



NEWSLETTER

INTERNATIONAL SOCIETY OF CHEMICAL ECOLOGY

Volume 21, Number 3, October 2004

IN THIS ISSUE

- [Secretary/Editor's Message](#)
- [Report from the Annual Business Meeting](#)
- [President's Message](#)
- [Treasurer's Report](#)
- [20th Annual Meeting Report, Ottawa, Canada](#)
- [ISCE Silver Medal and Silverstein-Simeone Award Winners for 2005](#)
- [Call for Nominations for the Year 2005 ISCE Silver Medal and Silverstein-Simeone Awards](#)
- [Call for Nominations for ISCE Vice-President, Councilors for 2003](#)
- [Member News](#)
- [Chemical Ecology Meeting](#)
- [New Books](#)

The ISCE Newsletter is published triannually, normally in October, February, and June. It is financed through member contributions. None of the material contained herein may be reprinted without the proper written acknowledgment of the editor. Address all correspondence and newsletter submissions to the editor (Stephen Foster, stephen.foster@ndsu.nodak.edu).

Deadline for the next issue is February 15, 2005.

Secretary/Editor's Message

I would like to begin this message with my congratulations and thanks to Thor Arnasson, Bernard Philogène and Mamdouh Abou-Zaid for organizing the 2004 annual meeting. Descriptions of what occurred at the meeting are dealt with elsewhere in this newsletter. Suffice to say, the meeting organization, events and papers, both oral and posters, were all excellent. It was especially nice to see John Simeone and his wife at the meeting. The link to the [2005 Annual Meeting](#), to be hosted by Dr Jeff Aldrich in Washington D.C., is already posted on the website homepage.





The Simeones on the Ottawa River Cruise

A few things regarding society business. First, there are calls for nominations for the society's prestigious awards of the Silver Medal and Silverstein-Simeone Award. Please send your nominations to Dr Hanna Mustaparta, President, by December 31 2004. Second, we need nominations for vice-President and for four councilors on the ISCE council. Please send these nominations to Dr Tom Baker, past-President, by December 15 2004. The vice-President position is especially prestigious, as the successful person will assume the role of President the following year. On that subject, I would like to thank Tom for his excellent work as President. Tom has enthusiastically championed the benefits of membership of the society, particularly for students. He wore the "Yellow Tie" with great pride and a certain je ne sais quoi!



President Baker reminisces about his times with the yellow tie and the gavel

Thirdly, please update your information, especially your email address, on the website. I know some names are missing from the list on the website, and we will attempt to rectify this over the next couple of months. However, at this time, if your name is listed on the website list, check that your email address and other details are correct. If not, fill in the form to update your details and submit it.

Finally, I would like to thank John Hildebrand, Till Tolasch and Dietland Muller-Schwarze for supplying me with photographs from the annual meeting for this newsletter. The inclusion of their photographs in this newsletter, and others on the website, provide a valuable public record of the annual meeting. I encourage members with any photographs (preferably JPEGs), and indeed news, relevant to ISCE members to send them to me for inclusion in future newsletters.

Stephen Foster
Secretary, ISCE

Report from the Annual Business Meeting

Report from the 2004 ISCE Business Meeting, July 24, Ottawa, Canada

President Baker welcomed everyone to the meeting. He commented that the period surrounding the cancellation of the Gyeong-ju meeting had been a tumultuous time. He expressed his sadness for all the effort that Dr Boo had put into organizing the meeting, only for it to come to naught due to factors outside Dr Boo's control. He felt the society should honor Dr Boo's contributions to chemical ecology, but this would have to be at a later date since Dr Boo could not attend the Ottawa meeting. Baker then announced the results of the recent elections, with the new vice president being Jocelyn Millar and the new councilors being Gary Blomquist, Bill Hansson, Erika Plettner, and Johannes Steidle.



The meeting organizers discussed the organization of the meeting. The main symposium included 12 internationally recognized speakers, who will contribute written papers to be published in a volume of *Advances in Phytochemistry*. The focus on forestry at the meeting was due to the relevance of this area to Canada. In addition to the invited papers, there were 32 contributed papers and 96 posters. The social program included, an evening tasting wines of Ontario, which was sponsored by the Oenology Dept at Brock University, a cruise on the Ottawa River, an exhibition of Canadian Native art, and all meals were provided in the registration, including the banquet in Chateau Laurier. Immediately before the start of the meeting, there were 196 paid registrants as well as 15-20 local student volunteers. Registration costs had been kept down so as to encourage student participation. Financially, the meeting was in reasonable shape. All main symposium speakers had their expenses paid for. The Canadian Forest Service had generously contributed CAN\$5k.

Bernard Philogène discussed the student travel awards. There were 38 applicants and 10 were selected (see attached list). One declined the award. The award committee consisted of the organizers plus Wittko Francke. Successful candidates from the canceled Gyeong-ju meeting were given priority, as were candidates from greater traveling distances.

Erika Plettner proudly displays her origami skills

Treasurer Steven Teale reported that the society's finances were in good health. There had been a big net surplus in the last year due to the cancellation of the Korea meeting. However, due to this no gifts had been accepted from Trécé or Kluwer. Teale indicated his intention of stepping down from the position of treasurer in the next year. President Baker thanked Teale for his service.

Secretary Stephen Foster reported that the year, in general, had been a quiet one, especially after the cancellation of the Korea meeting. The electronic nature of communication in the society was running smoothly. The biggest problem was the number of members with incorrect email addresses in the database. Voting had proceeded smoothly, with all votes cast this year being electronic. There was a good turnout of members voting. Votes were counted by Foster and checked by Bruce Morris. Foster presented Allard Cossé's Webmaster's report in absentia. Briefly, the website had been running well and is accessible to a wide range of web browsers. The web hosting service had performed very satisfactorily. Since 2002, the site has added a photograph section from annual meetings and has added its own version of the Google search engine. Foster thanked Cossé for his excellent efforts as webmaster.

Journal of Chemical Ecology editor John Romeo reported that Jocelyn Millar had replaced Walter Leal, and Nancy Targett had been replaced by Mark Hay as editors. Jeremy McNeil will also become an editor. The biggest change for the journal in the last year had been the online submission of manuscripts (since May 15 2004). The process was now virtually paperless. Biggest problem, still, was the tardiness of reviewers. To date, the Rapid Communication section had 65 submissions, with 25 accepted. Most of the rejections failed to

appreciate that this section was not intended for preliminary data. For the rest of the journal, submissions were slightly down, and the overall rejection rate was ca. 40%. Papers published were 46% in Plant-Insect, 35% pheromones and other insect chemicals, and the balance on aquatic, etc. The impact factor was 1.67, the highest the journal had ever attained. The journal was ranked 36/105 ecology journals. There was a good working relationship with the publisher. Kluwer were working on getting back issues archived online.



Planning for the 2005 meeting began in earnest

Jeff Aldrich talked briefly about the [2005 meeting](#). It will be held in Washington DC at the OmniShorham hotel July 23-28. This was a centrally located hotel, near Dupont Circle, with excellent facilities. The program committee consisted of Boland, Tumlinson, Cossé, Targett, Leal and Aldrich, with symposia on plant-insect relations, pheromones, marine semiochemicals, and mosquito semiochemicals. The Washington DC area was well served with airports.

The 2006 meeting will be held in Barcelona, Spain July 15-19. The meeting will be held in downtown Barcelona at the University of Barcelona. This will give access to many hotels and restaurants as well as student accommodation at the university. There will be four symposia: Biochemistry and molecular biology of olfactory reception; Biosynthesis of pheromone production, Pest control with semiochemicals, and Plant-insect interactions.

The 2007 meeting will be held in Jena, Germany and will celebrate the first 10 years of the Max Planck Chemical Ecology Institute. It will utilize university buildings and local hotels. The program is not settled, but it is expected it will reflect the interests of the Jena institute; i.e., plant-insect relationship and molecular tools. The best international access to Jena is to fly into either Berlin or Frankfurt airports and then take a train to Jena.

Other scheduled meetings:

- 2008: Pennsylvania State University, USA (Gary Felton and Jim Tumlinson)
- 2009: Neuchatel, Switzerland (Ted Turlings and Martine Rahier)

- 2010: Tours, France (Anne-Geneviève Bagnères)

Vilnius, Lithuania, Stockholm, Sweden and Christchurch, New Zealand have also been suggested as possible meeting sites in the future. However, there is a lack of North American sites being offered. Because the majority of the membership is based in North America, preference for future meetings will be given to a North American site.

The meeting was concluded with President Baker handing the presidency over to Hanna Mustaparta.

Stephen Foster,
Secretary, ISCE

[TOP](#)

President's Message



Through the last decade the advances in gene technology and molecular biology have given fundamental new knowledge in many research areas within the plant and animal kingdoms. From the Arabidopsis genome we have learned about genes controlling primary and secondary metabolism as well as being responsible for the large diversity of volatile and non-volatile chemicals produced by plants. Since 1991, we have become familiar with the large number of olfactory genes and receptor proteins in several animal species, a fast growing research area highlighted by the work of the two 2004 Nobel Prize laureates Linda Buck and Richard Axel. In research on insect chemosensation and learning, the insect *Drosophila* has become an important model organism, providing mutants with altered physiological and behavioral features. With the rapid progress in molecular biology, we may, in the not too distant future, have more model organisms for which the genomes are known, and in which we can study the function of the gene products of interest in the various topics of biochemical, physiological and behavioral research.

Advances in molecular biology are having an increasing impact on the interdisciplinary research of the International Society of Chemical Ecology (ISCE). This was shown in the 2004 joint meeting of ISCE and the Phytochemical Society of North America (PSNA) in Ottawa, Canada. I enjoyed listening to presentations on functional genomics, molecular regulation of biochemical pathways in conifers and angiosperms, including the relation to herbivore-induced defences. I learned about the diversity of genes, enzymes and chemicals in grapes, and their effects on humans and animals. In dealing with interactions between plants and insects or other herbivores, a long-standing wish has been to know the biosynthesis and regulatory mechanisms of the chemicals that constitute odorants, tastes and other ligands. The Ottawa meeting showed important progress in many research areas, including sensory physiology in insects. I listened to a new hypothesis on perireceptor events, research on receptor neuron function linked to identified receptor proteins in *Drosophila*, specificity of receptor neurons for naturally produced plant odorants in herbivores, as well as olfactory learning in honeybees. As always at ISCE meetings, the diversity of chemically based interactions between plants, insects and other herbivores, parasitoids, fungi, bacteria as well as marine organisms was fascinating. I enjoyed the progress in the research on pheromone communication in social, semi-social and solitary insects, discussed in genetic and evolutionary contexts. The search for the underlying mechanisms of the interactions between organisms, including identification and operation of signal molecules or ligands, genes controlling their production and the biochemical, physiological or behavioral significance, characterised most presentations. I think these were best highlighted in the talks by the two award winners at the meeting, Dr Jeremy McNeil, ISCE silver medal, and Dr Richard Vogt, Silverstein-Simeone Award. Those that attended were privileged to witness the encapsulation of past, present and future ISCE research in these presentations. I congratulate these two scientists for their outstanding research.



Is the microphone working?

The joint meeting of the two organizations was highly appreciated both with respect to the science presented and with the making of new friendships. I warmly thank the organisers for organizing this combined meeting. I think we all enjoyed the intimate atmosphere, the well-organised events, and the wonderful banquet at the Chateau Laurier Hotel, where the entertaining talk by Dr. Neil Towers added to the joy of the evening. Thanks to the scientific committee, Dr. M.M. Abou-Zaid, Dr. J.T. Arnason, Dr. V. De Luca, Dr. C. Nozzolillo, Dr. B. J. R. Philogène, the local committee and the symposia organisers for their tremendous work in arranging the meeting and obtaining financial support. A special appreciation also to professor John Simeone and Mrs. Simeone for coming to the meeting in Ottawa, giving us the opportunity to remember events during the history of ISCE.

Every year we all have to make priorities concerning which conferences we are able to attend among the large number that are most relevant to our research. Many of us meet several times during the year, dealing with different topics. In spite of the many meetings, the ISCE annual meeting is always very special. It brings together colleagues that do not meet at other conferences, and it gives us a broader perspective of our research. The good attendance at the meeting as well as the quality of the presentations and discussions show that ISCE is an important and vital organization. I am looking forward to attending the 2005 ISCE meeting in Washington DC, organized by Dr Jeff Aldrich. With the location in the heart of the membership, as well as its easy accessibility from Europe and South America, I am certain we can look forward to another well attended and successful meeting. I offer my warm wishes to Jeff Aldrich for good luck and success in his preparations for the conference.

Finally, I would like to thank Tom Baker for his excellent and enthusiastic work, preceding me as President of ISCE.

Hanna Mustaparta, President, ISCE

[TOP](#)

Treasurer's Report



Fiscal Year 2003

The recovering financial markets erased the losses of our endowment experienced in fiscal year 2002. In addition, the cancellation of the 2003 meeting left the Society with few expenses for fiscal year 2003. As a result of these two factors, our net assets increased by \$20,142 over the previous year.

Fiscal Year 2004 through to June 30

As of June 30 2004, the Society's assets stood at \$148,810.81, including \$65,814 in cash. The large cash position results mostly from the recent maturing of a \$40,000 CD; this cash will be reinvested in the near future.

A balance of \$5600 from the Hamburg meeting was recently forwarded to the Society by Wittko Francke. Gifts from Trécé and Kluwer in the near future will contribute a combined \$5000 toward Student Travel Awards and the Silverstein-Simeone Award.

Stephen Teale
ISCE Treasurer

[TOP](#)

20th Annual Meeting Report, Ottawa, Canada

The 20th annual meeting of the International Society of Chemical Ecology was held at the University of Ottawa, Ottawa, Canada from July 24 - 28, 2004.

Approximately 240 conference participants and accompanying persons took advantage of the facilities of the university, and the numerous attractions offered by Canada's capital. The meeting was held jointly with the annual meeting of the Phytochemical Society of North America (PSNA), hence its name ISCE-PSNA 2004. The meeting featured a main symposium, 5 minisymposia, 30 contributed talks and 105 posters. [Click here for Program and Abstract Booklet \(pdf\)](#).

Symposia were organized on the subjects of:

1. Chemical Ecology and Phytochemistry in Forest Ecosystems (main symposium) by J.T. Arnason, B.J. R. Philogène, M. Abou-Zaid and C. Noxxolillo
2. The Arthur Neish Symposium (on wine photochemistry) by V. de Luca
3. Hymenopteran Semiochemical minisymposium by C. Keeling and E. Plattner
4. Marine Chemical Ecology minisymposium by S. MacKinnon
5. Chemically mediated Behavior in wildlife minisymposium by B. Kimball and D. Nolte
6. Pheromone minisymposium by Jeremy McNeil

The meeting began with a welcome BBQ on the evening of July 24, and the scientific program was given a rousing start by Jeremy McNeil with the ISCE Silver Medal lecture on Sunday morning where he reflected on various aspects of his career without compromising a humorous analysis of his scientific accomplishments!



yeah, baby, yeah!

Richard Vogt presented the Silverstein-Simeone lecture, addressing the question of odor presentation and perception as influenced by odor-binding proteins, odor degrading enzymes and other sensory proteins.

Thanks to the initiative of Vince De Luca and the Niagara wine producers, the Sunday evening poster session was held in conjunction with a wine tasting reception.



Two Americans excited to find you can drink the water in Canada.

On Tuesday participants enjoyed an afternoon cruise on the Ottawa River which gave them an opportunity to better appreciate the unique features of the national capital area. This was followed in the evening by a wonderful banquet at the historic Chateau Laurier hotel.



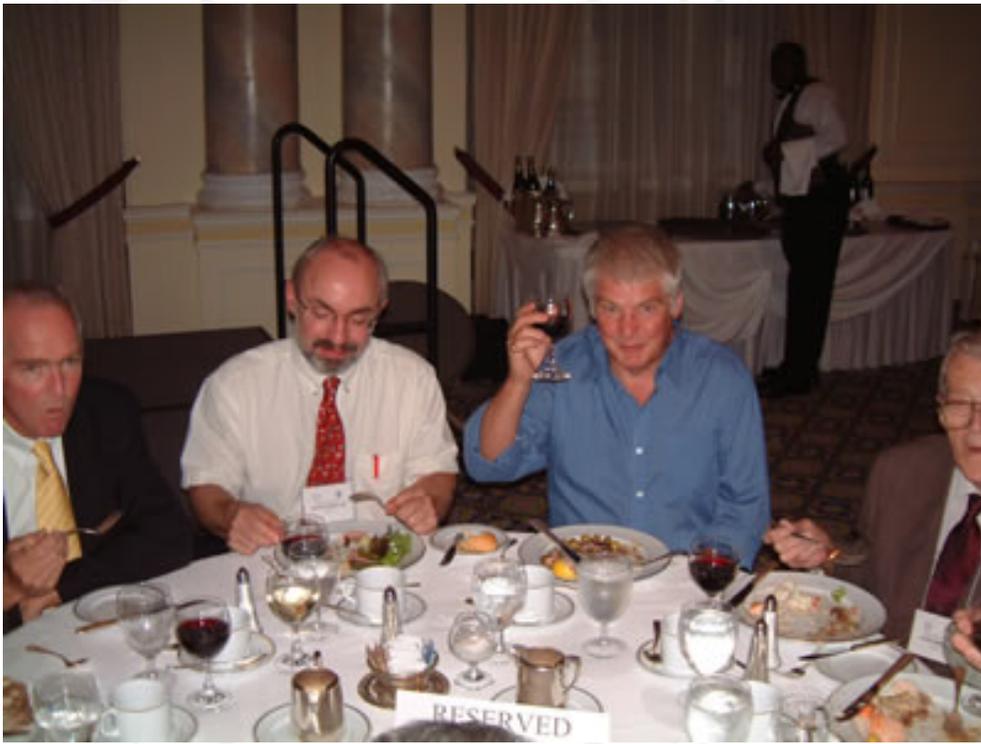
Shady characters lurked at the meeting



I will have one of those and one of those and one of those....oh and one of those and one of those....



“Was that you?”



All the Presidents Men

The Society and the organizers are grateful for the financial support for the meeting received from the Canadian Forestry Service, PSNA, Simon Fraser University, University of Ottawa, Brock University, The Canadian Society of Apiarists among others. Overall, the meeting broke even financially.

Student Travel Awards Winners 2004

- A.K.W. Hee (Malaysia-New Zealand)
- T. Nakayama (Japan)
- P.O.C. Olsson (Sweden)
- R.L. Genna (U.K.)
- D. Eliyahu (USA)
- M. Burow (Germany)
- R. Miller (Australia)
- T. Strand (USA)
- C. Liyanapathirana (Canada)
- N. Yoshinaga (Japan)

The contribution of Trécé Inc to the Student Travel Awards is greatly appreciated.

[TOP](#)

ISCE Silver Medal and Silverstein-Simeone Award Winners for 2005

The 2005 award winners were announced at the ISCE meeting in Ottawa.



The Silver Medal Award winner for career achievement in chemical ecology is Dr Jim Tumlinson, Ralph O. Mumma Professor of Entomology, Department of Entomology, The Pennsylvania State University. Jim Tumlinson has been at the forefront of research in chemical ecology over the last forty years. Jim obtained his PhD in organic chemistry from Mississippi State University. During his PhD Jim identified the sex pheromone of the cotton boll weevil, which enabled the widespread use of a behaviorally active semiochemical to control this important pest. Following his PhD, Jim took up a postdoctoral fellowship with Professor Milt Silverstein at Syracuse, New York, before moving into his position as Research Chemist at the USDA-ARS Insect Attractants, Behavior and Basic Biology Research Laboratory at Gainesville, Florida, where he remained for 33 years, before taking up his present position. During his time in Gainesville, Jim's interdisciplinary research on chemical communication in insects pioneered many advances, including identification of the first ant trail pheromone, identification of the Japanese beetle pheromone, identification of the fire ant queen pheromone, and the first identifications of pheromones from numerous insect families of Lepidoptera and Coleoptera. A key aspect of this research was the active role Jim took in transferring this basic research to a practical application for agriculture.

Approximately fifteen years ago Jim's research took a new direction, investigating the chemical basis of tritrophic interactions involving plants, insect herbivores, and natural enemies of herbivores. This research has led to several seminal discoveries. These include, the discovery that insect parasitoids can learn to respond to odors produced by their hosts by associating these odors with the presence of a non-volatile, host recognition kairomone in host feces, without ever contacting the hosts; that plants, in response to insect herbivore feeding, produce and release volatile semiochemicals that parasitoids exploit to find their herbivorous hosts; and plants release different blends of volatiles in response to damage by different herbivores. This work has led to the identification (by Jim and coworkers) of the new compound volicitin, from beet armyworm larvae. This compound was the first identified herbivore-produced, herbivore-specific elicitor of plant biochemical reactions.

Jim has received numerous awards for his research, including the Burdick and Jackson International Award for Research in Pesticide Chemistry, USDA Secretary of Agriculture's Award for Personal and Professional Excellence, election to the US National Academy of Sciences (in 1997), Induction into the ARS Hall of Fame, and joint winner of the Jean-Marie Delwart Award in 2003. Jim was also made a Fellow of the Entomological Society of America in 1996 and served as President of ISCE in 1998.



The Silverstein-Simeone lecture Award winner is Dr John Carlson of Yale University. John's research has focused on the highly selective and sensitive olfactory systems of insects. His laboratory identified the first insect odor receptors and taste receptors. The genes encoding odor receptors, the Or genes, were identified in *Drosophila melanogaster* using a novel computer algorithm. There are 60 members of the Or gene family, and John's lab has characterized the molecular basis of odor coding by systematically analyzing the response profiles of the antennal receptor repertoire. The lab has also analyzed the response properties of olfactory receptor neurons, and has constructed a receptor-to-neuron map of the antenna. Recently they have analyzed the odor sensitivities of receptors from *Anopheles gambiae* and have shown that one female-specific receptor responds strongly to a component of human sweat. John's lab also identified a large family of taste receptor genes, the Gr genes, and has shown that one is a receptor for the sugar trehalose.

John received an A.B. from Harvard in 1977 and a Ph.D. from Stanford in 1982. Since 1986 he has been on the faculty at Yale, where he received the Dylan Hixon Award for Excellence in Teaching in the Natural Sciences (1998), as well as a McKnight Investigator Award (2000) and a Senior Scholar Award from the Ellison Medical Foundation (2004). He has served on the Editorial Board of *Insect Molecular Biology* since 2000.

[TOP](#)

Call for Nominations for the Year 2005 ISCE Silver Medal and Silverstein-Simeone Awards

The ISCE Silver Medal Award is intended to recognize career achievement by an outstanding scientist working in the field of chemical ecology. The recipient must deliver a plenary lecture at the annual ISCE meeting.

The Silverstein-Simeone Award, established in 1995, to honor Milt Silverstein and John Simeone, is made on the basis of recent or current work, by the individual, of an outstanding nature at the "cutting edge" of chemical ecology. The recipient must deliver a plenary lecture at the annual ISCE meeting and publish a paper on the same topic in the *Journal of Chemical Ecology*. The expenses of the recipient of the Silverstein-

Simeone Award to attend the annual meeting are paid by the society through the generous sponsorship of Kluwer Publishers. Nominators should be ISCE members in good standing. Nominations will be reviewed by the President and Vice President for relevance to the appropriate award, before forwarding them to the full ISCE Executive Committee. Should a nomination for one award be considered more relevant for the other award, the President will contact the nominator(s) regarding reconsideration. Current ISCE officers or councilors are not eligible for the awards because of possible conflict of interest. Note that previous, unsuccessful nominations must be renominated to be considered for the awards. It would be helpful to resubmit the nomination packets for these individuals.

The nomination process is the same for both awards and is as follows:

- A nomination letter explaining why the nominee should be recognized for the award, stressing either their current cutting-edge research (for the Silverstein-Simeone award) or their career achievements (for the Silver Medal award).
- Curriculum vitae, including a list of publications pertinent to the research on which the award is based (for the Silverstein-Simeone award), or a full list of publications (for the Silver Medal award). If desired, supporting letters from other colleagues.

Please submit all parts of the packet in electronic format (including supporting letters) along with one paper copy to: Dr Hanna Mustaparta, President ISCE, NTNU, Department of Biology, Neurobiology, MTFS, N-7489 Trondheim, Norway; email: Hanna.Mustaparta@bio.ntnu.no

Deadline for receipt of nominations: 31 December 2004

[TOP](#)

Call for Nominations for ISCE Vice-President, Councilors for 2003

Nominations for the positions of Vice-President and four new councilors are called. The position of Vice-President is prestigious in that he/she will assume the position of Society President in the year following tenure of the role of Vice-President.

ISCE councilors are elected for a term of three years. Councilors must commit to attending at least two ISCE Executive meetings during this period. Their other principal responsibilities are participation in the selection of the Silver Medal and Silverstein-Simeone Award and to provide general guidance and assistance to the Executive Committee. It is expected that all people nominated for the above positions have a strong record of participation in Society activities and meetings. It is highly desirable that the elections have competition for the positions, i.e., that there be more than one high quality candidate for Vice-President and at least 5 candidates for the councilor positions.

Please send names, contact addresses, phone and fax numbers, and e-mail addresses of candidates along with a short description of why you think the candidate(s) would be suitable for office, to Dr Tom Baker, Past-President, Department of Entomology

The Pennsylvania State University, 501 Ag Sciences and Industries Building, University Park, PA 16802

tcb10@psu.edu

Deadline for receipt of nominations is December 15 2004.

[TOP](#)

Member News



Professor John Pickett was recently awarded a CBE in the Queen's Honours in the United Kingdom in recognition of his contribution to biological chemistry. For those unfamiliar with the Queen's Honours list, the CBE (Commander of the Most Excellent Order of the British Empire) is one of the highest civil awards in the United Kingdom. John was elected President of the ISCE for 1995 and gave the Society's Silver Medal lecture in 2002.

John Pickett, CBE. "Ta very much, Ma'am!"

[TOP](#)

Chemical Ecology Meeting

The 5th Asia-Pacific Congress of Entomology (APCE) will be held at Jeju Island, South Korea, October 18-21, 2005. This is a great opportunity for ISCE members to attend a chemical meeting in Korea after the cancellation of the 2003 Gyeong-ju meeting. The meeting will be hosted by Dr K.S. Boo. Further information can be found at <http://www.apce2005.org/>

[TOP](#)

New Books

"Biosynthesis in Insects" by E. David Morgan. Published April 2004 by the Royal Society of Chemistry at Cambridge. ISBN 0-85404-691-7 (xiii + 199 pages).

This is the first book written on this subject. It covers pheromones, hormones, defensive and other secretions, pigments and plants substances altered by insects. It is primarily intended for students but will be of interest to researchers and instructors.

Topics in Current Chemistry. Volume 239 / 2004
Springer-Verlag Heidelberg
The Chemistry of Pheromones and Other Semiochemicals I, edited by S. Schulz
ISBN: 3-540-20828-3

The contents are available online at [SpringerLink](#)

[TOP](#)



Stephen Foster, Editor
Department of Entomology
North Dakota State University
Fargo, ND 58105, USA
Stephen.foster@ndsu.nodak.edu

Visit the ISCE Webpage at <http://chemecol.org/>

[homepage](#)