

RISK *newsletter*

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Risk Concerns Demand International Objectives



More and more communities throughout the world are becoming aware that international boundaries cannot insulate countries from the consequences of major technological and/or economic catastrophes in other nations. Neither, they are finding, are such catastrophes limited to headline-grabbing one-day events: instead, they can be long-term processes receiving little attention. The Society for Risk Analysis, while still relatively small in size, believes that it has had considerable impact on this international awareness. Further, it feels that it has helped those concerned

about risks to recognize that their assessment and management requires interdisciplinary programs.

Evidence of SRA's increasingly international role can be seen in the fact that within the span of a month last fall, the Society's two sections—SRA-Europe and SRA-Japan—sponsored their first conferences, with both scheduled soon after SRA's 1988 Annual Meeting held in Washington, D.C. October 30–November 2.

Additional evidence of common international objectives on risk concerns is apparent from the interac-

tions of SRA members in the United States, either collectively or individually, with groups in other countries. In some cases the interactions have been prompted by the increasing worldwide concern about the risks that developing countries are facing, particularly as they attempt to industrialize. Again, that concern recognizes that many risks of the developing countries are international in scope and that only with the full cooperation of all countries can effective policies to confront global risks be developed.

(Continued on page 4.)

Congratulations to . . .

SRA-Europe

"SRA-Europe has hit the ground running," reports SRA President Dick Schwing after attending the section's first biannual meeting, which was held November 10–11 at the International Institute for Applied Systems Analysis (IIASA) in Laxenburg, Austria. "The hard work of SRA-Europe's leadership and of the IIASA staff resulted in a smoothly run meeting with extremely interesting content. Having reached the critical mass needed to host regular meetings, SRA-Europe will broaden its view of both global and site-specific problems, thereby adding an important and unique perspective for all SRA members. We are pleased to see the tenets of SRA gaining an international perspective stronger than could have been imagined just eight years ago when the Society was first organized."

More about the conference and the status of SRA-Europe is reported by Hans Bohnenblust on page 6.

SRA-Japan

In response to a request by its first president, Tomitaro Sueishi, SRA-Japan received formal recognition as a section of the Society for Risk Analysis at the SRA Council meeting held in Washington, D.C., on October 30. Soon thereafter, on December 10, the section conducted its first annual workshop at the National Institute of Public Health in Tokyo, with Masaru Tanaka, a division chief at the institute, serving as the workshop chairman. Topics addressed were hazardous chemical materials and health risks, radiation and its related risk, risk perception and communication, and risk and insurance.

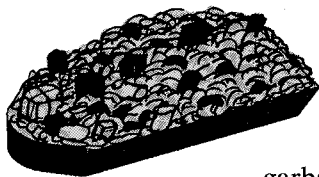
"SRA-Japan is to be congratulated for having sponsored an annual workshop so soon after becoming organized," SRA President Dick Schwing says. "We now have two strong sections outside the United States, which is a great step forward in our goal toward international cooperation on addressing global risks."

President's Column:

SRA: An Antidote to Symbols of Insanity

(Note: The following remarks were included in a talk given by President Richard C. Schwing at the Wednesday luncheon during SRA's 1988 Annual Meeting in Washington, D.C.)

I want to remind you of some symbols of insanity which have become familiar during the past year or two and which are symptomatic of all that can go wrong with environmental policy. Many such symbols can be found throughout the world, but we will focus on only three as examples. As it happens, all three deal with waste disposal.



One symbol is the vision of Mobro 4000 weaving its way out of the harbor at Islip, New York, on a voyage to nowhere—moving down past the North Carolina coast and intermittently pausing at ports in Florida, Alabama, Mississippi, Louisiana, Mexico, Belize, and the Bahamas before being forced to return to Islip. Mobro 4000's voyage was simply that of a garbage barge looking for a friendly dump site.

Our second symbol of insanity is a vision of barrels of toxic waste rotting on the western coast of Africa. Accepting the barrels was "attractive" to the host country because the storage fees represented a significant fraction of the local economic activity.

Our last symbol is the vision of a polluted seashore on the east coast of the United States. Citizens seeking a break from the summer's heat find medical wastes strewn along the beaches—a sickening picture broadcast across the nation via television, newspapers, and news magazines.

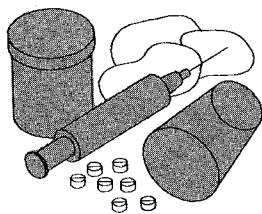


One antidote to this insane trinity is the Society for Risk Analysis! SRA's thrust is the sane and systematic application of *knowledge* to environmental problems. SRA is now the model throughout the world for establishing rational tools to properly manage limited environmental resources: it is a symbol of sanity—showing the world how to do things better!

SRA was organized just a little over eight years ago following risk analysis explorations that began as crystals of interdisciplinary activity at a few locations (in particular, at Oak Ridge National Laboratory in Oak Ridge, Tennessee, and at the International Institute for Applied Systems Analysis in Laxenburg, Austria). Now risk assessment and management activities are being carried out throughout the world.

As a result, risks are being reduced or at least foreseen and managed—to the benefit of many. But not yet enough to eliminate the symbols of insanity. That can be done only if we improve our science (see guest editorial on page 10) and enhance our own global network, enveloping the world in a

symbol of sanity. We must convince our peers not only in countries represented at SRA meetings but throughout the world that we still have a choice and we must seize our opportunities before they slip away. The globe itself is at stake.



1988-89 Officers Announced

New SRA officers elected to serve with President Richard C. Schwing during the 1988-89 year were announced at the Society's 1988 business meeting held in Washington, D.C. on the evening of October 31. The officers include the president-elect and three new councilors, each serving three years.

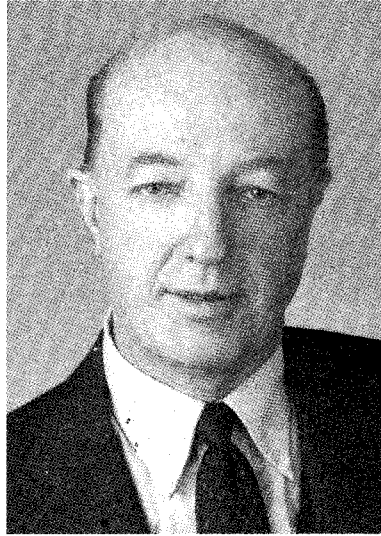
Garrick Is President-Elect

B. John Garrick, a scientist-engineer who is an international authority on quantitative risk analysis and risk management of technological systems, is the Society's new president-elect. In that position he automatically assumes the chairmanship of the Annual Meetings Committee.

Garrick, president and chairman of the board of Pickard, Lowe and Garrick, Inc., Newport Beach, California, is a charter member of the Society and was a prime mover in the formation of SRA's Southern California Chapter in 1987.

Garrick has also served in several positions of the Society at large. During the past three years he has been a member of the council, and in previous years he served as chairman of the Membership Committee (1986-87) and as a member of the Awards and Nomination Committees (1987-88).

The president-elect is a leader in the development and implementation of quantitative methods of risk analysis, risk management, and reliability analysis in the fields of nuclear power, aerospace, and chemical processing and has directed more than 30 major probabilistic risk assessments in these three industries. In December 1986, he chaired a seminar on "The Risk Analysis of Large Engineered Systems," which was sponsored by the Southern California Chapter, and during 1987 and 1988 he directed several short courses on risk management of such systems.



B. John Garrick

Garrick received his MS and PhD in applied Science from the University of California, Los Angeles after obtaining his BS in physics at Brigham Young University. He is also a 1954 graduate of the Oak Ridge School of Reactor Technology, whose students were selected through national competition to study nuclear science and technology at Oak Ridge National Laboratory in Tennessee. In 1987 the Massachusetts Institute of Technology and Pickard, Lowe, and Garrick, Inc. established the B. John Garrick Fellowship in Nuclear Engineering to support graduate students doing research in probabilistic risk and reliability analysis at MIT.

Three New Councilors

The newly elected councilors are Joellen Lewtas, Catherine St. Hilaire, and James D. Wilson. The positions are three-year terms that will end in 1991.

Lewtas has been chief of the Genetic Bioassay Branch at the Environmental Protection Agency's Health Effects Research Laboratory in Research Triangle Park, North Carolina since 1980. She

joined EPA in 1977 after holding research positions at Duke University and North Carolina State University. She has a BS degree in chemistry from the University of Puget Sound and a PhD in biochemistry from North Carolina State University. In her present position, she directs multidisciplinary research programs focused on the assessment of the health effects of complex environmental mixtures, including combustion emissions from vehicles and residential and industrial sources. She recently served as a member of the NAS/NRC Committee on the Toxicology of Complex Mixtures and leads the WHO/IPCS Collaborative Study on Complex Mixtures, as well as the EPA Integrated Air Cancer Project and the EPA Environmental Tobacco Smoke Research Program.

St. Hilaire is a principal at ENVIRON Corporation, a consulting firm specializing in risk assessment for adverse health effects of environmental chemicals. Before joining ENVIRON, she was director of the ILSI Risk Science Institute, which was established in 1985 to support research on risk assessment methods and approaches. She received her BS in science education from West Virginia University and her PhD in microbiology from the M.S. Hershey Medical School of the Pennsylvania State University. Her past work has been in the areas of toxicological evaluation, risk assessment, and scientific policy and regulatory analysis. She also served as a staff scientist at the National Academy of Sciences for the report *Risk Assessment in the Federal Government: Managing the Process*.

Wilson is vice president of the American Industrial Health Council in Washington, D.C., a position he accepted in January. Before that

(Continued on page 4.)

Risk Concerns

(Continued from page 1.)

At its October 30 meeting, the SRA Council began discussions on what type of international structure the Society should have to help current and future SRA sections as they attempt both to meet the needs in their own countries and to cooperate in the management of international risks. The discussions have only begun, and many details are yet to be worked out, as, for example, the respective roles of the Society's present journal and newsletter. The task is approached with optimism, however, and no doubt will move forward at the next council meeting scheduled for March 17. Members who wish to

have some input into the discussion should contact one of the councilors (see addresses of officers and councilors below).

1988-89 Officers

(Continued from page 3.)

he was the regulatory management director for special projects on the Corporate Environmental Policy Staff of Monsanto Company in St. Louis, Missouri. He joined Monsanto as a research chemist in 1966 after receiving his PhD in organic chemistry from the University of Washington. In 1975 he became a special aide to the senior vice president for technology and ever since has been involved in studying

the environmental impact of industrial operations. He has been a member of the Chemical Manufacturers Association's Risk Assessment Task Group since 1983 and a member of the American Industrial Health Council's Scientific Committee and Quantitative Risk Assessment Subcommittee since 1984.

Councilors continuing to serve the SRA with one year remaining are D. Warner North, Robert G. Tardiff, and Ola Svenson. Councilors with two years yet to serve are George Apostolakis, W. Gary Flamm, and Richard Wilson.

The addresses of all the officers and council members are listed below.

Addresses: 1988-89 Officers and Councilors

The names and addresses of the officers of the Society for Risk Analysis and the members of the Council for the year 1988-89 are as follows:

President: Richard C. Schwing, Operating Sciences Department, General Motors Research Laboratories, 30500 Mound Road, Warren, Michigan 48090-9055 (Phone: 313-986-1348).

President-Elect: B. John Garrick,

Pickard, Lowe and Garrick, Inc., 2260 University Drive, Newport Beach, California (Phone: 714-650-8000).

Secretary: Frances M. Lynn, Institute for Environmental Studies, University of North Carolina at Chapel Hill, 311 Pittsboro St. 256 H, Chapel Hill, North Carolina 27514 (Phone: 919-966-2358).

Treasurer: Joseph Fiksel, Teknowledge, Inc., P.O. Box 101119, Palo Alto, California 94303 (Phone: 415-424-0500).

Immediate Past President: Vincent T. Covello, Center for Risk Communication, Division of Environmental Sciences, School of Public Health, Columbia University, Room B-1, 60 Haven Avenue, New York, New York 10032 (Phone 212-305-3464)

Councilor, 1989: D. Warner North, Decision Focus, Inc., 4984 El Camino Road, Suite 200, Los Altos, California 94022 (Phone 415-960-3450).

Councilor, 1989: Robert Tardiff, Versar, Inc., 6850 Versar Center, Springfield, Virginia 22151 (Phone 703-642-6884).

Councilor, 1989: Ola Svenson, Brättnävågen 11, S-12243 Enskede, Sweden (Phone 08817404).

Councilor, 1990: George Apostolakis, School of Engineering and Applied Science, 405 Hilgard Avenue, Los Angeles, California 90024-1597 (Phone: 213-825-1300).

Councilor, 1990: W. Gary Flamm, 11760 Indian Ridge Road, Reston, Virginia 22091 (Phone: 703-620-9249).

Councilor, 1990: Richard Wilson, Energy and Environmental Policy Center, Jefferson Physical Laboratory, Harvard University, Cambridge, Massachusetts, 02138 (Phone: 617-495-3387).

Councilor, 1991: Joellen Lewtas, Health Effects Research Laboratory, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina, 27711 (Phone: 919-541-3849).

Councilor, 1991: Catherine St. Hilaire, Environ Corporation, 6475 Christie Avenue, Suite 408, Emeryville, California, 94608 (Phone: 415-655-7400).

Councilor, 1991: James D. Wilson, American Industrial Health Council, 1330 Connecticut Avenue, NW, Suite 300, Washington, D.C., 20036 (Phone: 202-659-0060)

Thank You

The Society for Risk Analysis expresses appreciation to the following outgoing officers:

From the Executive Committee

Paul F. Deisler, Jr.
1986-87 President

From the Council

Peter Barton Hutt
R. Talbot Page

NOTE: B. John Garrick also completed his service as an elected councilor but will remain on the council as president-elect.

1988-89 Committee Chairs

President Richard C. Schwing has announced the following committee chairs for the year 1988-1989:

Annual Meetings: John B. Garrick (see address on page 4).

Awards: Lester B. Lave, GSIA, Carnegie-Mellon University, Pittsburgh, Pennsylvania 15213 (Phone: 412-268-8837).

Conferences and Workshops: Yacov Haimés, Department of Systems Engineering, University of Virginia, Thornton Hall, Charlottesville, Virginia 22901 (Phone: 216-368-4492).

Definitions: Lawrence (Larry) B. Gratt, IWG Corp., 1940 Fifth Ave., Suite 200, San Diego, California 92101 (Phone: 619-531-0092).

Executive: Richard C. Schwing (see address on page 4).

Finance: Joseph Fiksel (see address on page 4).

Gifts and Grants: Fred D. Hoerger, The Dow Chemical Company, 1803

Bldg., Midland, Michigan 48674 (Phone: 517-636-0682).

Liaison: James D. Wilson (see address on page 4).

Membership: W. Gary Flamm (see address on page 4).

Nominations: Paul F. Deisler, Jr., 11215 Wilding Lane, Houston, Texas 77024 (Phone: 713-467-3080).

Publications: Vincent T. Covello (see address on page 4).

Research and Fellowships Programs: Vincent T. Covello (see address on page 4).

Sections and Chapters: Chris G. Whipple, Electric Power and Research Institute, 3412 Hillview Avenue, Palo Alto, California 94303 (Phone: 415-855-2443).

Subcommittee on International Affiliations: Vlasta Molak, National Institute of Occupational Safety and Health (NIOSH), Mail Stop 31, 4676

Addresses for SRA-Japan

The address of **Tomitaro Sueishi**, the president of SRA-Japan is:

Department of Environmental Engineering
Osaka University
Yamadakami, Suita,
Osaka, Japan

The address of **Sabura Ikeda**, the secretary of the section, is:

Institute of Socio-Economic Planning
University of Tsukuba
Sakura, Ibaraki 305
Japan
(Phone: 0298-53-5182)
(Telex: 3652580 Untuku J)

Columbia Parkway, Cincinnati, Ohio 45226 (Phone: 513-533-8334).

1988-89 Contact Councilors

For the third consecutive year, SRA will utilize the concept of contact councilors in which a council member serves as a specific contact on the SRA Council for one or more committee chairs and acts as a representative/advocate for the committees at Council meetings. The contact councilors for the 1988-89 year are listed below, along

with the corresponding committee chairs (in parentheses):

Richard C. Schwing: Definitions (Gratt); Executive (Schwing); Subcommittee on Proceedings Criteria (Schwing); Conferences and Workshops (Haimés); Nominations (Deisler).

Vincent T. Covello: Publications (Covello); Research and Fellowship Programs (Covello); Subcommittee on

International Affiliations (Molak).

Joseph Fiksel: Finance (Fiksel); Gifts and Grants (Hoerger).

W. Gary Flamm: Membership (Flamm); Sections and Chapters (Whipple).

B. John Garrick: Annual Meetings (Garrick).

Robert G. Tardiff: Awards (Lave).

James D. Wilson: Liaison (Wilson).

Liaison Committee Contacts Increase

SRA Liaison Committee Chairman James D. Wilson reported to the SRA Council at its November meeting that the Society now has liaisons with 30 other professional societies. Of these, 29 were listed in the May and September, 1988, issues of the newsletter. The 30th society, which was added in November, is listed below, together with the name and address of the person serving as the contact:

American Institute of Chemical Engineers. David A. Jones, Technica International, 1440 N. Harbor Blvd., Suite 800, Fullerton, CA 92635 (Phone: 714-447-9400).

Since the earlier publication of the list of contacts, the committee has been notified of five address changes, which can be found in this newsletter under the "Comings & Goings" column. The societies affected are the following: American College of Toxicology (Dan-

iel Byrd), American Industrial Health Council and the Chemical Manufacturers Association (James D. Wilson), the Association of American Geographers (Allen White), the American Industrial Hygiene Association (Dennis J. Paustenbach), and the American Agricultural Economics Association (Beverly Fleisher). Note that the committee chairman is among those having a new address.

A Report from SRA-Europe

(Editor's Note: The following report is based on information supplied by Hans Bohnenblust, Ernst Basler & Partners, Zollikerstrasse 65, CH-8702 Zollikon, Switzerland [Phone 41 1 3951131]. Bohnenblust is a member of the Executive Committee of SRA-Europe.)

SRA-Europe's first biannual conference, held November 10-11 at the International Institute for Applied Systems Analysis (IIASA) in Laxenburg, Austria, was attended by 120 persons from 20 different countries: Austria, Denmark, Finland, France, Germany, Greece, Hungary, Israel, Italy, Japan, The Netherlands, Norway, Spain, Sweden, Switzerland, Turkey, Romania, United Kingdom, United States, and Yugoslavia. About 40 of the attendees were members of the section prior to the conference, and the remaining attendees became members with their registration at the conference.

The conference theme was "The Utility of Risk Analysis in Decision Making"; however, the papers covered a broad range of topics relevant to risk analysis. In his initial welcoming address, Pieter Jan M. Stallen, chairman of SRA-Europe and of the conference, pointed out three goals of the conference, using the three letters S, R, and A as symbols. He said the conference should be a Simple meeting, serving as a platform for discussion. The atmosphere should allow the attendees to Relax in order to be creative. And they should Associate with each other so that their diverse ideas could be aired in an open and broad discussion.

IIASA Welcome

In welcoming SRA-Europe to IIASA, R. M. Pry, the institute's director, mentioned that IIASA was one of the first institutions to address questions of risk and that risk assessment is still a research field at IIASA. He emphasized that he is convinced of the importance of trying to understand the emotional response of society to hazardous activities and their risk.

In a third welcome to the attendees, SRA President R. C. Schwing, who had been installed at the society's 1988 annual meeting held the previous week in Washington, D.C., pointed out that only in the last 15 years have institutions begun to seriously deal with risk questions. He said that a little over eight years ago SRA had its first meeting in the U.S., and today several SRA chapters have been formed in the U.S. and SRA sections are being organized in other parts of the world. Since risk is a topic that needs to be investigated and discussed all over the world, these sections, including SRA-Europe, are playing an important role.

Business Meeting

On the first day of the meeting, November 11, the Executive Committee and members of the Ad-

SRA-EUROPE'S SUSTAINING MEMBERS

British Nuclear Fuels, Warrington, United Kingdom
 E.D.F. Direction Generale, Paris, France
 E.N.E.A., Rome, Italy
 Ernst Basler & Partners, Zürich, Switzerland
 V.R.O.M., The Hague, Netherlands
 Dow Chemical, Terneuzen, Netherlands
 Davy McKee, London, United Kingdom
 IIASA, Laxenburg, Austria
 Mobil Oil Corp., New York, U.S.A.
 Mobil North Sea Ltd., Aberdeen, United Kingdom
 Norsk Hydro, Oslo, Norway
 Swiss Reinsurance Co., Zürich, Switzerland
 Geneva Association, Geneva, Switzerland

visory Board met with representatives of several sustaining member organizations (see box) for an informal business luncheon at which future directions and activities of SRA-Europe were discussed.

The next day the section held its first business meeting. It was decided that the current Executive Committee would stay in office for the next two years. During the coming year, a proposal for election procedures will be worked out.

At the business meeting it was announced that a number of Country Correspondents had been named to maintain communications between the different countries represented in SRA-Europe.

Executive Committee Members

Although most of the persons serving on SRA-Europe's Executive Committee were listed in the last issue of *RISK newsletter*, they are repeated below for completeness:

—Pieter Stallen, Society for Risk Analysis, Institute for Environmental & Systems Analysis, Emmastraat 16, NL-1075 HT Amsterdam, The Netherlands (Phone: +31 20 6620696; Fax: +31 20 751576).

—Hans Bohnenblust, Ernst Basler & Partners Ltd., Zollikerstrasse 65, CH-87602 Zollikon, Switzerland (Phone: +41 1 3951131).

—R. A. Cox, Technica Ltd., Lynton House, 7/12 Tavistock Square, London WC1 H9LT, United Kingdom (Phone: +44 1 388-2684).

—H. Ibrekk, Senter for Industrieforkning, P.O. Box 350, N-0314 Oslo 3, Norway (Phone: +47 2 452010).

—G. Krömer, Task Force Risk, International Institute for Applied Systems Analysis, A-2361 Laxenburg, Austria (Phone: 43 2236 71521.490).

—Harry Otway, CEC Joint Research Centre, I-21020 Ispra, Varese, Italy (Phone: +39 332 89951).

—Marc Poumadère, Institut Symlog, B.P. 125, F-94230 Cachan, France (Phone: +33 1 47400990).

—R. M. Stern, Environment and Health, WHO Regional Office, Scherfigsveg 8, DK-2100 Copenhagen, Denmark (Phone: +45 1 290111).

Advisory Committee Members

Current members of SRA-Europe's Advisory Committee are as follows:

—**Austria:** B. Segerstahl, International Institute for Applied Systems Analysis.

—**Belgium:** L. A. Jourdan, Conseil Européen des Fédérations de l'Industrie Chimique; W. F. Vinck, DGXII, Directorate D.

—**Finland:** S. Hernberg, Institute for Occupational Health.

—**France:** D. Bergez, Elf Aquitaine; U. Pinon; H. Smets, OECD Environment Directorate; Dr. Vesseron, C.E.A./I.P.S.N.

—**Germany:** L. Gündling, Max Planck Institute for International Public Law; V. Pilz, Bayer AG.

—**Italy:** G. Grandori, Dipt. di ingegneria strutturale; H. Otway, CEC Joint Research Centre; G. Pinchera, E.N.E.A.

—**The Netherlands:** W. J. Beek, Unilever Research Laboratory; C. van Kuijen, Ministry for Housing, Physical Planning and the Environment; W. F. Tordoir, Shell Int. Petroleum.

—**Norway:** E. N. Bjordal, Norsk Hydro A.S.; J. Doderlein, Royal Norwegian Council for Scientific & Industrial Research.

—**Portugal:** P. J. T. Viegas, Escola Superior de Medicina Veterinaria.

—**Sweden:** E. Arrhenius, Institute for Management of National Resources; B. Holmberg, National Institute of Occupational Health.

—**Switzerland:** O. Giarini, GENEVA Association.

—**United Kingdom:** A. V. Cohen, Health and Safety Executive; E. Pochin, National Radiation Protection Board; F. Warner, Cremer & Warner Consultancy.

Country Representatives

The circle of country correspondents who will maintain communications between the various countries includes the following:

—**Finland:** Boris Segerstahl, Director, Research Center for Northern Finland, Oulu University, Linnanmaa, 90570 Oulu 57.

—**Germany:** S. Beifang, Internationales Institut für Wissenschaftl. Zusammenarbeit e.V., Schloss Reisenburg, D-8670 Günzburg/Donau.

—**Greece:** I. O. Papazoglou, Radiation Protection, Institute of Nuclear Technology, P.O. Box 60228, 153 10 Attiki.

—**Italy:** Magdalena Gadowska, STUDI/VASA, ENEA, C.R.E. Casaccia, I-00060 Rome.

—**Romania:** Adrian V. Gheorghe, Dept. of Management Science, Bucharest Polytechnic Institute, 313 Spl. Independentei, Bucharest.

—**Spain:** S. Asuriaguerra, No. 38-6° G, E-48009, Bilbao.

—**Sweden:** Bo Holmberg, Dept. of Toxicology, National Institute of Occupational Health, S-171 84 Solna.

—**Turkey:** Ulvi Adalioglu, Cekmece Nuclear Research and Training Center, P.K. 1, Havaalani, Istanbul.

—**Yugoslavia:** Jordan Pop-Jordanov, President, Macedonian Academy of Sciences and Arts, P.O.B. 428, 91000 Skopje.

1990 Conference

Tentative plans are that the next biannual conference of SRA-Europe will take place in Copenhagen, Denmark in March 1990.

IIASA: International Cooperation on World's Problems

The International Institute for Applied Systems Analysis (IIASA), which hosted SRA-Europe's first biannual conference, has its own history in risk analysis. In fact, it was work performed at IIASA and other locations throughout the world that provided the impetus for the formation of the Society for Risk Analysis.

Founded in 1972 and located in an historic setting in Laxenburg, Austria (at the summer palace of Maria Theresa, mother of Marie Antionette), IIASA is an international research institution sponsored by member organizations in 16 countries. Its membership spans scientific organizations in both East and West and includes the American Academy of Arts and Sciences (USA) and the Academy of Sciences of the USSR.

IIASA's research, performed by approximately 60 senior staff members, is focused

on problems of major international concern arising from the spread and intensification of industry and from the repercussions of scientific and technological development. Its work is conducted by teams of scientists drawn from more than 20 nations and representing many areas of expertise.

IIASA has four established research programs that are continually updated to target on emerging issues in areas of major international concern: (1) environment, (2) technology, economy, and society, (3) population, and (4) system and decision science. Through these programs, IIASA's scientists address the problems of environmental acidification, global warming, and forest decline; problems arising from resource depletion and technology substitution; and questions related to the growth and changing structure of the world's

population. Cross-cutting and continuing themes are issues of risk and uncertainty, and the provision of management, decision, and negotiations support to policy makers. In parallel, IIASA also develops the tools of systems theory and decision science so that scientists everywhere will be better equipped to tackle such issues.

IIASA has member organizations in Austria, Bulgaria, Canada, Czechoslovakia, Finland, France, the German Democratic Republic, the Federal Republic of Germany, Hungary, Italy, Japan, the Netherlands, Poland, Sweden, the USSR, and the USA. For further information on IIASA, contact Jean-Guy Carrier or Elisabeth Krippel, IIASA/Office of Communications, A-2361 Laxenburg, Austria [Phone: (0 22 36) 71 521-0; Telex 079137 iiasa a; Telefax (0 22 36 713 13)].

President Schwing Visits SRA Editors



With Lorraine Abbott (left), editor of *RISK newsletter* and manager of 1987 SRA proceedings, and Katie Ingersoll, production assistant for newsletter and proceedings.

On January 27, SRA President Richard C. Schwing visited the office of Tec-Com, Inc., a technical publishing firm between Oak Ridge and Knoxville, Tennessee, which produces *RISK newsletter* and is also preparing the master pages for the 1986, 1987, and 1988 SRA annual proceedings. Lorraine S. Abbott, editor of the newsletter, is president of Tec-Com, which she formed after retiring from Oak Ridge National Laboratory in 1986. She had worked at ORNL as a writer and editor in the field of nuclear science and engineering for 38 years. Recently joining her at Tec-Com is her long-time associate, Katie Ingersoll, also from ORNL. Ingersoll is production assistant for the newsletter and technical keyboarder/copy editor for the proceedings.

Also meeting with Schwing at Tec-Com were Constantine Zervos of the Food and Drug Administration and Curtis Travis of Oak Ridge National Laboratory. Zervos was general chairman of the 1988 SRA Annual Meeting and is currently editing the meeting proceedings. Travis is editor of SRA's journal, *Risk Analysis*.

The preceding day President Schwing met in Knoxville and Oak Ridge with Robert B. Cumming, SRA's first president (1981-82); Ram Uppuluri, the Society's first treasurer (1981-83); Milton Russell, former EPA assistant administrator now at the University of Tennessee and ORNL; and Alvin M. Weinberg, former director of ORNL now with Oak Ridge Associated Universities. He also met with the Society's East Tennessee Chapter.

1987 Proceedings Completed

The proceedings for the 1987 SRA Annual Meeting held in Houston have been completed and soon will be forwarded to Plenum Publishing Corporation for printing. Plenum says the proceedings will be available within four months after receipt of the master pages.

The 1987 proceedings, titled *Risk Assessment in Setting National Priorities* and edited by James J. Bonin and Donald E. Stevenson of Shell Oil Company, will be Volume 7 in Plenum's "Advances in Risk Analysis" series. Totalling 695 pages, the book will be offered to SRA members at a special rate of \$45. The same special rate will be available to members ordering Volumes 6 and 8, both of which will be published later in 1989. *Instructions for ordering the volumes are given below.*

Other volumes in the proceedings series are also available as follows:

Vol. 1 (1981): *The Analysis of Actual Versus Perceived Risks*, edited by V. T. Covello *et al.*, \$75 in U.S., \$90 elsewhere.

Vol. 2 (1982): *Low-Probability/High-Consequence Risk Analysis: Issues, Methods and Case Studies*, edited by R. A. Waller and V. T. Covello, \$85 in U.S., \$102 elsewhere.

Vol. 3 (1983): *Risk Analysis in the Private Sector*, edited by C. Whipple and V. T. Covello, \$85 in U.S., \$102 elsewhere.

Vol. 4 (1984): *Uncertainty in Risk Assessment, Risk Management, and Decision Making*, edited by V. T. Covello *et al.*, \$85 in U.S., \$102 elsewhere.

Vol. 5 (1985): *Risk Assessment and Management*, edited by L. B. Lave, \$125 in U.S., \$150 elsewhere.

Instructions for Ordering SRA Proceedings: To order any of the above listed proceedings, write a check payable to the Society for Risk Analysis and mail to the SRA Secretariat, Richard J. Burk, Jr., 8000 Westpark Drive, Suite 400, McLean, VA, 22101. Specify the volume being ordered and give complete mailing address to which the volume should be sent.



With Constantine Zervos (left), editor of 1988 SRA proceedings, and Curtis Travis, editor of *Risk Analysis*.

Journal Contents

The tables of contents of Vol. 8, No. 4 and Vol. 9, No. 1 of the SRA journal *Risk Analysis* are reprinted below.

Vol. 8, No. 4

GUEST EDITORIALS

Corazon Pe Benito Claudio, *Risk Analysis in Developing Countries*

William Desvousges and V. Kerry-Smith, *Focus Groups and Risk Communication: The "Science" of Listening to Data*

ARTICLES

John C. Bailar, III, Edmund A. C. Crouch, Rashid Shaikh, and Donna Spiegelman, *One-Hit Models of Carcinogenesis: Conservative or Not?*

Daryl W. Ditz, *Hazardous Waste Incineration at Sea: EPA Decision Making on Risk*

Kenneth T. Bogen and Thomas McKone, *Linking Indoor Air and Pharmacokinetic Models to Assess Tetrachloroethylene Risk*
Duncan Murdoch and Daniel Krewski, *Carcinogenic Risk Assessment with Time-Dependent Exposure Patterns*

Bruce C. Allen, Kenny S. Crump, and Annette M. Shipp, *Correlation Between Carcinogenic Potency of Chemicals in Animals and Humans*

COMMENTS

Ronald Hart, *Comments on Allen et al.*

Edmund Crouch, *Comments on "Correlation Between Carcinogenic Potency of Chemicals in Animals and Humans," by Bruce C. Allen et al.*

Christopher J. Portier, *Species Correlation of Chemical Carcinogens*

Ellen Silbergeld, *Epidemiology Versus Risk Assessment: Resolving Some Old Controversies*

RESPONSE

Bruce C. Allen, Kenny S. Crump, and Annette M. Shipp, *Response to Comments on "Correlation Between Carcinogenic Potency of Chemicals in Animals and Humans"*

ARTICLES (cont.)

Vicki M. Bier, *The U.S. Nuclear Regulatory Commission Safety Goal Policy: A Critical Review*

David T. Levy, *The Effects of Driving Age, Driver Education and Curfew Laws on Traffic Fatalities of 15-17 Year Olds*

James O. Corbett, *Risk Assessment Criteria for Radioactive Waste Disposal*

Jouko Suokas, *Evaluation of the Quality of Safety and Risk Analysis in the Chemical Industry*

Timothy L. McDaniels, *Comparing Expressed and Revealed Preferences for Risk Reduction: Different Hazards and Question Frames*

Vern R. Walker, *Quantitative Risk Assessment as Evidence in Civil Litigation*

Neil C. Hawkins and John D. Graham, *Expert Scientific Judgment and Cancer Risk Assessment: A Pilot Study of Pharmacokinetic Data*

SOFTWARE REVIEWS

James E. Brower (Edited by Paul Moskowitz), *Program: Rainbow-MSDS/SARA Material Safety Data Sheet and Community Right-to-Know Management System*

SOFTWARE LISTINGS

Paul Moskowitz

BOOK REVIEWS

Robin K. White

Vol. 9, No. 1

GUEST EDITORIALS

B. John Garrick, *Risk Assessment Practices in the Space Industry: The Move Towards Quantification*

Richard J. Cook, *Municipal Solid Waste Incineration Ash Management: A State Perspective*

LETTERS TO THE EDITOR

Willard R. Chappell, *Interspecific Scaling of Toxicity Data: A Question of Interpretation*

John M. Gleason, *Perceived Fairness in Risk Management: Bayesian Implications for AIDS Testing*

Hector A. Munera, *Expected-Value Optimization Decreases Death But May Shorten Survival*

COMMENTS

Bernard L. Cohen, *Response to Letter by H. A. Munera*

Harry Otway, *Deaths vs. Survival: A Comment on Munera's Letter*

ARTICLES

Ronald L. Iman and Stephen C. Hora, *Bayesian Methods for Modeling Recovery Times with an Application to the Loss of Offsite Power at Nuclear Power Plants*

Paolo Vestrucci, *Assessing Crew Response Probability for a Sequence of Actions with an Overall Time Constraint*

A. D. Oxman, H. S. Shannon, W. J. Garland, and G. W. Torrance, *Nuclear Safety in Ontario: A Critical Review of Quantitative Analysis*

Carolyn D. Heising and William S. Grenzebach, *The Ocean Ranger Oil Rig Disaster: A Risk Analysis*

Gregory B. Rodgers and Paul H. Rubin, *Cost-Benefit Analysis of All-Terrain Vehicles at the CPSC*

G. William Mercer, *Traffic Accidents and Convictions: Group Totals vs. Rate per Kilometer Driven*

David D. Jensen, Alice E. Tome, and William A. Darby, *Applying Decision Analysis to Determine the Effect of Smoke Detector Laws on Fire Loss in the U.S.*

Curtis C. Travis and Holly A. Hattemer-Frey, *A Perspective on Dioxin Emissions from Municipal Solid Waste Incinerators*

Charles C. Brown and Kenneth Chu, *Additive and Multiplicative Models and Multistage Carcinogenesis Theory*

Sven Ove Hansson, *Dimensions of Risk*

Billie Jo Hance, Caron Chess, and Peter Sandman, *Setting a Context for Explaining Risk*

Michael Greenberg, David Sachsman, Peter M. Sandman, and Kandice L. Salomone, *Network Evening News Coverage of Environmental Risk*

SOFTWARE REVIEW

Mary Daum, *Radiologic Assessment Using Microairdos*

SOFTWARE LISTINGS

Paul Moskowitz

BOOK REVIEWS

Robin K. White

Manuscripts of articles for the journal should be submitted to: Curtis Travis, Editor, *Risk Analysis*, Bldg. 4500S, MS-6109, Oak Ridge National Laboratory, PO Box 2008, Oak Ridge, TN 37831-6109.

Reviews of risk analysis software and software submitted for review should be mailed to: Paul D. Moskowitz, Biomedical and Environmental Assessment Division, Brookhaven National Laboratory, Upton, NY 11973.

Guest Editorial:

King Canute Still Lives

(Note: At the SRA Council's meeting on November 1, 1988, a motion was passed that the Society shall make known public policy issues to individuals and encourage these individuals to speak for themselves but not on behalf of the Society. The Society as a whole will not speak on public policy issues. —Richard C. Schwing, President, SRA)

When King Canute set his throne on the seashore and ordered the tide not to come in, I am sure that he did not realize the precedent he was setting. Little did it matter that the King was unsuccessful. (The sea ignored His Majesty's command and was whipped for its impudence.) Canute had shown that he could command the elements and could punish their transgressions.

Canute's legacy remains with us. Legislation and regulations that ignore scientific principles are doomed to failure, but too often the solution is not to improve their scientific basis but to punish violators and to impose more stringent rules.

The last Congress offered striking examples of Canute's philosophy, and this Congress promises more of the same. For instance, proposed amendments to the Clean Air Act introduced by Senator George Mitchell (D-Maine) in 1987 required that risk levels must be ". . . determined in accordance with the Guidelines for Carcinogenic Risk Assessment published by the (EPA) Administrator in *August 1986*" (emphasis added). In effect, the bill would have frozen the science of risk assessment as it was articulated in EPA's guidelines at that time. Now that Senator Mitchell has been elected Senate Majority leader, amendments to the Clean Air Act will certainly have a high priority in the 101st Congress.

Requiring the use of EPA's 1986 risk assessment guidelines in perpetuity conflicts with a basic purpose of these guidelines and, indeed, the basic tenets of science. The guidelines state clearly, ". . . the guidelines are formulated in part to bridge gaps in risk assessment methodology and data by identifying their gaps and the importance of missing information to the risk assessment process. EPA wishes to encourage research and analysis that will lead to new risk assessment methods and data." The guidelines were not meant as a final definition of risk assessment, but were intended to help this infant science grow to maturity.

It is ironic that Senator Mitchell's bill would seek to codify EPA's 1986 risk assessment guidelines just as EPA plans to update them. Risk assessment has been advancing so quickly that the agency believes it necessary to revise its relatively recent guidelines to incorporate the latest science.

Not to be outdone in trying to legislate science, Representative Henry Waxman (D-Calif.) offered his own version of Canute's philosophy in an amendment to the Food, Drug and Cosmetics Act. The amendment would have required that risk assessments could legally use only conservative models. In effect, it would have mandated the use of the linearized multistage model.

The requirements of these two pieces of legislation would have made new risk assessment methods and data meaningless. Risk assessment is a new science and is evolving rapidly. Biologically based pharmacokinetic models, improved data, and better information on exposure all improve our understanding of risk; yet the bills would have made the use of the best available science virtually impossible in developing government policy.

Congress would perform a great disservice to the nation by trying to legislate what is acceptable science. For the sake of letting the state of science advance, and permitting the use of the best science in setting national policies, Congress should not legislate scientific methods.

Scientific integrity is the heart of the Society for Risk Analysis. While the SRA has limited its activity to scientific pursuits up to this time, the Society must take a strong stand to defend risk analysis as a science when legislation threatens to imprison it with unscientific restrictions.

The Society should act to ensure that legislation introduced in 1989 and beyond uses risk analysis properly. In addition, individual SRA members should routinely provide information to legislators about the need for science in government policy and make them aware that attempts to freeze the state of science or to predetermine the results of scientific inquiry are dangerously short sighted.

The scientific community must become more involved in the political process. That process is untidy, contentious, and often painful. Without scientists helping to shape public policy, however, King Canute will continue to reign.

Timothy F. O'Leary, Jr.
Chemical Manufacturers Association

Hoerger Presented Service Award

Fred D. Hoerger of The Dow Chemical Company, Midland, Michigan, was announced as the recipient of the Society's 1988 Distinguished Service Award at the 1988 SRA Annual Meeting held in Washington, D.C. He was cited for his work as chairman of the Gifts and Grants Committee, which focused on obtaining contributions to the Society from institutions engaged in risk analysis and management. Through the committee's work, ten additions were made to SRA's corporate member roster.

Hoerger, who at Dow is Regulatory and Policy Consultant, Health and Environmental Sciences, is involved in a broad range of activities concerning public policy for assessing risks of chemicals, including responding to EPA, OSHA, and FDA regulations and evaluating public issues. He assumed his present position within the company after working a number of years as a product and process research chemist and in various management functions.

Both at Dow and within the Society, Hoerger has a particular interest in risk communication and the appropriate role of science in risk analysis. He has chaired a



Fred D. Hoerger

session on risk communication at a past SRA annual meeting and currently is chairman of an ad hoc Study Group on Presentation of Risk Assessment, which is sponsored by SRA, the American Industrial Health Council, EPA, and the U.S. Health and Human Services. The group expects to have a report within the next four months and will present their results at the next SRA annual meeting. The emphasis of the study has been on determining the desired attrib-

utes of risk assessment for aiding managers and conveying information to the broad scientific community, rather than on educating the public.

In October 1987, the awardee cochaired a conference on new developments in risk assessment for carcinogens at the Banbury Conference Center at Cold Springs Laboratory, Cold Harbor, New York.

Hoerger received his BS degree from Heidelberg College in 1951, his MS from Purdue University in 1953, and his PhD in organic chemistry from Purdue University in 1955. He holds patents in organic and polymer chemistry and is the author of numerous papers in safety evaluation of chemicals and public policy on regulating health and environmental hazards.

Hoerger is chairman of the Science Policy Committee of the American Industrial Health Council and is involved in regulatory policy activities of other trade associations. In addition to being a member of SRA, he is a member of the American Chemical Society, the New York Academy of Science, and the Scientific Research Society of America.

1988 SRA Corporate Contributors

During 1988, the Society for Risk Analysis had 24 corporate contributors: organizations which contributed \$500 or more to the SRA or sponsored a specific project for the annual meeting. The list of corporate contributors, to whom the Society is indebted, includes the following:

American General
American Petroleum Institute
Amoco Corporation
ARCO
Arthur D. Little, Inc.
BP America, Inc.
Burroughs Wellcome
Chevron Environmental Health Center

Cleary, Gottlieb, Steen & Hamilton
Coca Cola Company
Dow Chemical Company
E. I. DuPont de Nemours
Electric Power Research Institute
ENVIRON Corporation
Ford Motor Company
General Motors Research Laboratories

Gillette Company
Mobil Oil Corporation
Monsanto Company
Proctor & Gamble Company
Resources for the Future
Rohm & Haas Company
Shell Oil Company
Stauffer Chemical

Student's Perspective:

On SRA's 1988 Annual Meeting

(Note: The following article is an invited comment on the Society's 1988 Annual Meeting from the perspective of a newcomer/graduate student—Srinivas Emani, Clark University, Worcester, Massachusetts.)

I became aware of the Society for Risk Analysis (SRA) when I first read the journal *Risk Analysis*. At that time, I was unclear on the role of the Society (and to some extent, I still am). Nevertheless, I was only too happy that the SRA was publishing the journal, since most of the papers dealt with the quantitative aspect of risk assessment which had drawn me into the study of risk. Over time, I came to believe that the primary interest of the journal, and thereby of the Society itself, was indeed quantitative risk assessment.

I would have persisted with the above belief if I had not received the opportunity to attend the three-day 1988 annual meeting. By then, my own interests had shifted from risk assessment to societal risk management and I looked forward to the meeting with the hope that the interests of the Society would prove to be more than just risk estimation.

At the meeting, I was delighted to discover that throughout the three days a number of sessions covered a wide range of topics—from emergency planning and public participation to transfer of hazardous technology, global risk assessment and international issues. Most of the special sessions covered issues in societal and global risk management, in themselves reflecting the wide diversity of disciplines that interest members of the society.

On the other hand, I was struck by the sparse coverage of the field of natural hazards. The recent earthquake in Armenia, the floods in Bangladesh and other recurring natural disasters are constant reminders of the pressing need for research in this area, and as suggested elsewhere (G. F. White, "Paths to Risk Analysis," *Risk Analysis* 8(2):171-175, 1988), the Society could be of significant help in this direction. Also apparent was the relatively low participation of researchers from developing countries. Some suggestions have already been made in this direction (H. Inhaber, "Risk in Developing Countries," *Risk Analysis* 5(2):87, 1985; and V. Molak, "A Suggested Role for the Society for Risk Analysis in Developing Countries," *Risk newsletter*, September, 1988, pp. 6-7).

Another puzzling facet of the meeting was the absence of students. As a graduate student, I found the annual meeting exciting and motivating, but I was surprised at how few graduate students were there. Many papers presented at the meeting provided new topics for further study, new areas of research to explore. The meeting also presented an exciting opportunity to hear some of the leading contemporary researchers in the field and to talk to them. Richard Wilson spoke on the difficulty of divorcing risk assessment and risk management. Steve Rayner talked about global risk assessment. Vincent Covello entertained us with the lighter side of risk communication. A reception provided the opportunity to meet and talk with Ola Svenson from Sweden. I am sure that most students would find such opportunities stimulating, and I would hope that more will attend future meetings. Perhaps the Society could consider providing some concessions (other than a waiver of registration fees) to students who do not find support for attendance. In turn, students could help in some of the organizational tasks at the meetings, such as registration, book display, video display, etc.

Looking back at my first meeting, I can still remember the excitement those three days generated and the enthusiasm they raised. Personally, I don't think anyone could find a better place to spend Halloween than at the annual SRA meetings.

(Editor's Note: SRA has consistently scheduled its annual meeting at Halloween time, a practice that is beginning to be opposed by members with small children. Halloween is generally understood to be second only to Christmas for shared parent-children holiday festivities.)

CALL FOR PAPERS

1989 ANNUAL MEETING OF THE SOCIETY FOR RISK ANALYSIS

Hotel Nikko, San Francisco, California
October 29–November 1, 1989

GENERAL PROGRAMS ON:

Health
Public Policy
Engineering

SPECIAL SESSIONS ON:

AIDS
Toxic Dispersion
Earthquake Risk
Space and Defense Applications
Hazardous Waste

Abstract forms and instructions will be mailed to every SRA member in February. If you need extra forms or would like to pass material on to colleagues who are not members, contact the SRA Secretariat at 8000 Westpark Drive, Suite 400, McLean, VA 22101 (Phone: 703-790-1745).

NSF Seeks Program Director Candidates

The National Science Foundation is seeking candidates for a two-year assignment as program director and/or associate program director for its Decision, Risk, and Management Science (DRMS) Program. The assignment will begin in the fall of 1989 and will involve responsibility for coordinating, encouraging, and evaluating research and research proposals; interacting with the research community and other programs within NSF in order to ensure the continued growth and success of the program; and the development of new and creative research directions.

Current DRMS research is in the modelling of operational and managerial processes, risk management, design of organizational processes, and studies

of behavioral decision making. To qualify for one of these positions, an individual must have a proven research record, some administrative experience, an interest and ability in effecting change in the federal research establishment, and the capacity to inspire and develop new research and funding initiatives. An obvious credential is also an acquaintance with members of the decision, risk operations research, and management science research communities.

Interested individuals should contact the present director, Howard Kunreuther, or the present associate program director, Robin Gregory, at NSF, DRMS, 1800 G Street, Room 336, Washington, DC 20050; (Phone 202-357-7417).

1990 PSAM Meeting Planned

The SRA Council has voted to sponsor a 1990 conference on probabilistic safety assessment and management (PSAM) in Los Angeles, with the Southern California Chapter acting as the host organization and George Apostolakis, professor of engineering and applied science at the University of California, serving as general chairman. The aim is to bring together experts on both methodology and applications to major industrial systems or processes, particularly nuclear power plants, chemical process facilities, waste repositories, space systems, and offshore structures. The exact date is yet to be announced. Apostolakis may be reached at Phone 213-825-1300.

Seminar on Use of PCs in PSA

The increasing capabilities of personal computers are changing the way models for probabilistic safety assessment (PSA) of the reliability of systems, structures, and operator behavior are being applied. A seminar on such applications will be held in Beverly Hills, California August 21-22. Co-organizers of the seminar are George Apostolakis, U.S.A. (Phone 213-825-1300) and Peter Kafka, Federal Republic of Germany (Phone 089-32004-175).

Call for Nominations for SRA Officers

The SRA Nominating Committee solicits suggestions for nominees for the following positions in the Society's 1989 elections:

President-Elect
Secretary
Treasurer
Three Councilors

(The present secretary and treasurer are each serving the second year of a two-year term and may succeed themselves one time; councilors serve three-year terms and may not succeed themselves. However, after one year has elapsed, a councilor may be nominated for a second term.)

Please submit names of your suggested candidates and a brief paragraph supporting each by March 10, 1989, to:

Paul F. Deisler, Jr.,
11215 Wilding Lane
Houston, Texas 77024

Help for Risk Program from Philippines Foundation

Corazon Pe Benito Claudio, an SRA member in the Philippines, has recently formed the Technology, Risk and Development Foundation, Inc., that will assist—financially and technically—the University of the Philippines' pioneering program on Technology and Risk Assessment and Management (TARAM), which she also directs. The foundation will also be involved in advisory work for improved management of technology and its associated risks—a subject that is now gaining interest as the Philippines strive to become an industrialized country by the year 2000.

Joint Programs

Current joint risk-related activities of the foundation and TARAM include the introduction of an integrated risk communication, assessment, and management program covering industrial complexes around Laguna de Bay, Southeast Asia's largest lake; preparation of a book integrating technology, the environment, and risk assessment, with applications in a developing country setting; introduction of TARAM courses in the engineering curriculum; technical extension services to communities affected by environmental and risk problems; maintenance of a weekly column in *Business Star*, the leading business daily in the Philippines (the column aims to create public awareness of risk issues); and development of a library and data bank.

Interaction Requested

Claudio invites SRA members to contribute books, papers, and other materials on technology and risk assessment to the TARAM library and also to include TARAM on their regular mailing lists. Favorable responses to such requests, she feels, will go a long way in promoting improved risk communication, assessment, and management in a developing country. The program's address is: TARAM Program, P.O. Box 21, Greenhills Post Office 1502, San Juan, Metro Manila, Philippines. Claudio may be reached in the Philippines at the following numbers: Telephone, 673-2619, 673-0820; Telex, 22070 OTEC PH; Fax, (632) 818-7158.

SRA Nominating Committee

Members of the SRA Nominating Committee, which is chaired by Paul F. Deisler, Jr., are as follows: W. Gary Flamm and James D. Wilson, both currently serving as councilors; M. Granger Morgan, a past councilor; and Paul Slovic, a past president.

Fourth Carcinogen Risk Assessment Course Scheduled

The Society for Risk Analysis will hold its fourth annual course, "Carcinogen Risk Assessment," on April 3-5, 1989 at One Washington Circle Hotel in Washington, DC. The course will cover the risk assessment process, the use of scientific data in risk assessment, risk initiatives in federal agencies, special issues in risk assessment, and risk management. Special emphasis will be given to new developments in the areas of biologically based modeling, pharmacokinetics and biomarkers.

Lecturers for the course will be Roy Albert, Professor and Chairman, Dept. of Environmental Health and Kettering Laboratory, University of Cincinnati; Elizabeth Anderson, President, ICF/Clement; Mildred Christian, President and Director, Argus Research Laboratories, Inc.; Vincent Covello, School of Public Health, Columbia University; William Farland, Director, Office of Health and Environmental Assessment, U.S. EPA; Bernard Goldstein, Professor and Chairman, Environmental and Community Medicine, Robert Wood Johnson Medical School; Lester D. Grant, Director, Environmental Criteria and Assessment Office, U.S. EPA; Lester Lave, Professor of Economics, Graduate School of Industrial Administration, Carnegie-Mellon University; Curtis Travis, Director, Office of Risk Analysis, Oak Ridge National Laboratory; James Trosko, Professor of Pediatrics and Human Development, University of Michigan; Mimi Yu, Associate Professor of Research, Department of Preventive Medicine, University of Southern California; and Chris Whipple,

Call for Nominations for SRA Awards

The SRA Committee on Awards invites nominations for the two categories of awards presented annually by the Society. One category is the Distinguished Contribution Award, which honors an individual whose work has significantly advanced the scientific foundations or the applications of risk analysis. The other category is the Distinguished Service Award, which is presented to an SRA member who has performed meritorious services on behalf of the Society.

Please submit the names of your nominees and a brief paragraph supporting each by March 10, 1989, to:

Lester B. Lave
GSIA
Carnegie-Mellon University
Pittsburgh, Pennsylvania 15213

Technical Manager, Risk and Health Science Dept.,
Electric Power Research Institute.

For further information, contact Curtis C. Travis,
615-576-2107 or FTS 626-2107; or Mary Oran 615-
574-8438 or FTS 624-8438.

Comings & Goings

Jeffrey P. Robinson and **Henry T. Appleton** have left O'Brien & Gere Engineers, Inc., to form their own environmental consulting company, Paladin Associates, Inc., in DeWitt, New York. The firm specializes in health and environmental based risk assessments of hazardous waste, industrial chemicals, and pesticides.

Dynamac Corporation, Fort Lee, NJ, has announced that **Kathleen (Kip) P. Cherry** has joined its Environmental Risk Management Division as director of marketing. Also, the division has promoted **Wayne Tusa** to vice president of eastern operations and **Dennis Clark** and **Laurie Voigt** to assistant project managers.

Anthony (Tony) Buhl has joined Tenera Company as senior vice president and corporate officer and has opened a Tenera office in Knoxville, Tennessee. He previously held a similar position with IT Corporation with responsibility for the Risk Control Services Group.

The following members of SRA's Liaison Committee have new addresses:

—**Daniel Byrd**, Distilled Spirits Industry Council of the United States, 1250 I St., NW, Suite 900, Washington, D.C. 20005 (Phone: 202-682-8839).

—**Beverly Fleisher**, Government Studies Group, Room L0602, Division of Science Resources Studies, National Science Foundation, 2000 L St., NW, Washington, D.C. 20550 (Phone: 202-634-4636).

—**Dennis J. Paustenbach**, ChemRisk, 980 Atlantic Ave., Suite 100, Alameda, CA 94501 (Phone: 415-521-5200).

—**Allen White**, Center for Technology, CENTED, Clark University, Worcester, MA 01610 (Phone: 508-793-7717).

—**James D. Wilson**, American Industrial Health Council, 1330 Connecticut Ave. NW, Suite 300, Washington, D.C. 20036 (Phone: 202-659-0060).

Chapter News

(Editor's Request: RISK newsletter plans to publish a full report on the officers and activities of all the Society's chapters in its next issue. Information to be included in the report should be received by the editor by May 1.)

At its November 1 meeting in Washington, D.C., the SRA Council approved two new chapters for the Society subject to acceptance of the chapters' bylaws and agreement on the chapter names. One chapter is located in the Cincinnati area (Contact: Steven D. Lutkenhoff, Phone 513-569-7531) and the other is located in the Washington State University area (Contact: George Cvetkovich, Phone 206-676-3544). This brings the total number of U.S. chapters of SRA to eleven.

National Capital Area Chapter

The NCA Chapter hosted SRA's 1988 Annual Meeting and is now in the process of compiling the meeting proceedings. It is also currently holding elections.

On January 25, chapter members heard Michael Gough, senior fellow in the Center for Risk Management at Resources for the Future, Inc., speak on "How Much Cancer Can We Regulate Away?" Among other projects, Gough has recently been studying the degree to which federal regulation of carcinogens could reduce the cancer burden in the United States. In an earlier position at the Office of Technology Assessment, he directed OTA's congressionally mandated study of Agent Orange.

East Tennessee Chapter

The East Tennessee Chapter, which also is currently holding elections, welcomed SRA President Richard C. Schwing as the speaker at its January 26 meeting. The president spoke on "Conflicts: The Common Denominator of Health/Safety Programs."

New England Chapter

The New England Chapter will hold the first of a series of five seminars on various aspects of risk analysis on February 14. Doug Dockery, assistant professor of respiratory epidemiology at the Harvard School of Public Health, will speak on "Lung Function as a Measure of Risk—Effects of Smoking and Aging" at the Massachusetts Institute of Technology Faculty Club. Additional seminars, all to be held at the Club, are as follows:

March 16: Tom Smith, University of Massachusetts, "Quantitative Epidemiology and Risk Analysis—Ethylene Oxide (A Tale of Mice and Men)."

April 13: Dan Wartenberg, Robert Wood Johnson Medical School, "Spatial Patterns of Health Events—Implications for Risk Assessment."

May 16: Steve Colome, Integrated Environmental Services, Irvine, CA, "Carbon Monoxide and Angina—Critical Limitations in Evaluating Health Risks."

June 15: Bruce Jordan and Harvey Richmond, U.S. Environmental Protection Agency, "Ozone Risk Assessment and Evaluation."

Northern California Chapter

The Northern California Chapter completed 1988 with 110 members, a significant increase over the 70 members it had in 1987. Plans are to publish a directory of the current membership.

The chapter's main activity during 1989 will be hosting the 1989 SRA Annual Meeting (see "Call for Papers" in this newsletter). The chapter is currently working with President-elect B. John Garrick, who is chairman of the SRA Annual Meetings Committee and also the meeting's program chairman.

In recent elections, Jeffrey Daniels of Lawrence Livermore National Laboratory became the chapter's president-elect, Tom McKone of LLNL became secretary, and Aaron Wildavsky became the newest chapter councilor.

Southern California Chapter

On January 19, the Southern California Chapter heard of post-Challenger applications of quantitative risk assessment methodologies by NASA and its contractors to aid in design and launch decision-making processes. Richard A. Robitaille, project director of Systems Engineering Critical Functions Audit, Rockwell Space Transportation Systems Division, spoke on "Risk Assessment of the Space Shuttle's Main Propulsion System," a pilot study to identify the contributions that quantitative risk analysis could make to the shuttle program. Robert J. Mulvihill, director of Systems Engineering Program, Emhart Planning Research Corporation, spoke on "Quantitative Risk Assessment for the Galileo Satellite Mission," a study to determine scenario probabilities associated with the failure of a radioisotope thermoelectric generator and radioactive material release. The Galileo mission, which will include sending a probe into Jupiter's atmosphere, is scheduled to be launched from the space shuttle in the fall of 1989.

On May 12, the chapter will hold its annual all-day workshop at the Arnold and Mabel Beckman Center at the University of California, Irvine. Titled "Quantitative Risk Assessment: Realizing Its Full Potential," the workshop will feature four speakers in each of three sessions: (1) QRA in the Space Industry

(chaired by the chapter's president Stan Kaplan of Pickard, Lowe and Garrick, Inc.), (2) Environmental Risk and Safety Assessment (chaired by Mardy Kazarians, Pickard, Lowe, and Garrick, Inc.), and (3) QRA Applications in the Nuclear Power and Chemical Process Industries (chaired by Sank Sankaran, Union Oil Company of California). The workshop will end with a panel discussion. (Reservations are due April 7; for further information, call Stan Kaplan or Brian Fagan, Phone 714-650-8000.)

In other activities, the chapter is involved in plans for the 1989 SRA Annual Meeting and for a 1990 meeting on probabilistic safety assessment and management (see story on page 14).

Metropolitan (CT-NJ-NY) Chapter

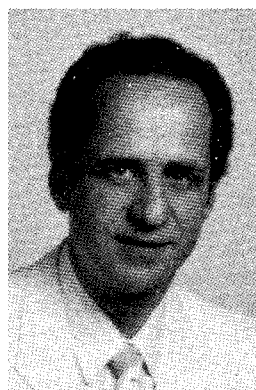
The Metropolitan (CT-NY-NY) Chapter is in the process of holding elections, the results of which will be reported in the next issue of the newsletter.

Lone Star Chapter

James Bonin of Shell Oil Company, Houston, is now president of the Lone Star Chapter, having served as president-elect during the past year. The new president-elect is Richard Dreith and the new secretary is Ross McDonald, both also from Shell. Tom Connor of the University of Texas School of Public Health, Houston, is a newly elected member of the chapter's council. Continuing to serve are the treasurer, Stuart Cagen of Shell; the chairman of the Membership Committee, Jeff Britton of the University of Texas Health Science Center; and two councilors, Chris Butler of Shell and Tom Downs of the University of Texas School of Public Health. Downs is the immediate past president.

On January 9 the chapter heard Steven H. Lamm, president of Consultants in Epidemiology and Occupational Health, Washington, D.C., report on his recent study (together with Anthony Walters, Richard Wilson, Daniel Byrd, and Hans Grunwald) of benzene and leukemia. The study, which will be reported in the spring issue of *Environmental Health Perspectives*, leaves as "an open question whether leukemia is caused either directly by benzene per se (and,

if so, whether as a promoter or also as an initiator)



Steven Lamm

or indirectly follows from benzene pancytopenia or some other direct effect of benzene." The study examined a number of recent risk assessments for benzene, noting both inconsistencies and consistencies between and within them. The available data strongly support the conclusion that acute myeloid leukemia can be caused by excessive benzene exposure, but no consistent evidence exists that other types of leukemia

are caused by benzene exposure.

Research Triangle Chapter

At the Research Triangle Chapter's November 15 meeting, Winnona Victory of the U.S. Environmental Protection Agency's Environmental Criteria and Assessment Office and Karen Blanchard of the EPA's Office of Air Quality Planning and Standards discussed EPA's air risk information center, which responds to inquiries from state and local air pollution agencies on risk-related issues for air toxics.

At a December 13 meeting, Warner North, a principal with Decision Focus, Los Altos, CA, and a member of EPA's Science Advisory Board, spoke on the implementation of Proposition 65 in California. A member of the Governor's Advisory Panel on Proposition 65, North described the decision process for the panel's listing of chemicals as "human" carcinogens and/or developmental toxicants.

Philadelphia Chapter

The Philadelphia Chapter also will announce the results of its recent elections in the next issue of the newsletter. The chapter's new president is Steven A. Anderson of Roy F. Weston, Inc., Westchester, PA. Anderson served as president-elect last year.

May 16-19: ECOINFORMA-89

ECOINFORMA-89, the first international congress and exhibition on all aspects of environmental information and communication systems, including those for toxicological risk assessment and technology transfer, will be held May 16-19 in the Federal Republic of Germany. Contact: H. Fiedler, University of Bayreuth, PO Box 10 12 51, D-8580 Bayreuth, Federal Republic of Germany (Phone: 49 (921) 552154).

WPI Offers New Scholarship

Worcester Polytechnic Institute, whose graduate degree program in fire protection engineering is the only one of its kind, is offering a new graduate fellowship worth about \$20,000 for the 1989-90 academic year. The fellowship is designed for thesis research in applying risk assessment concepts to fire safety. The application deadline is April 3. Contact: David A. Lucht, WPI, Worcester, MA 01609 (Phone: 508-831-5593).

*Report from Thailand Conference:***Developing Countries Want All Risk Endpoints Considered**

The conference on "Risks of Toxic Substances in Developing Countries: Implications for Women and Children," which was held in Bangkok, Thailand, November 18-20, drew delegates from most of the Pacific Rim nations. Sponsored by the U.S. Centers for Disease Control, the U.S. National Science Foundation, and the World Health Organization, the conference featured presentations by speakers from the Philippines, Singapore, China, and Mexico, as well as from Thailand and the U.S. Major topics included policy and decision making, health effects, research methodology, and sociocultural factors.

Points of Agreement

Three points received strong support from conference delegates. First, it is important to see the problems of economic development, health, and the environment as related problems. Second, it is important to study a variety of endpoints and health outcomes, not only carcinogenesis. Third, analysis and management of risk should include lifestyle and sociocultural information, especially information about the roles of women and men in society.

The potential size of problems associated with toxics can be appreciated by the fact that over 70,000 chemicals are produced in ton quantities around the world. Information about the potential cancer risks currently is available for only about 10% of these chemicals, while information on reproductive and developmental effects is available for only 2-3%.

Modern Risks Increase

Typical patterns of development reveal that life expectancy and overall health generally improve with economic growth and development. However, as traditional risks are reduced, modern risks often increase. The growth in the manufacture and use

of toxic substances has accelerated rapidly in recent years.

Most methodologies and guidelines for risk assessment have focused on cancer and tumor promotion as the major outcome of interest. However, there are a number of other recognized endpoints that are now beginning to receive attention. Some that were discussed by conference delegates as being especially important and requiring further study included fertility and related reproductive effects, teratogenic effects, and developmental effects.

Delegates were concerned that both male and female pathways and outcomes should be examined in the assessment of reproductive risk. As more women enter the work force, exposures in these settings become increasingly important, especially in work sectors that become sex segregated, as appears to be the case in electrical assembly, production of semiconductors, and the garment industry.

Substantial Differences

Delegates, nearly all of whom were from developing countries, made it clear that working conditions, health conditions, and possibilities for remediation of hazards are substantially different in the developing countries from those in westernized countries. Sources and pathways of exposure may vary among developing countries; thus studies need to examine the existing conditions in the countries themselves.

Overall, the conference was enthusiastically received by the delegates, and the Thai hosts were especially welcoming and offered some exceptionally efficient conference services.

Cheryl B. Travis
University of Tennessee

Calendar of Events

—March 27-31. SHORT COURSE ON OCCUPATIONAL AND ENVIRONMENTAL RADIATION PROTECTION, Harvard School of Public Health, Boston, Massachusetts. Course director: Dade W. Moeller. Contact: Sharon Block, Marketing Staff, Harvard School of Public Health, 677 Huntington Avenue, Boston, Massachusetts 02115. Phone: 617-732-1171.

—March 27-31. SHORT COURSE ON FUNDAMENTALS OF INDUSTRIAL HYGIENE, Harvard School of Public Health, Boston, Massachusetts. Course director: Melvin W. First. Contact: Sharon Block (see above.)

—April 3-5. FOURTH CARCINOGEN RISK ASSESSMENT COURSE, sponsored by the Society for Risk Analysis, One Washington Circle Hotel, Washington, D.C. (See story in this newsletter).

—April 3-5. SEVENTH SYMPOSIUM ON METHODS FOR ENVIRONMENTAL QUANTITATIVE RISK ASSESSMENT, Auditorium of the Graduate School of Public Health, University of Pittsburgh, Pittsburgh, Pennsylvania. Sponsored by the U.S. Environmental Protection Agency and the Center for Environmental Epidemiology, University of Pittsburgh.

Contact: Center for Environmental Epidemiology, Graduate School of Public Health, University of Pittsburgh, Pittsburgh, Pennsylvania 15261. Phone 412-624-1559.

—April 20-21. 15th BIENNIAL SYMPOSIUM ON TECHNICAL RELIABILITY, Munich, Federal Republic of Germany. Theme: Reliability of Components in Technical Systems: Analysis, Verification, and Validation. Sponsored by European Safety and Reliability Association of the European Community. Contact: Verein Deutscher Ingenieure, VDI-GIS, P.O. Box 1139, D-4000 Dusseldorf 1, Federal Republic of Germany. Phone: 211-6214-262.

—April 24-28. SHORT COURSE ON RESPIRATORY PROTECTION AND CHEMICAL PROTECTION CLOTHING, Harvard School of Public Health, Boston, Massachusetts. Course director: William A. Burgess. Contact: Sharon Block (see above).

—May 1-5. 18th ANNUAL SHORT COURSE ON HIERARCHICAL-MULTIOBJECTIVE APPROACH IN WATER RESOURCES PLANNING AND MANAGEMENT, University of Virginia, Charlottesville, Virginia. Theme: Risk Assessment and Management. Sponsored by Center for Risk Management of Engineering Systems and Systems Engineering

Newsletter to Accept Ads from Non-Members

By action of the SRA Council at its October 30, 1988 meeting, *RISK newsletter* may now accept advertisements from non-members. The policy adopted by the council is as follows:

RISK newsletter ("the Newsletter") shall be operated under the following policy with respect to accepting or rejecting advertisements on the subject of employment for publication in the Newsletter:

(1) Individual, paid-up members of the Society for Risk Analysis shall have the right to have the editor of the Newsletter place suitable, short advertisements in the Newsletter seeking employment for themselves (but only one such advertisement per issue);

(2) Organizations which are paid-up sponsors or supporters of the Society for Risk Analysis shall have a similar right to have the editor of the Newsletter place suitable, short advertisements in the Newsletter advertising openings for employment (but only one such advertisement per issue); and

(3) Organizations which are not sponsors or supporters may publish, at a cost of \$100 per advertisement, per issue, suitable, short advertisements in the Newsletter advertising openings for employment.

To all of the above the following provisions apply: The editor has the responsibility and the absolute right to edit, shorten, or in any way write, rewrite or modify the text of any such advertisement so as to make it both suitable and short enough for publication, to limit the number of issues in which any advertisement may appear to not more than four consecutive issues per request, and to deny, on reasonable grounds, any request to publish an advertisement under (1), (2), or (3), above, in any specific issue or in any issue whatsoever. The Secretariat has the responsibility for verifying, for the editor, the membership status of those requesting the placement of advertising (whether individuals or organizations) and of pursuing the potential for enlistment of non-sponsor organizations as sponsors.

The newsletter is currently on a three-issue per year schedule, publishing in January, May, and September, and advertisements should be submitted to the editor by the first day of each of those months. Non-member organizations should include billing instructions.

Department; cosponsored by SRA and others. Contact: M. Farrish, Thornton Hall, University of Virginia, Charlottesville, Virginia 22901. Phone: 804-924-0960.

—May 8–12. SHORT COURSE ON CONTROL OF OCCUPATIONAL EXPOSURES IN NUCLEAR FACILITIES, Harvard School of Public Health, Boston, Massachusetts. Course director: Dade W. Moeller. Contact: Sharon Block (see above).

—May 12. ANNUAL WORKSHOP ON QUANTITATIVE RISK ASSESSMENT: REALIZING ITS FULL POTENTIAL, National Academy of Sciences and Engineering, Arnold and Mabel Beckman Center, University of California, Irvine, California. Sponsored by Southern California Chapter of SRA. Contact: Brian Fagan, Pickard, Lowe, and Garrick, Inc., 2260 University Drive, Newport Beach, California 92660. Phone: 714-650-8000.

—May 30–June 1. EUROPEAN CONFERENCE ON COMMUNICATING WITH THE PUBLIC ABOUT MAJOR ACCIDENT HAZARDS, Palace Hotel, Varese, Italy. Organized by The Commission of the European

Positions Available

RADIAN CORP. SEEKING TOXICOLOGISTS

Radian Corporation, a national leader in environmental consulting and health risk assessment, is seeking highly motivated individuals to join its expanding health risk assessment and toxicology services staffs in Sacramento, California. *Entry and mid-level positions* involve review of published toxicology data, and analysis of environmental fate and potential human health impacts from exposures to toxic substances. These positions require a BS or MS in toxicology (or related field), knowledge of human exposure and health risk assessment, and sound written/verbal communications skills. Computer experience is desirable. *Senior positions* involve directing health risk assessment projects and supporting classical toxicology consulting services. These positions require a PhD in toxicology or a related field and a background in classical toxicology. Board certification preferred. All of these positions offer excellent opportunities for professional growth as well as a competitive salary and benefits package. Send resume to:

James W. Embree
Senior Environmental Toxicologist
Radian Corporation
10395 Old Placerville Road
Sacramento, California 95827
(An Equal Opportunity Employer)

DYNAMAC CORPORATION HAS OPENINGS

Dynamac Corporation, one of the leading consulting firms in environmental risk management, has several current career openings for highly motivated professionals in Fort Lee, NJ; Rockville, MD; Atlanta, GA; and Philadelphia, PA. These opportunities range from entry level to program management positions. Ideal candidates will have excellent analytical, communication and management skills, coupled with experience in toxicology, exposure evaluation and health risk assessments. Selected individuals will apply these skills in assisting clients in managing risks and liabilities associated with CERCLA, SARA, RCRA, UST, etc. Send resume and writing sample to:

Wayne Tusa, Vice President
Eastern Operations
Dynamac Corporation
Two Executive Drive
Fort Lee, New Jersey 07024
(An Equal Opportunity Employer)

Communities (DG XI in collaboration with the JRC, Ispra Establishment). Contact: The Secretariat, Communications Conference, Building 21, Joint Research Centre, Commission of the European Communities, I-21020 Ispra (VA), Italy.

—May 30–June 2. 7th ANNUAL SUMMER INSTITUTE IN RISK MANAGEMENT IN ENVIRONMENTAL HEALTH AND PROTECTION, New York University Graduate School of Public Administration. Covers risk management and quantitative risk assessment for chemical health risks. Contact: Rae Zimmerman, Graduate School of Public Administration, New York University, 4 Washington Square North, New York 10003. Phone: 212-998-7430 or 7432.

—June 12–16. SHORT COURSE ON IN-PLACE FILTER/BIOLOGICAL SAFETY CABINET TESTING, Harvard School of Public Health, Boston, Massachusetts. Course director: Melvin W. First. Contact: Sharon Block (see above).

—June 19–22. SIXTH INTERNATIONAL SYMPOSIUM ON LOSS PREVENTION AND SAFETY PROMOTION IN THE PROCESS

(Continued on page 20)



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(Continued from page 19)

INDUSTRIES, Oslo, Norway. Sponsored by the Norwegian Society of Chartered Engineers. Contact: The Organizing Committee, Ingeniørenes Hus - Kronprinsensgt. 17, 0251, Oslo 2. Phone: (02)41 87 35.

—June 19-23. SHORT COURSE ON PLANNING FOR NUCLEAR EMERGENCIES, Harvard School of Public Health, Boston, Massachusetts. Course director: Dade W. Moeller. Contact: Sharon Block (see above).

—June 24-28. ANNUAL MEETING OF THE INTERNATIONAL ASSOCIATION FOR IMPACT ASSESSMENT, Montreal, Quebec, Canada. Theme: Impact Assessment in an Age of Transformation: New Imperatives, New Approaches. Contact: Victor C. Goldbloom, Program Chair, IAIA '89, Bureau d'audiences publiques sur l'environnement, Gouvernement du Quebec, 5199, rue Sherbrooke est, bureau 3860, Montreal, Quebec, Canada HIT 3X9. Phone: 514-873-7790.

—June 26-30. MASSACHUSETTS INSTITUTE OF TECHNOLOGY SUMMER SESSION PROGRAM ON QUANTITATIVE RISK ASSESSMENT FOR ENVIRONMENTAL AND OCCUPATIONAL HEALTH HAZARDS, Massachusetts Institute of Technology, Cambridge, Massachusetts. Offered under the auspices of the Center for Technology, Policy and Industrial Development. Contact: Office of the Summer Session, Room E19-356, MIT, Cambridge, Massachusetts 02139. Phone: 617-253-2101.

—July 4-6. SECOND INTERNATIONAL FACET THEORY CONFERENCE, University of Surrey, United Kingdom. Contact: Ian Donald, Department of Psychology, University of Surrey, Guildford, Surrey GU2 5XH, United Kingdom. Phone: (0483) 571281.

—July 10-14. SHORT COURSE ON MANAGEMENT AND DISPOSAL OF RADIOACTIVE WASTES, Harvard School of Public Health, Boston, Massachusetts. Course director: Dade W. Moeller. Contact: Sharon Block (see above).

—July 17-21. ADVANCED WORKSHOP ON OCCUPATIONAL AND ENVIRONMENTAL RADIATION PROTECTION, Harvard School of Public Health, Boston, Massachusetts. Course director: Dade W. Moeller. Contact: Sharon Block (see above).

—August 6-11. 24th INTERSOCIETY ENERGY CONVERSION ENGINEERING CONFERENCE, Gateway Marriott Hotel, Crystal City, Washington, D.C. Theme: International Forum on Energy Engineering. Contact: Christine Aldridge, HMJ Corporation, P.O. Box 15128, Chevy Chase, Maryland 20815.

—August 21-22. SEMINAR ON THE ROLE AND USE OF PCs IN PROBABILISTIC SAFETY ASSESSMENT AND DECISION MAKING, Beverly Hills, California. (See story in this newsletter.)

—Sept. 12-15. 7th ANNUAL INSTITUTE IN RISK MANAGEMENT IN ENVIRONMENTAL HEALTH AND PROTECTION, Institute of Safety and Systems Management, University of Southern California. Contact: Rae Zimmerman (see above).

—October 29-November 1. ANNUAL MEETING OF THE SOCIETY FOR RISK ANALYSIS, Hotel Nikko, San Francisco, California. (See Call for Papers in this newsletter.)

—1990 (Exact date to be announced). INTERNATIONAL MEETING ON PROBABILISTIC SAFETY ASSESSMENT AND MANAGEMENT (PSAM), sponsored by Society for Risk Analysis, Los Angeles, California. (See story in this newsletter.)

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