

ISCE NEWSLETTER

Vol. 3, No. 2, Fall 1986

International Society of Chemical Ecology

From the Editor

Greetings to all new and renewed ISCE members alike. I wish to thank all those members who took the time and trouble to vote. We received well over 200 ballots and I would like to announce our new officers. ISCE wishes to welcome in Dr. David Jones, Vice President; Dr. James Nation, Treasurer; and of course, our President, Dr. Jean Langenheim. We thank them for their commitment to our Society.

ISCE is gearing up for its first European meeting hosted by Dr. David Jones in Hull, England. Members wishing to attend may write to him directly or wait for details in our Spring Newsletter. Our Fifth ISCE meeting will be held in the U.S.A. and hosted by Dr. Murray Blum of the University of Georgia.

I want to thank Dr. Keith Brown, of the Institute de Biologia, Sao Paulo, Brazil, for sending us his ideas and suggestions on how to improve our Society. I strongly urge members to follow his example and send in your thoughts and ideas. The ISCE Newsletter needs your support. I also want to remind members that the *Journal of Chemical Ecology* has officially instituted a forum for informal discussion. Use these two vehicles for informed and informal discussion.

Lastly, our heartfelt congratulations to ISCE members Drs. G.H.N. Towers, Canada, J.B. Harbone, England, and Tom Mabry, U.S.A. and, of course Milt Silverstein for their various awards and contributions to Chemical Ecology.

ISCE; Broadening the Horizon

One of the main goals of ISCE is to broaden the scope of Chemical Ecology. This commitment is reflective in the three previous meetings held in the USA. The first meeting, organized by Dr. Larry Gilbert, in Austin-Texas, brought in botanical aspects of Chemical Ecology. Dr. Dale Norris' organization of the Second meeting included several presentations which dealt with marine organisms. Recently, the third meeting held in Berkeley and organized by Dr. David Wood emphasized ecological aspects. Well over 100 enthusiastic participants were challenged by Dr. Wood's question: "Chemical Ecology is fine — but where is the Ecology?" In answer to

this, the invited Symposia papers, the contributed papers, and the posters together gave both a broad and a penetrating view of chemical communication and interaction in a variety of organisms employing many different kinds of chemical compounds.

In Berkeley, the Executive Committee took the opportunity to thank Drs. David Wood, Larry Gilbert, and Dale Norris for the great efforts in organizing the first meetings. John Simeone and Gerald Rosenthal were also recognized for their dedicated work to the Journal and ISCE. I had the privilege of handing over to Dr. Jean Langenheim the Presidential gavel. We wish her the best of luck. Then it was time to present our first ISCE Honor Medal. It was awarded to Dr. Robert Milton Silverstein for his outstanding achievement in Chemical Ecology. A long, and warm applaud followed, whereupon Dr. John Garcia took the rostrum to present his after dinner Keynote speech. Dr. Garcia is professor of Psychology and Biobehavioral Sciences, and a member of the National Academy of Sciences. His talk was very imaginative and interesting, and was received with great enthusiasm by our audience.

Dr. David Jones in Hull, England welcomes us to the fourth meeting and there is every reason to believe that it will follow the proud traditions established by the first three. We count on a massive European attendance, but we are also eager for members from other continents to find their way to England. We trust that USA members plan in advance and tell us if we can be of any help, in terms of formulating letters of invitation. We will also continue our efforts to come up with financial support. SEE YOU IN ENGLAND.

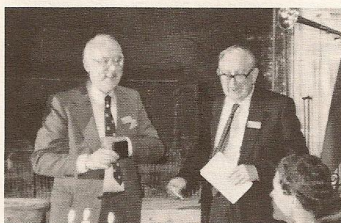
Gunnar Bergström

ISCE Honor Medal Fund

ISCE is presently establishing a fund for its new ISCE Honor Medal to be awarded to members for their contributions in the field of

Chemical Ecology. Your contribution will be greatly appreciated and is, of course, Tax deductible. Please send your contributions to Dr. James Nation, Entomology and Nematology, University of Florida, 202 Newell Hall, Gainesville, FL 32611 USA.

Professor Robert Milton Silverstein was the first recipient of the ISCE Honor Medal for his "important and diverse scientific contributions to our understanding of chemical ecology and for his commitment to the excellence and growth of our society and the JOURNAL OF CHEMICAL ECOLOGY."



ISCE Member Dr. J.B. Harbone receiving the First Silver Medal of the Phytochemical Society of Europe.

INDEX

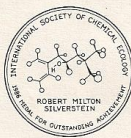
MEMBERS LAUDS & LAURELS	2
ISCE MEETINGS	3
NEW LIFE MEMBERS	3
LETTERS	3
PUBLICATIONS OF INTEREST	3
EMPLOYMENT OPPORTUNITIES	4
UPCOMING SYMPOSIA	4
FUNDING SOURCES	4

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ISCE Lauds & Laurels

Professor Jeffrey Barry Harborne, Department of Botany, University of Reading, England, was recently awarded the First Silver Medal of the Phytochemical Society of Europe in Lausanne, Switzerland. Dr. Harborne, a world renown leader in chemosystematics and ecological biochemistry, is also known for his role as Executive Editor of the *International Journal of Phytochemistry*. Recipient of numerous awards, Dr. Harborne has more recently received the Gold Medal in Botany from the Linnean Society of London.

Dr. Harborne's career include 185 published scientific works in a variety of internationally reviewed journals. He has authored, co-authored, or co-edited 20 books, and some of his best known titles include *Phytochemical Ecology; Introduction to Ecological Biochemistry; Biochemical Aspects of Plant and Animal Coevolution; Phytochemical Methods; The Flavonoids: Advances in Research*, (with Dr. Tom Mabry) and more recently *Plant Chemosystematics* (with B.L. Turner.)

Dr. Harborne is also a member of the editorial board of the *Journal of Chromatography; Biochemical Systematics and Ecology; Biochemical Genetics; and Phytochemistry*. For his outstanding contributions, ISCE congratulates Dr. Harborne.



Dr. G.H.N. Towers of the University of British Columbia, Canada, has received the coveted Flavelle award and medal of the Royal Society of Canada. The award is made every two years for an outstanding contribution to biological sciences during the preceding 10 years.

Dr. Tower's fields of study include phytochemistry of plants and of fungi, photobiology, ethnopharmacology and medical botany. His early work was concerned with the biogenesis and metabolism of phytochemicals, particularly phenolic compounds such as cinnamic acid derivatives. In this research several new phytochemicals were identified as well as novel enzymes. Perhaps the most interesting study made was the light-induced biosynthesis of the styrylpyrone, hispidin, in the fungus *Polyporus hispidus*. The light-induced synthesis of all the enzymes in the pathway leading to this chemical is an important contribution to the subject of the regulation of biosynthesis of secondary compounds in fungi. Over 100 research papers were published on the biogenesis and biodegradation of phytochemicals, including ten reviews. Dr. Towers was invited to participate in many international symposia such as those organized by the Phytochemistry Society of Europe, the Phytochemistry Society of North America, Phytochemical Society of Japan, Phytochemical Organization of Mexico, etc. His studies led to the award of Life Membership in the Phytochemical Society of North America, Distinguished Professor of the X Symposia International de Quimica de Productos Naturales of Mexico and the award of a Gold Medal from the Canadian Society of Plant Physiologists.

He has been invited to present special lectures to the Phytochemical Society of Europe and to the Groupe Polyphenoles of France in 1984 because of his more recent scientific discoveries concerning phenolic substances such as the furanocoumarins used in phototherapy and the hydroxycinnamates in relation to spatial orientation in plants in response to light.

Dr. Towers next turned his attention to the effects of particular phytochemicals on human skin. This research was inspired by his association with a UBC dermatologist, Dr. J.C. Mitchell who had patients with skin allergies from the handling of plant materials in the forest industry. It led to the identification of numerous phytochemicals which are responsible for delayed skin hypersensitivity in man, particularly the sesquiterpene lactones, a large class of phytochemicals characteristic of the Compositae and other groups of plants such as the liverworts, which are epiphytic on forest trees. Many collaborative papers were published in this field and Dr. Towers was invited to Dermatology meetings in North America as a consequence. He was also made an associate member of the Faculty of Medicine, UBC. He was invited by the Australian Weed Society to address them on the topic, Weed Dermatitis, because of the rapid spread of a noxious American weed (which was causing an epidemic of allergic contact dermatitis in India) into Queensland. Dr. Towers, in association with Dr. Mitchell and Dr. Lonkar of India, and Dr. E. Rodriguez, had drawn attention to the seriousness of this epidemic in India by visits to India and in the form of a lengthy review of the problem. Subsequently, in collaboration with Dr. Julia Levy, Microbiology, UBC, he showed that parthenin, the causative agent of this particular skin allergy, is also a potent antitumor compound in mice.

Dr. Tower's interest in the effects of light on phytochemicals led to a concentrated study on natural photosensitizers, chemicals which are injurious to living systems when they are irradiated. He discovered that a large class of phytochemicals, the polyacetylenes (polyines), include many powerful phototoxic examples, one of which compares favourably with DDT as a mosquito larvicide and which is being considered for commercial production as a natural biocidal agent. With a large team of chemists, botanists and biochemists, he has been studying the mechanism of action of these phytotoxins. These studies have led to the discovery that many phytochemicals, including polyphenols, polyketides, terpenoids and alkaloids are photosensitizers which are active against viruses, bacteria, fungi and nearly all types of cells and small organisms. Some of these chemicals cause photodermatitis in man and may be of interest as therapeutic agents. Dr. Towers' research in photobiology has led to two other important areas of study. These are in the responses of plants to light in terms of photobiochemistry and in photoimmunotherapy of cancer. Dr. Towers has proposed a new hypothesis to account for phototropism, solar tracking and various other UV-A (320-400nm) light responses of plants in terms of the photoisomerism of cell wall constituents. He is pursuing this field vigorously. At the same time, in collaboration with immunolo-

gists, particularly Dr. Julia Levy and Dr. Chi-Kit Wat, he is investigating the potential of using photosensitizers chemically bound to monoclonal antibodies specific for tumor cells. The group has shown that this form of photoimmunology is successful in the treatment of certain mouse cancers. The work is being extended to studies of human cancers with Dr. Levy's and Dr. David Dolphin's groups.

A relatively new area of investigation in his group is the effect of transformation on the phytochemistry of tissue cultures. By introducing specific DNA of bacteria (*Agrobacterium*) into plants, they have been able to change, significantly, the production of specific secondary compounds in tissue cultures. By this technique it is possible to obtain certain novel antibiotics in cell cultures. These compounds are from medicinal plants of Canada and East Africa. He also has a collaborative study with a group of biologists and chemists from Thailand underway on piscicidal and molluscicidal plants of Thailand. Collaborative research, with Botanical Institutes in China, on insects anti-feedants from plants is another area of investigation.

Dr. Towers has published over two hundred and thirty research papers and reviews in botanical, zoological, microbiological, biochemical, chemical, ethnopharmacological, dermatological and medical journals. This year he was an invited lecturer to the Canadian Society of Plant Physiologists Silver Jubilee meeting, the Phytochemical Society of North America and at the University of California at Irvine. He has also been a consultant for the new University of Juba, Sudan, where there is an interest in ethnobotany and in phytochemistry.



Food Chemistry Division of the American Chemical Society

Dr. Mabry, former chairman of the Botany Department was presented the award at an Agricultural and Food Chemistry Division Banquet, American Chemical Society, recently held at Anaheim, California.

The award, which is administered by International Flavors and Fragrances, Union Beach, N.J., honors research scientists who have contributed significantly to knowledge of food and agriculture. Dr. Mabry was selected for his contributions to structure determination of betalains, flavonoids and isopentenoids in plants and for his research on potentially useful desert plants such as the creosote bush.

A phytochemist, Dr. Mabry earned bachelor's and master's degrees in chemistry from East Texas State University and a Ph.D. in organic chemistry from Rice University. After a National Institutes of Health postdoctoral fellowship at the University of Zurich in Switzerland, he joined the UT Austin faculty as a research scientist in 1962 and became a full professor in 1968. He served as chair-

man of the Botany Department from 1980 until Jan. 1, 1986.

He was a Guggenheim Fellow at the Plant Biochemical Institute, University of Freiburg, Federal Republic of Germany, and was an Alexander von Humboldt Senior Scientist Awardee at the Cell Biology Institute, University of Heidelberg, Federal Republic of Germany. He was named a distinguished alumnus at East Texas State University in 1970 and is a former president of the Phytochemical Society of North America. He was appointed the Jack Wrather Jr. Centennial Fellow in 1985. More recently, he was selected as a Watkins visiting professor at Wichita State University, where he presented three lectures on natural products and chemical ecology.

Dr. Mabry is the author or co-author of more than 400 scientific papers published in national and international reviewed journals and 30 chapters and review articles. He is the co-author or co-editor of 10 books.

He is a member of the editorial boards of *Phytochemistry*, *Plant Systematics and Evolution*, *Chemical Ecology* and the *Journal of Natural Products*. He is a member of several professional organizations including the Royal Chemical Society, the Botanical Society of America, of which he served as the first chairman of its Phytochemical section, the American Chemical Society and the American Society of Pharmacognosy.

His research is funded by the National Science Foundation, NIH, the Robert A. Welch Foundation and the Texas Advanced Technology Research Program.

Fourth Annual ISCE Meeting University of Hull, England

—Call For Papers!—

The Fourth Annual Meeting of the International Society of Chemical Ecology will be held at the University of Hull, England from the evening of Monday, July 13th through lunch on Friday July 17th, 1987.

We are planning 4 symposia on the following topics: the veracity of bioassays; chemical ecology and plant protection; the applications of chemical ecology; and biochemical mechanisms of defense compounds.

These topics are broad enough to include allelopathy, natural marine antifouling agents, pheromones, physiological and behavioral responses to allelochemicals etc. and we hope that some/many of the contributed paper and poster sessions will reflect the main themes of the meeting. We plan to stimulate commercial and industrial interest in the Society by emphasizing the applications of our studies.

Members (and potential members) of ISCE are asked to send the title and abstracts of a paper or poster that they wish to present at the meeting. The deadline for submitting details of oral presentations is **February 28th, 1987**. There is no deadline for posters, but the sooner you submit your title and abstract the sooner you can receive an acknowledgment that may help you to obtain travel funds. The

full cost of accommodation, all meals, an excursion, the conference fee and the conference dinner will be \$140.00.

Reservation forms will be issued to members with the Spring, 1987 ISCE Newsletter. Inquires should be addressed to professor David A. Jones, ISCE 1987, Department of Plant Biology & Genetics, University of Hull, Hull HU66 7RX, England.

ISCE Annual Meeting for 1988

The Fifth Annual Meeting of the International Society of Chemical Ecology will be held at the University of Georgia, Athens from June 18-21, 1988. (tentative dates). Members requesting information on topics, invited speakers, lodging and transportation should contact Dr. Murray Blum, Department of Entomology, University of Georgia, Athens, Georgia 30602. More details will be available in our Spring, 1987 issue of the ISCE Newsletter.

Overview of ISCE Third Annual Meeting University of California, Berkeley

The 3rd Annual Meeting held in Berkeley, California exemplified the purpose of ISCE by serving as a gathering place for scientists of all disciplines to share their interests in Chemical Ecology. This meeting was highlighted by four excellent and diverse symposia. The opening day symposium, "Ecological Chemistry: From Sponges to Mammals", chaired by Murray Blum, set the tone for the meeting with presentation of the ecological chemistry of a wide variety of taxa. David Jones presented an overview of his always stimulating genetic study of cyanogenesis. The morning session was rounded out by Frank Bronson discussing rodent chemical ecology and Shozo Takahashi presenting evidence of the host location mechanisms of parasitoid wasps. In the second half of this symposium, Remy Brossut covered his studies into the sex pheromones of French cockroaches and Desre Daloze introduced the conferees to the amazing chemistry of marine sponges.

The following day, our Berkeley host, David Wood, chaired the second symposium "Chemical Ecology—Frontiers and the Future". Jim Dave opened the sessions with an insightful discussion of the chemical and behavioral reproductive isolating mechanisms in Bark Beetles. Ken Glander next discussed dietary selection in Howling Monkeys. Ana Louisa Anaya presented an interesting talk concerning the potential uses of allelopathy in agroecosystem management. The biosynthesis of marine algae hydrocarbon pheromones was thoroughly discussed by Wilhelm Boland. Pat Berger introduced the attendees to the additional effects of DMBOA on avian reproduction systems. Finally, Svata

Louda closed the symposium with a thorough review of chemical variation in a crucifer and its influence on the herbivores in the system.

That afternoon, Isao Kubo presented an interesting session on "Current Topics in Semiochemistry". Gerrit de Boer covered the differential role phytoecdysteroids play in insect development. Yoka Naya presented an ingenious study of the recognition chemistry of anemone fish with their host sea anemones.

The final day's symposium, chaired by Larry Butler, gave us a fascinating in-depth look at tannin function, "Defensive Strategies Against Tannins". Mike Martin challenged the conference with his presentation of the toxin vs. digestibility reducing roles of tannins. Rick Lindroth covered his interesting studies on the role of tannins in vole digestive physiology. Don Carlson presented a very interesting talk on an area new to many of the conferees, rodents producing proline rich salivary proteins, which defensively bind tannins. Charles Robins extended this discussion by presenting his work on deer foraging in low and high tannin plants. Finally, Ralph Nicholson took us into the world of fungi to demonstrate further the role of proline rich glycoproteins in overcoming the presence of phenolics in a host plant.

Not to be left out, the afternoon and evenings were filled with a variety of interesting and stimulating contributed papers and posters. This meeting was marked by much interaction and discussion. The banquet saw the presentation of an annual award to Dr. Robert Silverstein for his distinguished role in the establishment of the field of Chemical Ecology. Also, the current president, Dr. Gunnar Bergstrom turned over his office to the newly-elected president, Dr. Jean Langheim. The organizers of this meeting did a great job in putting on a conference enjoyed by all.

Charles Wisdom
University of New Mexico

New Life Members

ISCE would like to extend our sincere appreciation to our new life members as of October 1, 1986: Shozo Takahashi, U.S.A.; Joseph Peterson, U.S.A.; Marine Rowell-Rahier, Switzerland; K. Irwin Keating, U.S.A.; David A. Jones, England; Bubba Nicholson, U.S.A.; Norris Williams, U.S.A.

Publications of Interest

Herbal Medicine: Kampo, Past and Present. T. Takemi, M. Hasegawa, A. Kumagai, and Y. Otsuka, Eds. Tsumura Juntendo, Inc. Chuo-ku, Tokyo, Japan, 148 pp.

Trends in Ecology and Evolution. Elsevier Science Publishers, Journal Information Center, 52 Vanderbilt Ave. New York, N.Y. 10017.

Thin-Layer Chromatography-Techniques and Applications, 2nd Edition, Revised and Expanded (Chromatographic Science Series, Volume 35) Marcel Dekker, Inc. New York and Basel, 408 pp.

Letters

I just wanted to thank you and the rest of the ISCE board for the travel grant. It really does make a difference as I know you are aware. I really think that the Society does a fine job supporting the graduate students, much more so than any of the other Societies in which I am a member.

Robert T. Mason

I have discussed with Gerald Rosenthal the idea of keeping Brazilian dues at \$15 for awhile, so that members would not become disgruntled by the increase right after joining. I believe that this level would be satisfactory, and am in favor of applying discounts also to members in other third world countries, in accordance with the standard of living and professor's salaries. How does this sound to the Society?

People have complained about the high cost of the two newsletters per year, but in general, they like very much to receive them. How would the possibilities be to use a more inexpensive and efficient, computerized setup for the Newsletter, expand it to four or six yearly copies, and start putting in more meat—things like member's notices, small review articles (1-2 pages) on current important topics in Chemical Ecology, research requests, letters, debates on hot topics, and things like that. It is often the way a new society expands, and surely would be a great service to members everywhere.

Indeed, how does the Society serve its members? I have asked this of many, and they see a variety of strong points which should continuously be emphasized: a) bringing people together to work on interdisciplinary problems; b) discussion of what "interdisciplinary" means in terms of combining methods and philosophies; c) Exposing job opportunities and encouraging young scientists, especially graduate students; d) Giving broad exposure to successful and brilliant research programs and results which solve outstanding problems through novel, interdisciplinary approaches; e) Showing how this approach can be used to resolve problems.

Obviously, all of these aims can be best achieved through an expanded and well-edited, more frequent Newsletters, built on the present very well worked out format but bringing in more short articles, news items, and discussions/debates.

Keith Brown

Employment Opportunities

Associate Pesticide Review Scientists. California Department of Food & Agriculture. ATTN: Carol Anderson, Examinations Unit, 1220 N. Street, Rm 154, Sacramento, CA 95814.

Post Doctoral Position: Interrelationship of root weevils, bark beetles and microbial symbionts in colonization of pine trees. Research involves integration of field and laboratory experiments, collaboration with plant pathologists and area foresters, and supervisory duties. Experience with glc and hplc preferred. K.F. Raffa, Dept. of Ento. Univ. of WI., Madison, WI. 53706.

Post Doctoral Research Associate Position: Research involves purification, isolation and characterization of a microbial toxin from *Bacillus Thuringiensis*, its mode of action, toxin production by various microbial strains and isolates, application of the toxin for nematode control. Contact: Leon W. Bone, USDA, ARS, Animal Parasite Research Laboratory, P.O. Box 952 Auburn, AL. 36830.

Upcoming Symposia

November 12-14, 1986. International Biomedical and Agricultural High Technology Conference. For further information, please contact: Louise Larew OSU Conferences and Institutes, 225 Mount Hall 1050 Carmack Rd., Columbus, OH 43210.

November 19-21, 1986. Society of Vector Ecologists 18th Annual Conference, University of California, Riverside, California.

June, 12-15, 1987. 2nd Symposium on the Botany of the Bahamas. Further details may be obtained from Dr. Donald T. Gerace, CCFL

Bahamian Field Station, 270 SW 34th St., Fort Lauderdale, FL 33315.

July 20-24, 1987. Plant Soil Interaction at Low pH. For more details contact Dr. K.G. Briggs, Dept. of Plant Science Agriculture/Forestry Centre, University of Alberta, Edmonton, Alberta, Canada T6G 2P5.

August 24-29, 1987. The Royal Australian Chemical Institute 8th National Convention, The University of New South Wales, Sydney, Australia. For further inquiries, please contact: Dr. Roger Bishop, School of Chemistry, University of New South Wales, P.O. Box 1, Kensington, 203 Australia.

Funding Sources

The University of California is pleased to announce the third annual competition for the President's Fellowship Program. This program was approved by the Regents in 1984 in an effort to increase opportunities for outstanding minority and women Ph.D recipients to obtain postdoctoral research experiences that will help make them strong candidates for appointment to the faculties of major research universities. The President's Fellowship Program, University of California, Office of the President, 359 University Hall, Berkeley, CA. 94720.

National Chicano Council for Higher Education Undergraduate Science Fellowships for Hispanics. Applicants must be Hispanic citizens of the United States currently matriculating in their junior or senior year. Prospective fellows must intend to pursue the doctorate in the Sciences. For further information: Dr. Eloy Rodriguez, NCCHE Science Fellowship Program, International Chicano Studies Program, School of Biological Sciences, TR 56, University of California, Irvine, California 92717.

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