New challenges for risk prevention and risk management. *Chair*: Wolfgang Gottschling of Württembergische Versicherung AG in Germany.



Prime Minister Erwin Teufel of Baden-Württemberg reviewed Germany's risk-related policies.



Outgoing SRA-Europe President Detlef Müller, SRA President Elisabeth Paté-Cornell, and Conference Organizer Ortwin Renn (from left to right) addressed SRA-Europe's 1995 Annual Meeting.

- Risk perception, communication, and mediation: Coping with diversity and plural values. *Chair*: Peter Wiedemann of the Research Center Iülich
- New developments in risk analysis: Case studies and experiences in the environmental, ecological, food, safety, transportation, and other risk-related fields. *Chair*: Hans-Joachim Seidel of the University of Ulm in Germany.

#### 1995 Award Recipient

At the opening reception, the 1995 SRA-Europe Distinguished Scientific Work Award was presented to Ben Ale of the National Institute for Health and Environment in Bilthoven, Netherlands. He was cited for his pioneering work in applying probabilistic risk assessment methods to the petrochemical industry.

#### **Speakers**

Speakers at the opening sessions included Baden-Württemberg's Prime Minister Erwin Teufel, who reviewed prominent risk-related policies in Germany and discussed the gap between rich and poor countries in actual exposure to environmental risks. Elisabeth Paté-Cornell, president of the international Society for Risk Analysis and a professor of industrial engineering and engineering management at Stanford University, talked about learning across the disciplines and stated that even more

powerful assessment tools are needed to treat uncertainties in risk analysis. She expressed hope that the problems posed by traditional risk analysis could be addressed worldwide. Outgoing SRA-Europe President Detlef Müller of Proctor and Gamble in Germany expressed his hope that the meeting would help to bring together risk analysis efforts in Western and Eastern Europe.

Introducing the four tracks were Liviu Muresan, president of the European Institute for Risk, Security, and Communication Management in Bucharest, Romania, who spoke on the urgent need for Western specialists to assist Eastern European countries in cleaning up toxic materials and nuclear wastes left at former military installations; Georg Mehl, chairman of the insurance company Württembergische Versicherung AG in Germany, who discussed the role of insurances for environmental risk management, warning that insurers could not assume the burden of safety control; Josée van Eijndhoven, director of the Rathenau Institute for Technology Assessment in the Netherlands, who reviewed ongoing studies on risk perception and communication, emphasizing that risk behavior cannot be modeled on the basis of technological data alone; and Bertrand Munier, director of the Research Group

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#### International Strategy

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difficult health risks (such as mutagenicity, carcinogenicity, and reproductive effects).

#### **Chemical Risk Assessments**

In order to use the test results effectively in chemical risk assessments, efforts are under way to develop common assessment principles and procedures. Significant progress has been made in creating the principles for the screening data being developed on the industrial chemicals produced in large volumes. However, it is recognized that activities leading to exposure vary greatly from country to country, thus precluding the possibility of assessing risks in exactly the same way for all countries.

#### **Identified Goals**

At the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro in 1992, countries agreed that by the end of the century at least 500 chemical reviews should be completed by the international community. The United States is hosting an international consultation with the International Program on Chemical Safety, which operates under the United Nations Environmental Programme, to develop a process to set priorities and establish a work plan.

Regulatory coordination will be more difficult but must be addressed.

#### **SRA-Europe Meeting**

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of Risk, Information and Decision at Ecole Normale Supérieure de Cachan in France, who explained the opportunities of using fuzzy logic in risk assessment and said that uncertainty coefficients can now be modeled with higher reliability.

Plenary speaker Hans Allgeier, director of the E.C. Institute for Prospective Technological Studies in Spain, focused on energy systems and communication technologies. He advised risk managers to develop more resilient strategies in regulating technologies since the future remains undetermined and it is impossible to foresee all negative consequences of any new technology.

## Executive Committee To Meet in September

The SRA Executive Committee, composed of the officers of the Society, will meet on September 8-9, 1995. One important item to address is the agenda of a strategic planning meeting, which will be held in Hawaii immediately before the opening of the 1995 SRA Annual Meeting.

The Society began its strategic planning process in March 1992, when all former SRA presidents were invited to attend the SRA Council's spring meeting to discuss the Society's mission and long-term goals, as well as strategies for realizing them. A product of that effort was the SRA mission statement drafted by former SRA President D. Warner North and adopted by SRA members at the 1993 Annual Meeting.

The strategic planning meeting in Hawaii will carry the process into a second stage, when the SRA Council and past presidents attending the annual meeting will discuss various topics, including what a risk analyst is, how the Society can draw the disciplines together with one common goal, what the future of risk analysis is, and how the SRA can improve services to its members.

SRA members who would like to suggest topics for the agenda of the strategic planning meeting, or the Executive Committee meeting preceding it, should send their ideas to: President M. Elisabeth Paté-Cornell, Society for Risk Analysis, 1313 Dolley Madison Boulevard, Suite 402, McLean, VA 22101, fax (703) 790-2672, e-mail sraburkmgt@aol.com.

"Coming out of environmental and trade agreements are a host of responsibilities for nations to uphold chemical standards and maintain transparency in actions to ensure they are not infringing on international trade," Dr. Goldman said, pointing out that the EPA has worked closely in the trade negotiations for NAFTA (North American Free Trade Agreement) and GATT (General Agreement on Tariffs and Trade) to ensure that these agreements protected the environ-

mental and public health standards of the countries.

Dr. Goldman believes that international cooperation in chemical risk stewardship is essential, and that pollution prevention and risk reduction strategies must be applied in all countries. The imperative for such cooperation, she said, "was made tragically clear with the [1984] chemical explosion in Bhopal, India."

Other meeting highlights included a report on the interdisciplinary project Risk and Safety of Technological Systems conducted by the Swiss Institute of Technology, and a panel discussion on risk communication, in which one panelist concluded that communication among communication specialists must be successful before communication with the public will be.

#### Eastern and Central Europe

"Many participants were particularly interested in the sessions dealing with risk problems in Central and Eastern Europe," Renn stated.

Forty invited speakers from the two regions reported on the environmental problems that their countries face in making the transition to a market economy. Topics included the effects of the Chernobyl accident and the health problems induced by environmental pollution and rapid lifestyle changes. "Most interesting was the finding that mortality was highly correlated with country or region, but less so with actual levels of pollution or other environmental factors," Renn stated.

#### **Future Plans**

Future plans for SRA-Europe include finalizing plans to publish a journal and increasing communication by using the Internet, says the section's new president Ray Kemp, who began his term at the meeting (see page 2).

The section is also planning its 1996 Annual Meeting, to be held June 3-5 at (Continued on page 5.)

## **SRA-Europe Meeting**

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the University of Surrey in Guildford, United Kingdom. The conference director, Ragnar Löfstedt of the university's Centre for Environmental Strategy, has scheduled a conference planning session on September 7 at the university, which will be followed by a meeting of the section's executive committee on September 8.

President Kemp will attend the 1995 SRA Annual Meeting in Hawaii and co-chair the symposium "Nuclear Waste Facility Siting: Country and Cultural Comparisons of Conflict and Resolution" with SRA-Europe's Past President Marc Poumadère of Ecole Normale Supérieure de Cachan in France (see Member News) and member Claire Mays of Institut SYMLOG in France, who is organizing the symposium.

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#### **Annual Meeting**

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workshops, hotel accommodations, and tours; a schedule of the sessions, including topics and presenters; and registration forms and information.

Additional tracks. In order to accommodate all of the paper submissions, nine concurrent tracks have been scheduled—three tracks more than the 1994 SRA Annual Meeting required. One track is devoted to the papers and symposia organized by the Japan Section.

**Extended sessions.** The meeting's final sessions will end Wednesday at 5 p.m., instead of earlier in the afternoon as in previous years.

Regulatory reform session. A special plenary session titled "Impact of Regulatory Reform Legislation" is scheduled for Wednesday morning, December 6. SRA councilor Gail Charnley of the Commission on Risk Assessment and Risk Management will chair the session. The speakers, including Frederick R. Anderson of Cadwalader, Wickersham, and Taft,

## New SRA Advisory Board Established

A new Advisory Board has been established by the SRA Council to stimulate further development of the Society.

The Advisory Board's mission is to consider the areas of risk analysis now represented within SRA in order to evaluate the Society's coverage of the field and to identify new areas that might usefully be added. The intent is to offer advice to the SRA Council on how the Society might better serve its members and the public by either continuing or modifying its emphasis on, and approach to, these areas.

While the Advisory Board will primarily give technical and scientific advice, it may also provide advice on philosophical, policy, educational, financial, membership, organizational, or administrative matters—provided its aim is to improve the way SRA covers the important fields within risk analysis.

SRA members who have been appointed to the Advisory Board by SRA President M. Elisabeth Paté-Cornell include Paul F. Deisler Jr. (chair), who is retired from Shell Oil Company; William H. Farland of the U.S. Environmental Protection Agency; Ann B. Fisher of the Pennsylvania State University; and B. John Garrick of PLG Inc. These four initial members, all of whom actively participate in SRA matters, bring to the Advisory Board a diversity of backgrounds, with experience in the areas of academia, government, consulting, and industry and with interests in the application of risk analysis across the disciplines.

The SRA president may appoint additional members from time to time to increase the scope of the backgrounds within the Advisory Board. In addition, each SRA sustaining member donating an annual contribution of \$5000 or more to the Society will be invited to appoint a representative to the Advisory Board. In this way, organizations with a high level of interest in and financial commitment to the Society will have an opportunity to contribute to the Advisory Board's work and, ultimately, to the direction of the Society.

Brett Burk of the SRA Secretariat will provide support to the Advisory Board, which solicits and welcomes SRA members' ideas for the Society's improvement and development. Please send your ideas to Paul Deisler, P.O. Box 5819, Austin, TX 78763, fax (512) 480-9810, or Brett Burk at the Secretariat (see masthead on page 12).

Lester B. Lave of Carnegie Mellon University, Gilbert S. Omenn of the University of Washington, and Paul Slovic of Decision Research, will discuss their views and challenge one another's views on how U.S. regulatory reform legislation will affect the risk communication, cost/benefit, health, and judicial review aspects of risk regulation. The audience will also have an opportunity to debate and question the issues.

Specialty group meetings. The five SRA specialty groups will hold their meetings at two different times to allow attendees to participate in more than one group. Two groups will meet one day, and three groups another day.

**Pre- and post-meeting opportunities.** For annual meeting attendees who plan to spend a few vacation days in Hawaii before or after the meeting, the Secretariat has arranged for the conference rate for the hotel rooms to extend from November 29 through December 9. The Secretariat is also arranging for special room rates at hotels on the island of Maui and the "Big Island" of Hawaii. Attendees who would like to visit either or both of these islands will make their own hotel reservations, as well as their own travel arrangements through one of Hawaii's inter-island air shuttles (after arriving in Hawaii or earlier through a travel agent).

For more information about the 1995 SRA Annual Meeting, read the preliminary program or contact the Secretariat in McLean, Virginia (see masthead, page 12).

## Nominations for 1995 SRA Elections Announced

The Society for Risk Analysis Nominating Committee, which is chaired by former SRA President James D. Wilson of the Center for Risk Management, Resources for the Future, has announced the nominations for the 1995 SRA elections to be held this fall. The committee members include Alison C. Cullen of the University of Washington, Clifford S. Duke of CommonSense Environmental, Robert G. Hetes of Research Triangle Institute, Stanley H. Levinson of B & W Nuclear Technologies, Linda-Jo Schierow of the Congressional Research Service, and Daniel R. Smith of SCIENTECH Inc.

The Society will choose a president-elect, a secretary for a two-year term, and three councilors, each for three-year terms. The nominees for these positions are introduced below.

## President-elect: Kasperson vs. Zimmerman

Roger E. Kasperson has been provost at Clark University since 1992, where he is also a senior researcher at the Center for Technology, Environment, and Development (CENTED) and the George Perkins Marsh Institute. He has a B.A. from Clark University and an M.A. and a Ph.D., both in geography, from the University of Chicago. He has written numerous books and publications on technological risks, risk communication, risk policy, radioactive wastes, and global environmental change. His latest book Regions at Risk: Comparisons of Threatened Environments (United Nations University Press) will be released in September.

Kasperson chairs the International Geographical Union's Commission on Critical Environmental Situations and Regions, which has over 200 members in 42 countries, and is a member of the Social Science Research Council Committee on Global Environmental Change Research. He is a fellow of the American Association for the Advancement of Science and has been honored for his work on environmental hazards by the Association of American Geographers. He has served on numerous committees of the National Research Council and

the National Science Foundation, as well as the subcommittee on risk reduction strategies for the Science Advisory Board's report to the U.S. Environmental Protection Agency, *Reducing Risk: Setting Priorities and Strategies for Environmental Protection* (1992).

A charter member of SRA, Kasperson served on the SRA Council in 1989-93 and was general program chair of the 1986 SRA Annual Meeting. He has also served on the editorial board of *Risk Analysis*.

Rae Zimmerman is professor of planning and public administration at New York University, where she has been a member of the faculty since 1973. She initiated and directs the university's Summer Institute in Risk Management in Environmental Health and Protection, including quantitative risk assessment. She has a B.A. in chemistry from the University of California at Berkeley, a master's degree in city planning from the University of Pennsylvania, and a Ph.D. in planning from Columbia University. She has conducted research in and teaches environmental management, risk communication, public perceptions of environmental risk, water quality, hazardous wastes, chemical usage, and transportation. Her recent research has focused on socioeconomic characteristics of communities with inactive hazardous waste sites and their implications for environmental equity policy, and she will be directing an environmental and transportation infrastructure performance project that includes safety and health risk issues of engineered systems. She has been a consultant with engineering firms and government, including the EPA. Her publications include Governmental Management of Chemical Risk (Lewis Publishers Inc., 1990) and, most recently, "When Studies Collide: Meta-analysis and Rules of Evidence for Environmental Health Policy Applications to Benzene, Dioxins, and Formaldehyde" (Policy Studies Journal, 1995), as well as articles on the 1993 Mississippi floods in *The Sci*ences (1994) and environmental equity in Fordham Urban Law Journal (1994) and Risk Analysis (1993).

Among her professional activities, Zimmerman has served on panels for the Risk Science Institute of the International Life Sciences Institute, Harvard Center for Risk Analysis, the U.S. Congress Office of Technology Assessment, and the American Arbitration Association. Currently, she is on an advisory panel of the National Science Foundation's Decision, Risk, and Management Science Program.

A charter member of SRA, Zimmerman served as a councilor in 1991-94, has chaired the Sections and Chapters Committee since 1992, and is a member of the Gifts and Grants Committee. Her participation in SRA annual meetings includes organizing panel sessions and coordinating a social science track. She is a co-founder and a former president of the SRA Metropolitan Chapter (CT–NJ–NY).

#### Secretary: Flamm vs. Hakkinen

W. Gary Flamm is president of Flamm Associates, consultants in toxicology and food and drug regulations (see Member News). He holds a B.S. in pharmacy, an M.S. in pharmaceutical chemistry, and a Ph.D. in biochemistry from the University of Cincinnati Medical School. His career in the U.S. Public Health Service spanned 25 years at the National Institutes of Health and the Food and Drug Administration, where he was involved in health and safety evaluation of chemicals and their regulations and held several high-level positions. He is an internationally recognized authority in risk and safety evaluation of carcinogens and other toxic agents and several times has given testimony on the safety of substances in the food supply before the U.S. Congress. In addition, he has held academic appointments in several major universities.

In 1985 Flamm was named one of the first two fellows of the American College of Toxicology, for which he is a former president. He is also a past president of the International Society for Regulatory Toxicology and Pharmacology. He serves on the editorial boards of seven journals addressing toxicological and risk assessment subjects and the newsletter *Guide to U.S. Food Safety Law*.

Flamm, a charter member of SRA, was elected SRA secretary in 1993 and will complete his two-year term in December. He is a former SRA councilor (1987-90) and has served on the editorial board of *Risk Analysis*.

Perrti J. (Bert) Hakkinen is a senior scientist in toxicology and risk assessment with Procter & Gamble Company in Cincinnati, Ohio, where he conducts human exposure and risk assessments for numerous consumer products. He has a B.A. in biochemistry and molecular biology from the University of California at Santa Barbara and a Ph.D. in comparative pharmacology and toxicology from the university's San Francisco campus. Before joining Procter & Gamble, he was a postdoctoral investigator in toxicology and in exposure and risk assessment at the Oak Ridge National Laboratory.

Hakkinen has chaired the Chemical Manufacturers Association's Exposure Assessment Task Group since 1991. He has been an invited expert at several U.S. Environmental Protection Agencysponsored workshops to develop or revise human exposure assessment guidance and resource documents and is a lecturer on exposure and risk assessment at the University of Cincinnati. He was on the editorial board of *Toxicology* for eight years and has been invited to be a co-editor of *Information Resources in Toxicology*, Third Edition.

A charter member of SRA, Hakkinen is a councilor and former president of SRA's Ohio Chapter. In 1991, he originated the SRA Exposure Assessment Specialty Group's "Reference House" effort and, in 1992 and 1993, co-organized two SRA Annual Meeting workshops related to that effort. This led to the Residential Exposure Assessment Project for which Hakkinen is an editorial committee member (see REAP, page 8).

#### Councilor: Evans vs. Jarabek

John S. Evans is senior lecturer on environmental science and directs the environmental health and public policy program at the Harvard School of Public Health. He is also a core faculty member at the Harvard Center for Risk Analysis. Previously he was a bioenvironmental engineer in the U.S. Air Force and a fellow with the U.S. Nuclear Regulatory Commission's Advisory Committee on Reactor Safeguards. He has a B.S.E. in industrial engineering and an M.S. in water resources management from the University of Michigan at Ann Arbor and both an S.M. and a Sc.D. in environmental health sciences from Harvard. His research has focused on characterizing uncertainty in estimates of environmental exposure and risks and on analyzing the value of improved information in support of environmental health decisions. Evans has sought to expand the role of risk assessment in environmental decision making outside the United States through his involvement with courses, workshops, and risk assessment activities in several countries.

A charter member of SRA, Evans has served on the *Risk Analysis* editorial board since 1988, was the SRA New England Chapter president (1988-89), and is a 1995 SRA Annual Meeting Committee member.

Annie M. Jarabek is a toxicologist for the U.S. Environmental Protection Agency's Office of Research and Development in Research Triangle Park, North Carolina, with a B.S. in biology from the University of Notre Dame and graduate work in inhalation toxicology at the University of Cincinnati Medical Center. She is the principal author of the EPA methods to derive inhalation reference concentrations (RfCs) that incorporate dosimetry modeling of inhaled particles and gases to improve characterization of dose and has written over 20 publications on the topic of dose-response assessment. She served six years as co-chair of EPA's intraagency work group on noncancer doseresponse assessment. She is now working on implementation of the benchmark approach and has developed a Bayesian approach that allows for statistical combination of dose-response estimates.

Jarabek, an SRA member since 1989, is a past president of the SRA Research Triangle Chapter. She has also served as a chapter councilor and as the organizer of its 1993 and 1994 annual symposia. In addition, she was a member of the organizing committee of the 1993 SRA Annual Meeting, for which she also organized the symposium on biological markers in exposure-dose-response assessment.

#### Councilor: Menzie vs. Starr

Charles A. Menzie is founder and president of Menzie-Cura & Associates Inc., Chelmsford, Massachusetts, which is internationally recognized in human health and ecological risk assessment. He holds a B.S. in biology from Manhattan College, an M.A. in biology from College of New York, and a Ph.D. in environmental science from City University of New York. With over 20 years of professional experience, his work has included managing large-scale risk assessments relating to chemical manufacturing plant siting, new energy technologies, synfuel facilites, landfills, radioactive and mixed waste disposal, land redevelopment, no-migration petitions, hazardous waste and Superfund sites, and natural resource damage. He has also developed risk assessment guidance for the Gas Research Institute and the Electric Power Research Institute, facilitated peer reviews of risk assessment case studies for the U.S. Environmental Protection Agency's Risk Forum, and presented numerous seminars on conducting risk assessment for the mining, utility, and oil and gas industries.

Menzie joined SRA in 1987, is a past president of the SRA New England Chapter, and has organized several SRA annual meeting sessions on ecological risk assessment. He is a liaison between SRA and the Society of Environmental Toxicology and Chemistry.

Thomas B. Starr is a principal in the health sciences division of ENVIRON Corporation in Raleigh, North Carolina. He has a B.A. in theoretical physics from Hamilton College and an M.S. and a Ph.D., both in theoretical physics, from the University of Wisconsin at Madison, where he also held National Science Foundation postdoctoral and faculty appointments in the university's Institute for Environ-

mental Studies. Before joining ENVIRON, he served on the staff of the Chemical Industry Institute of Toxicology, first as a senior scientist in the epidemiology department and then as the director of the risk assessment program. His research interests have focused on the means for explicitly incorporating knowledge of toxic mechanisms into the quantitative risk assessment process and on improving epidemiologic methods for assessing effects of chemical exposure on worker health. He has also served as an adjunct faculty member at the University of North Carolina at Chapel Hill and in an advisory capacity on panels and committees at both national and state levels. He currently is on the Secretary's Scientific Advisory Board on Toxic Air Pollutants for the North Carolina Department of Environmental Health and Natural Resources.

Starr, a member of SRA since 1982, is a past president of SRA's Research Triangle Chapter. Among his activities in numerous professional societies, he served as the first president of the Society of Toxicology's Specialty Section on Risk Assessment.

## Councilor: Mulvihill vs. Stamatelatos

Robert J. Mulvihill of PRC Inc., El Segundo, California, has 39 years of experience in technical management and in mechanical, industrial, nuclear, and marine engineering, including industrial and military safety, quality assurance, reliability/availability/maintainability, and cost-effectiveness applications. He has a B.S. in marine engineering from State University of New York, an M.S. in mechanical engineering from Massachusetts Institute of Technology, and a Ph.D. in engineering from California Coast University.

For 25 years Mulvihill has pioneered the use of reliability and risk assessment techniques, which he has recently applied to the architect-engineering design process. Currently he is directing a support effort for the Lockheed Martin Denver probabilistic risk assessment for the Titan and Centaur launch vehicles as part of the CASSINI mission safety analysis. Previously he has served as the manager of probabilistic risk assessments for several National Aeronautics and Space Administration (NASA) projects, including the Galileo and Ulysses space missions, the Langley 8-foot High Temperature Wind Tunnel, the Liquid Hydrogen Structural Test Facility, and the Advanced Solid Rocket Motor Propellant Manufacturing Facility.

Mulvilhill, an SRA member since 1987, has chaired SRA's Engineering Specialty Group since 1992 and is a former president of SRA's Southern California Chapter. He also chaired a short course for the 1994 International Conference on Probabilistic Safety Assessment and Management—PSAM-II. (Also see Member News, page 11.)

Michael G. Stamatelatos is vice president of SCIENTECH Inc., San Diego, California, and manager of its Western Region, as well as its international and risk assessment and management programs. He has a B.S., M.S., and Ph.D. in nuclear science and engineering from Columbia University. In his 31-year professional career, he has held numerous industry, national laboratory, and university positions and has become a recognized expert in safety and risk and reliability assessment. He has managed assessment programs for a number of nuclear power plants, both in the United States and in other countries, as well as for research, space, and defense reactors; chemical installations; and chemical munitions demilitarization facilities. He has also participated in the reviews of the Probabilistic Risk Assessment (PRA) Procedures Guide, the development of a PRA procedures guide for advanced reactors, the National Science Foundation review of PRA methods (NUREG-1050), and reviews of the Nuclear Regulatory Commission probabilistic safety document NUREG-1150. In addition, he has served as a safety, risk, and reliability expert for the International Atomic Energy Agency.

Stamatelatos, a charter member of SRA, is a former president and councilor of SRA's Southern California Chapter. Among his many professional activities, he chaired PSAM-II in 1994 and was a co-organizer of PSAM-I in 1991.

## Residential Exposure Assessment Project Update

The Residential Exposure Assessment Project (REAP), a joint effort of the Society for Risk Analysis, the International Society of Exposure Analysis, and the U.S. Environmental Protection Agency, has progressed to the point that the writing of the residential exposure assessment reference textbook has begun. A progress report outlining a detailed schedule for completion of the project has been prepared by SRA members David B. McCallum of the Focus Group Research and Training Center, who chairs the project's Management Committee; Jeffrey H. Driver of Technology Sciences Group Inc. and P.J. (Bert) Hakkinen of Proctor & Gamble Inc., both of whom serve on the Editorial Committee; and Gary K. Whitmyre of Technology Sciences Group Inc.

The chairs of the working groups that are writing the individual chapters for the textbook have submitted formal drafts of the chapter outlines. The working group members

have been selected, have been given writing assignments, and are organizing meetings or conference calls to coordinate their efforts. Several groups, as well as the REAP Editorial Committee, met in conjunction with and participated in the 1995 U.S. EPA Exposure Factors Handbook Workshop in July.

A meeting of the REAP Editorial Committee and the working group chairs will be scheduled within the next few months, possibly in conjunction with the 1995 SRA Annual Meeting.

Collaboration efforts with other parties interested in REAP continue. An information package about the project will be presented at a meeting of the European Community, for example, whose members may be interested in working with REAP.

(Continued on page 9.)

#### REAP

(Continued from page 8.)

The REAP committee is considering the development of a site about REAP on the Internet as a means of facilitating communication and information exchange among residential exposure assessors.

For more information on the project, contact McCallum at telephone (410) 886-2850 or Driver at telephone (202) 828-8968

## SRA Dues Structure Reviewed

Last December, the SRA Council asked Treasurer Paul S. Price and Councilor Caron Chess to review the current SRA dues structure to determine whether the structure discouraged participation by individuals working for organizations that historically offered lower salaries, such as environmental groups, community organizations, and academics in small colleges. A specific question was whether to develop a dues structure based on income. To help address this issue, a review was performed of ten professional societies similar to SRA. This review found that SRA's dues are lower than the dues of

similar societies and that the Society's current system of offering reduced rates for students is consistent with other professional societies. In addition, the one society that does base dues on income had rates higher than \$75, the current SRA rate, for its lowest income category. These results were reported to the Council at its March 1995 meeting. Based upon this report, the Council recommended against restructuring the dues based on income at this time. It also recommended a number of actions that will result in increased dues over the next three years for some portions of the Society. More information will be given in a future newsletter article.

## SRA To Organize Speakers Bureau

The Society for Risk Analysis is organizing a speakers bureau for its sections and chapters to use as a resource in planning their programs.

The SRA Secretariat, who will manage the bureau, requests SRA members to provide any ideas they may have for organizing and maintaining an effective speakers bureau.

Send your suggestions to Richard J. Burk Jr. at the SRA Secretariat (see masthead on page 12 for address).

## **SRA Specialty Groups**

Dose Response Specialty Group. The 1995 SRA Annual Meeting will include nine sessions on the theme *Dose-Response Assessment: Theory and Application.* Under *theory*, there will be two sessions on the biological bases for dose-response, including mechanisms, mode of action, and dose, and three sessions on quantitative dose-response modeling—one for cancer and two for effects other than cancer. Under *application*, there will be one session on established approaches to dose-response assessment, two sessions on mechanisms to refine dose-response assessment, and a fourth session on international harmonization of dose-response methods.

At the Dose Response Specialty Group's meeting in Hawaii, attendees will continue to conceptualize a program on the examination of time as a dose-response variable for the 1996 SRA Annual Meeting in New Orleans. For more information, contact the group's secretary-treasurer, Scott Baker of EA Engineering, Science, and Technology Inc., Silver Spring, Maryland, telephone (301) 565-4216, fax (301) 587-4752, e-mail sb@eaeng.mhs.compuserve.com.

Exposure Assessment Specialty Group. Exposure assessors will find many topics of interest on the program of the 1995 SRA Annual Meeting, including sessions on regional and cultural variability in exposure and risk factors, food-chain exposure, comparative risk assessment in data-sparse situations, and application of Monte Carlo methods. In addition, one of the pre-meeting workshops will address practical methods for dealing with variability and uncertainty in exposure and risk assessment.

When the Exposure Assessment Specialty Group meets at the annual meeting in Hawaii, it will choose a new chair-elect

and discuss business items, including the joint 1996 annual meetings of the SRA and the International Society of Exposure Analysis in New Orleans, the status of REAP (see page 8), and revisions to the U.S. Environmental Protection Agency's Exposure Factors Handbook. For more information, contact the group's chair, Thomas E. McKone of the University of California, Davis, telephone (916) 754-8757, fax (916) 752-3394, e-mail tmck@llnl.gov; or its secretary/chair-elect, John C. Kissel of the University of Washington, e-mail jkissel@dehpost.sphcm.washington.edu, telephone (206) 543-5111, fax (206) 543-8123.

Risk Communication Specialty Group. The group's secretary-treasurer Ann Bostrom of the Georgia Institute of Technology is coordinating the risk communication sessions for the 1995 SRA Annual Meeting. She is a member of the 1995 Annual Meeting Committee and attended its July 7 meeting to organize the annual meeting program. For more information, contact the group's chair, Branden B. Johnson of the New Jersey Department of Environmental Protection in Trenton, telephone (609) 633-2324, fax (609) 292-7340, e-mail brandenj@eohsi.rutgers.edu.

For information about the other SRA specialty groups, contact the following:

**Ecological Risk Assessment Specialty Group.** Chair William Alsop of Harding Lawson Associates, Novato, CA, telephone (415) 884-3136, fax (415) 883-3300.

Engineering Specialty Group. Chair Robert J. Mulvihill of PRC Inc., El Segundo, CA, telephone (310) 640-1050 or (619) 721-2540, fax (310) 640-2207, e-mail mulvihill@aol.com.

## U.S. Chapter News

East Tennessee Chapter has begun to reorganize with some 30 past members who have expressed an interest in future programs. The chapter plans to hold monthly meetings with two presentations at each meeting to encourage communication among different risk disciplines. In June, Curtis C. Travis of the Center for Risk Management at Oak Ridge National Laboratory discussed risk-based issues associated with government-sponsored environmental cleanup efforts, and chapter President Joseph W. Minarick of Science Applications International Corporation described the analysis of near-miss (accident precursor) events. Elections for new officers will be held in the fall.

Metropolitan Chapter (Connecticut-New Jersey-New York) sponsored a seminar titled "Low Level Chemical Sensitivity: Possible Origins, Clinical Presentations, and Interviews" with the Mount Sinai Irving J. Selikoff Center for Occupational and Environmental Medicine. The chapter's past president, Miriam de Salegui, and the center's director of education, Stephen Mooser, co-organized the seminar, which was attended by some 75 medical practitioners, attorneys, health scientists, environmental consultants, and multiple chemical sensitivity sufferers. Subsequent to the seminar, approximately 25 new members joined the chapter.

Michigan Chapter elected new officers this spring, including a new president, John L. Nelson of Ford Motor Company. He is hoping to broaden the scope of the chapter meetings to include topics relating to technological advancements in risk analysis, the role of the judiciary in risk assessment, and improvements in risk assessment methodologies. The officers will meet in August to establish new directions for the chapter and to begin planning the fall meeting. One of their goals is to improve communications between the chapter and other professional societies.

New England Chapter is taking a summer break from its monthly meeting schedule, which will resume in the fall. Michael Hutcheson of the Massachu-

## U.S. Chapter Contacts

Chicago Regional: Tom Wolsko, interim president, (708) 252-3733, tdwolsko@anl.gov

Columbia-Cascades: Jim Dukelow, president, (509) 372-4074, js\_dukelow@pnl.gov

East Tennessee: Joe Minarick, president, (615) 481-2117, minarickj@orvb.saic.com

Greater Pittsburgh: Gregg Claycamp, president, (412) 967-6524, hgc2@vms.cis.pitt.edu

Lone Star: Tom Connor, president, (713) 792-4300

Metropolitan (CT-NJ-NY): Wayne Tusa, president, (212) 369-5400

Michigan: Joan Fassinger, secretary, (313) 556-7691, wincl1.jhfass01@gmeds.com

National Capital Area: Cindy Jengeleski, president, (202) 833-2183, cjengeleski@aihc.org

New England: Michael Hutcheson, president, (617) 292-5998, mhutcheson@state.ma.us

Northern California: Garrett Keating, secretary, (510) 422-0921, keating2@llnl.gov

Ohio: Jeff Fisher, president, (513) 255-5740

Philadelphia: Linda Burg, secretary, (215) 641-7482, rsylmb@rohmhaas.com
Research Triangle: David Kramer, president, (919) 558-1359, kramer@ciit.org

Rocky Mountain: Yvette Lowney, president, (303) 444-7270

Southern California: Larry Froebe, president, (714) 660-5464, itirvine@earthlink.net

setts Department of Environmental Protection has begun his term as chapter president for 1995-96. The chapter recently elected officers, including a new president-elect, Dale B. Hattis of Clark University's Center for Technology, Environment, and Development.

Northern California Chapter is co-sponsoring a symposium at the 1995 SRA Annual Meeting in Hawaii with the University of California Toxic Substances Research and Teaching Program. The symposium, titled "California's Road to Risk-based Regulation: Potholes and Progress on Route 65," will review the state's attempts to rationalize its risk-based regulatory policy and will propose guidelines for the current national debate.

Philadelphia Chapter annually sponsors three dinner meetings, which are held at the University of Pennsylvania's Faculty Club and are open to the public. The 1995-96 meetings will feature speakers who are involved with risk assessment reform legislation. In October or November, a key Republican with scientific expertise will speak on risk assessment legislation. In

January, a key Democrat with scientific expertise will give an alternative perspective on the issue. At the spring meeting, around Earth Day, an expert in ecological risk assessment will speak. To place your name on the mailing list for meeting announcements, contact the chapter secretary, Linda M. Burg of Rohm and Haas Company (see box).

Research Triangle Chapter most recently met in June. Daniel J. Guth of the U.S. Environmental Protection Agency's National Center for Environmental Assessment spoke on "Exposure-Response Analysis of Acute Inhalation Exposure Using Stratified Ordinal Regression and Benchmark Concentration Techniques." The chapter's president is David A. Kramer of the Chemical Industry Institute of Toxicology.

Southern California Chapter is using the summer months to plan its program year from September 1995 through June 1996. The chapter is also preparing to incorporate. As a part of incorporation, the chapter's past president, Douglas D. Orvis of Accident Prevention Group Inc., is heading an effort to revise the chapter's by-laws.

## Advertisements

## Ph.D. Risk Assessment Specialist

Philip Environmental needs a Ph.D. Senior Risk Assessment Specialist in Pittsburgh, Pennsylvania. Responsibilities include managing and preparing human health and ecological risk assessments, expert testimony, proposal and project management, and client interaction and business development.

Qualifications: 7 to 10 years experience in evaluating environmental risks, preferably as a consultant; Ph.D. in environmental toxicology, public health, risk assessment, or related field; knowledgeable of federal guidelines; experience in providing expert testimony; excellent written and oral communication skills.

Competitive compensation package, including incentive compensation, stock options, and 401K. Send resume to:

Philip Environmental Services Corporation 10 Duff Road, Suite 500 Pittsburgh, Pennsylvania 15235-3205

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## Community Outreach/ Risk Communication Specialist

The University of Washington NIEHS Center for Ecogenetics and Environmental Health invites applications for a half-time position (50%) to serve as primary contact between the Center and the general public, including the news media: develop innovative approaches to environmental risk communication; develop an information service responsive to community needs. M.D. or Ph.D. in the health sciences required; experience in environmental risk communication and/or community outreach highly desirable. Letters of application with resume and the names and addresses of three references should be sent by October 16, 1995 to Dr. Richard Fenske, COEP Director, Dept. of Environmental Health, Box 357234, University of Washington, Seattle, WA 98195-7234. The University of Washington is an Equal Opportunity/Affirmative Action Employer.

## Member News

Robert L. Deshotels of Fluor Daniel Inc., Irvine, California, and Mardy Kazarians of Kazarians & Associates, Glendale, California, members of the SRA Southern California Chapter, are among the authors of Cost-Effective Risk Assessment for Process Design (McGraw-Hill, 1995).

SRA Secretary **W. Gary Flamm** has moved his company Flamm Associates to 4861 North A1A, Vero Beach, FL 32963, telephone (407) 234-0096, fax (407) 234-0026.

Michael B. Gerrard, an environmental lawyer with Arnold & Porter in New York City, has published *Whose Backyard, Whose Risk: Fear and Fairness in Toxic and Nuclear Waste Siting* (Massachusetts Institute of Technology Press, 1994), telephone (212) 715-1000, fax (212) 715-1399.

**Ray Kemp**, SRA councilor and SRA-Europe president, has begun a new position as director of risk management at EnTec UK Ltd. (see pages 2 and 5).

Rao V. Kolluru, the SRA Metropolitan Chapter (Connecticut–New Jersey–New York) president-elect, of CH2M Hill in Parsippany, New Jersey, is the editor of Risk Assessment and Management Handbook for Environmental, Health,

and Safety Professionals (McGraw-Hill, 1995). Contributing authors include SRA members Steven M. Bartell of SENES Oak Ridge Inc. in Oak Ridge, Tennessee; Vincent T. Covello of Columbia University, New York; Jeffrey H. Driver of Technology Sciences Group Inc., Washington, D.C.; David B. McCallum of Focus Group, Tilghman, Maryland; Susan L. Santos of Focus Group, Medford, Massachusetts; and Roy L. Smith of the U.S. Environmental Protection Agency, Region III, Philadelphia.

**David McCallum** of Focus Group Research and Training Center has a new office address: P.O. Box 356, Tilghman, MD 21671, telephone (410) 886-2850, fax (410) 886-2852.

Robert J. Mulvihill of PRC Inc. was the keynote lecturer on energy systems safety for both conventional and nuclear power plants for the third week (July 8 to 13) of the Pakistan International Nathiagali Summer College on Physics and Contemporary Needs, which included the U.S. National Science Foundation among its sponsors.

**Glenn Paulson**, formerly a research professor at Illinois Institute of Technology, is now president of the environ-

mental and energy consulting firm Paulson and Cooper Inc., with offices in Jackson Hole, Wyoming, and Chicago, Illinois. He also headed a technical team, which included **Frank Parker** of Vanderbilt University in Nashville, Tennessee, to review the waste storage need for new double-shell tanks at the U.S. Department of Defense's Hanford facility. The team's report (April, 1995) is available from Paulson's office, P.O. Box 1541, Jackson Hole, WY 38001, email 74403.3330@compuserve.com, telephone (307) 734-0350, fax (307) 734-0248.

Marc Poumadère, SRA-Europe's past president, has been appointed associate professor at the Ecole Normale Supérieure de Cachan. His address is Groupe de recherche sur le Risque, l'Information et la Décision; 61, avenue du Président Wilson; 94235 Cachan cedex; France; telephone (33) 1 47 40 21 47; fax (33) 1 47 40 23 48; e-mail pmr@grid1.ens-cachan.fr.

Paul Slovic, former SRA president, of Decision Research in Eugene, Oregon, was recently appointed the scientific vice president for public decision making of the National Council on Radiation Protection and Measurements.



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## SRA Council Launches Search for a Successor To Journal Editor

Risk Analysis: An International Journal, with its broad multidisciplinary content and incisive analyses, has provided a major contribution to the success of the Society for Risk Analysis. Vital to the journal's quality and appeal has been its editor, Curtis C. Travis, whose commitment has been a mainstay of its operation.

After more than 12 years of devoted service as editor, Travis is looking toward eventually handing over the reins of the journal to a worthy successor. The Society has launched a two-year effort to find a new editor with the formation of a committee, chaired by SRA Past President Robert G. Tardiff, which will develop criteria and search the halls of academia, government, and industry for someone who will follow in the journal's tradition and also expand its content to reflect the SRA membership's broadening interests. Serving on the committee are SRA President M. Elisabeth Paté-Cornell; former Presidents Elizabeth L. Anderson, B. John Garrick, Lester B. Lave, and Curtis C. Travis; and Fellow M. Granger Morgan.

The SRA Council requests the SRA membership to recommend candidates to be considered for the editor's position. Recommendations should include the candidate's affiliation, address, telephone and fax numbers, e-mail address, and a brief (200 words or less) description of what makes the individual a desirable candidate. Please send your recommendations in writing by November 17, 1995, to the Society's executive secretary, Richard J. Burk Jr., at the address listed in the box to the left.

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