ASPB News

THE NEWSLETTER OF THE AMERICAN SOCIETY OF PLANT BIOLOGISTS

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Inside This Issue

Plant Biology 2005 coverage starts on page 8

Mike Thomashow Assumes Presidency October 1

Michael F. Thomashow became ASPB president October 1, 2005. He succeeds Roger Hangarter, who is now immediate past president.

"I am very much looking forward to the coming year," Thomashow said. "As president-elect, I came to appreciate, more than I had in the past, how strong and vibrant our Society is due to the hard work and commitment of its membership in a variety of areas, ranging from education to outreach, to public affairs, scientific meetings and, of course, publication of our eminent scientific journals. I have also observed firsthand the excellence and dedication of the staff at ASPB headquarters who keep us on a steady course moving forward. These are exciting times for plant biology, filled with promise and opportunities. I look forward to my role in helping ASPB continue its vital roles in support of the plant biology community."

Mike Thomashow

Thomashow is a researcher in the Michigan State University–Department of Energy Plant Research Laboratory and faculty member in the Department of Crop and Soil Sciences and the Department of Microbiology and Molecular Genetics at MSU. He earned A.B. (1972) and Ph.D. (1978) degrees in microbiology at UCLA and conducted postdoctoral research on *Agrobacterium tumefaciens* with Eugene Nester at the University of Washington, Seattle (1978–1980). He was an assistant and associate professor in the Department of Microbiology at Washington State University, Pullman (1981–1986) before moving to MSU. At MSU, he was an associate and then a full professor. In 2002, he was named university distinguished professor.

Thomashow's early research was directed toward understanding how *Agrobacterium tumefaciens* causes the formation of tumors on plants. As a Damon Runyon–Walter Winchell Cancer Fund Research fellow, he and coworkers demonstrated that the T-DNA is integrated into the nuclear genome, where the genes that it encodes are expressed. Further studies in his own lab established that the auxin-independent phenotype of crown gall tumors is due to the expression of two genes carried on the T-DNA that encode enzymes mediating the synthesis of auxin. Upon moving to MSU, Thomashow initiated a new line of research focusing on mechanisms of abiotic stress tolerance. He and his coworkers have described a small family of regulatory genes and their targets in Arabidopsis that make up the CBF cold response pathway, which is activated at low temperature and has a central role in cold acclimation and freezing tolerance.

Thomashow participates in teaching a graduate-level course in plant molecular biology, offers periodic "special topics" graduate courses on abiotic stress tolerance, and serves on graduate research thesis committees. His professional activities have included service on grant review panels for NSF, USDA–NRI, NIH, and NASA; the editorial boards of *Plant Physiology* (1988–1992, 1999–2005), *Planta* (1990–1994), *CryoLetters* (1995–1999), and *Plant*

continued on page 5

The *ASPB News* is now available online as well as in print. Members will be alerted by e-mail when a new issue is posted. The *ASPB News* welcomes member feedback. Contact the editor at nancyw@aspb.org.

CONTENTS

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President's Letter

Sleepless in Seattle

On the basis of my own experience, the excellent scientific program combined with the Seattle venue made Plant Biology 2005 a great event. We can thank the ASPB Program Committee (chaired by Edgar Spalding); Jean Rosenberg, the associate director of meetings, marketing, & membership; and the many ASPB staff who worked so hard to make the meeting run smoothly for the participants. *Sleepless in Seattle* seems to be an appropriate description of how most of the ASPB staff experienced the meeting. Of course, the success of the meeting was also due to the excitement provided by the nearly 1,700 plant biologists in attendance, which made it one of our largest meetings ever. In spite of the many other attractions Seattle had to offer, attendance at the scientific sessions and workshops seemed to be at an all-time high. Highlights of the meeting are described elsewhere within this newsletter.

Now that my term as president of ASPB is ending, I will try to summarize some of the major activities that occurred during the year. Fortunately for me, there were no major crises to deal with. Instead, we were able to use the year to build on the many changes that were implemented during the previous few years and to devote time to looking forward. In the previous issue of the *ASPB News,* Crispin Taylor, our executive director, summarized a strategic planning meeting we held; you can look forward to more details as plans are set in motion. I am pleased to say that the Society is in very good shape, primarily as a result of the selfless contributions of the membership and the dedication and professionalism of our staff.

Our journals, which serve as the core of ASPB, continue to do very well. *The Plant Cell* continues to retain its number one position in the impact factor rankings among all plant journals. *Plant Physiology* is close behind with its highest ranking ever. The entire collection of *Plant Physiology* from 1926 has now been digitized and is available at PubMed Central. As the publishing industry continues to face the Open Access push, ASPB has worked to stay ahead of the curve, and over the next few years we can expect to see changes from our Publications Division that will keep our journals at the forefront.

The ASPB Committee on Public Affairs continues to monitor the funding situation for the plant sciences. This has been a particularly critical year since the federal budget deficit is putting unprecedented pressure on all federal granting agencies. In addition, changes in the staff at the DOE Energy Biosciences Program left this important program particularly vulnerable. The Public Affairs Committee mobilized a major effort, with assistance from a large number of ASPB members, to turn the tide in favor of maintenance of this critical program for plant research and to quickly replace the program staff. The Public Affairs Committee will continue to monitor the situation, and we are hopeful that by the time you read this column the DOE Energy Biosciences Program will be back on track. In addition to the challenges facing DOE, NASA recently suspended funding of fundamental life science research to follow President Bush's "vision" to send humans to the Moon and Mars. Without NASA's fundamental life science program, research on plant responses to gravity will be severely compromised in the coming years since other agencies are not likely to devote their resources to research that NASA had taken ownership of until now. With funding rates falling below 10 percent for many grant programs, waiting in silence for the government to recognize the problem is not a viable option. For plant research to remain strong, it is more critical than ever for scientists to become more involved in speaking out in support of science research. The Public Affairs Committee can use your help and can help you get involved.

Some highlights of the two Executive Committee meetings in Seattle include moving the highly successful Summer Undergraduate Research Fellowship (SURF) program from an exploratory Good Works project to a recurring part of the ASPB portfolio, accompanied by an increase in the number of SURF awards available. The Executive Committee also voted to create a new Fellows of ASPB award to be given in recognition of distinguished and long-term contributions to plant biology and for service to the Society; the first fellows will be announced in 2007. The final piece of the "Ethics in Publications" series was also approved. This document, prepared by the Publications Committee, defines ASPB's procedures and policies for handling allegations of publisher or staff misconduct. With this final document in place, ASPB is the only Society I am aware of that has established such a comprehensive set of ethics policies. The ethics documents are available on the ASPB website at http://www.aspb.org/publications/ethics.cfm.

In case you missed or somehow managed to sleep through the meeting in Seattle, you might be interested to know that on October 1, Mike Thomashow became president, I became immediate past president, and Rick Amasino became president-elect. Also, Nick Carpita became secretary and chair of the Program Committee, and Karen Koch joined the Executive Committee as an elected member.

Roger P. Hangarter
rhangart@indiana.edu

Rick Amasino Is President-Elect

Richard Amasino became ASPB president-elect on October 1, 2005, and will assume the office of president in October 2006, succeeding Mike Thomashow.

Amasino received his undergraduate degree from Pennsylvania State University in 1977. He did his Ph.D. research from 1977 to 1982 at Indiana University in the laboratory of Carlos Miller, where he studied the role of auxin and cytokinin in the growth and morphology of crown gall tumors. From 1982 to 1985 he was a postdoc in the laboratories of Milt Gordon and Gene Nester in the Departments of Biochemistry and Microbiology at the University of Washington, where he was involved in the identification of the genes that Agrobacterium has evolved to direct plant hormone production in crown gall tumor cells. Since 1985, he has been a faculty member in the Department of Biochemistry at the University of Wisconsin.

At Wisconsin, Amasino's early research program included studying the regulation of leaf senescence and the role of DNA methylation in the expression of transgenes. His group's recent work has resulted in progress toward a molecular understanding of the process of vernalization, particularly the role of chromatin modification in the epigenetic switch that establishes competence of the meristem to flower after exposure to the prolonged cold of a typical winter season.

Amasino teaches general biochemistry to junior and senior undergraduates and participates in a graduate-level course on plant development. His professional activities have included many grant review panels for the NSF and USDA–NRI, and he currently serves on the editorial boards of *Plant Physiology, The Plant Journal, Plant Cell and Environment,* and *Science.* He was a founding member of the North American Arabidopsis Steering Committee, and he helps to locally coordinate the yearly International Conference on Arabidopsis Research when it is held in the United States. His honors include a McKnight Foundation Individual Research Award (1986), the Shaw Scholar Award (1986), the Presidential Young Investigator Award (1989), and the Alexander von Humboldt Foundation Award (1999). His University of Wisconsin honors include a Steenbock Career Development Award (1985–2000), the Vilas Associate Award (1999), the Hilldale Award (2005), and a Wisconsin Distinguished Professorship (1998 to present).

Rick Amasino

continued from page 1

Molecular Biology (2001–2003, editorial advisory board); organizing committees for the Gordon Research Conference on Plant Temperature Stress (1995) and the Keystone Symposium on Plant Abiotic Stress (2004); the Promega Biotechnology Research Award nominating committee, American Academy of Microbiology (2002 to present); and the National Research Council, Polar Research Board Committee on Frontiers in Polar Biology (2002). He has testified before the U.S. House of Representatives, Science Subcommittee on Basic Research on the topic of "Plant Genome Science: From the Lab to the Field to the Market" (1999) and is currently director of the NASA Astrobiology Institute–led team studying microbial life at low temperature. Thomashow's honors include the Alexander von Humboldt Foundation Award (2001) and the MSU Distinguished Faculty Award (2002). He is an elected fellow of the American Academy of Microbiology (2001) and an elected member of the National Academy of Sciences (2003).

ASPB Open Access Option

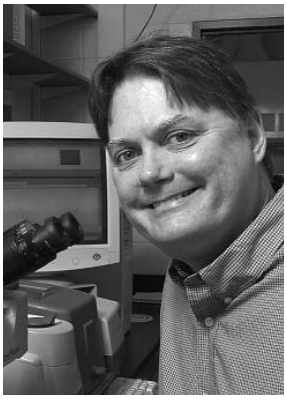
The Open Access movement in scholarly publishing advocates that research content should be freely available to all immediately upon publication. This approach has prompted publishers to examine the feasibility of a shift from traditional subscription-based ("user pays") financial models to an "author-pays" model, in which some or all of the costs of publication are typically borne by authors.

What does our author community think about Open Access? To gauge the plant science community's interest in this new approach to publishing and to help ASPB determine the viability of "author-pays" publishing models, the Society is conducting an 18-month Open Access "experiment." Beginning with the December 2005 issues of *Plant Physiology* and *The Plant Cell*, authors of articles accepted by the journals will be given the option to pay a surcharge to make their online article free from the moment of publication to anyone with Internet access. The surcharge, which is in addition to the usual author charges, will be $1,000 (discounted to $500 if the author's institution subscribes to the journal).

For more information, go to http://www.aspb.org/publications/openaccess.cfm or contact Nancy Winchester, ASPB director of publications, at nancyw@aspb.org.

Nick Carpita Elected Secretary

Nick Carpita became ASPB secretary on October 1 and will serve for the next two years. The secretary is also chair of the Program Committee.


Nick Carpita

Carpita is on the faculty of the Department of Botany and Plant Pathology at Purdue University. He grew up near Clearwater, Florida, where he became interested in plants his first year in high school. He got his degree in biological sciences at Purdue University in 1972 and a Ph.D. in plant physiology at Colorado State University in 1977. His postdoctoral work from 1977 to 1979 with Dr. Deborah Delmer at Michigan State University–Department of Energy Plant Research Laboratory kindled his interest in the biology of the plant cell wall. He returned to Purdue University in 1979 as an assistant professor in the Department of Botany and Plant Pathology, where he matriculated through the ranks to professor in 1989. He was a visiting professor in the Plant Biology Institute in Zürich, Switzerland, 1986–1987, and returned as a guest professor for the summer of 1994, teaching a course on plant development. He also was named guest professor at the Botanical Institute of São Paulo, Brazil, in spring 1998, where he presented a course on cell wall carbohydrate chemistry.

Carpita's research interest is the structure and function of the plant cell wall. He studies the unique cell wall of cereals and related species and conducts research on the synthesis of cell wall polysaccharides in vitro. He heads a team of plant biologists at five institutions who use Fourier transform infrared spectroscopy as a high-throughput method to recognize genetic mutations in maize and Arabidopsis that cause defects in cell wall composition. This program hopes to define biological functions for many of the 2,500 genes expected to be involved in wall biogenesis and disassembly.

Carpita teaches an undergraduate course called "Plants and Civilization" that traces the history of agriculture and the broad impacts plants have on human civilization. He teaches a graduate course on plant carbohydrate chemistry and various methods courses and research workshops for undergraduate honors students. He has served on several competitive grants panels, including those of the USDA–NRI and DOE's Energy Biosciences, and was a panel member and panel head for BARD's Cell and Molecular Biology section from 1993 to 1998. He was the coordinator of "Cytonet," a research group studying the cytoskeleton– plasma membrane–cell wall continuum, conducting several workshops that fostered research in this area. In 2003, he served as vice chair for the Gordon Research Conference on Cell Walls and will serve as chair for the 2006 conference. He was also named to the International Advisory Board for the Tenth International Cell Wall Meeting held in 2004. He was recently named to ISI's "highly cited author" (http://isihighlycited.com) list for Plant & Animal Sciences. One of his articles published in *The Plant Journal* (Plant J. 3[1]: 1–30, Jan 1993] is ranked the highest cited paper ever in Plant & Animal Sciences with currently over 1,000 citations (go to http:// incites.com/papers/NicholasCarpita.html to read his interview).

Nick Carpita has been a member of ASPB since 1975. He served on the editorial board of *Plant Physiology* from 1987 to 1992 and was monitoring editor from 1998 to 2001. From 1996 to 2000, he served on the editorial board of *Planta* and since 2003 has been a corresponding member of the editorial board of the *Brazilian Journal of Plant Physiology.* In 2002, he was elected to the Executive Committee of ASPB.

Karen Koch Is Elected to Executive Committee

Karen Koch joined the ASPB Executive Committee as elected member on October 1.


Karen Koch

Koch received her bachelor's degree in biology in 1974 from the University of Wisconsin–Eau Claire and her Ph.D. in 1979, in botany–plant physiology, from the University of Iowa, Iowa City. She was a postdoctoral research associate in the departments of Agronomy and Plant Genetics at the University of Wisconsin–Madison; an assistant professor and later associate professor in the Fruit Crops Department at the University of Florida, Gainesville; and since 1992 has been a professor in the Horticultural Sciences Department and Plant Molecular and Cellular Biology Program at the University of Florida, Gainesville, where her interests focus on feast and famine responses from gene to whole-plant levels, with emphasis on carbohydrate metabolism, partitioning, and signaling.

She has received numerous professional awards, has held a number of offices, has participated on many NSF and USDA–NRI grant review panels, and was host and organizer for a regional meeting of undergraduate interns in the NSF–REU summer research program. She previously served on the editorial advisory board of Cambridge University Press. She was a monitoring editor of *Plant Physiology* from 1987 to 1993 and also served on the ASPB Committee on Women in Plant Physiology as well as on the Membership Committee. In 2002, she participated in a focus group convened to assess a forthcoming ASPB textbook titled *Molecular Life of Plants,* by Buchanan, Gruissem, Jones, and Vickers.

Masamitsu Wada Is New Corresponding Member

Masamitsu Wada recently became the newest ASPB corresponding member, another achievement in an outstanding scientific career.

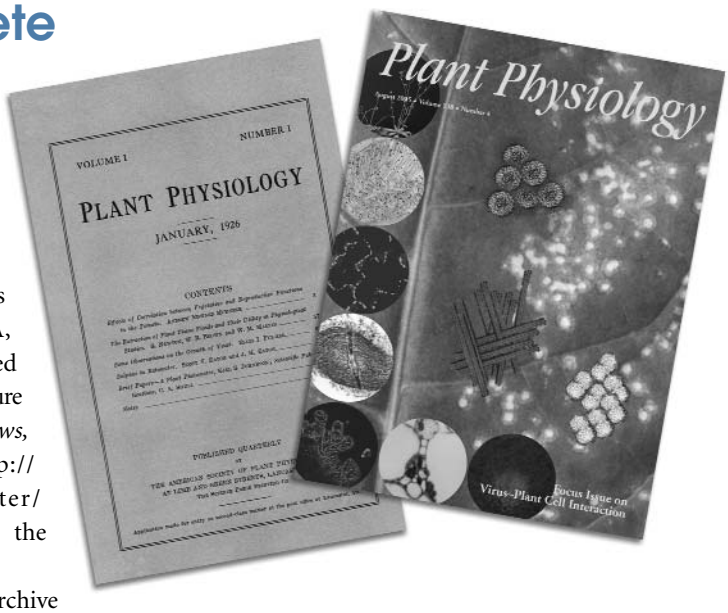

Masamitsu Wada

Wada's work has focused on elucidating the mechanisms of light-induced organelle movement and photomorphogenesis. His studies—originally in fern but later in moss and Arabidopsis besides fern—demonstrated that light-induced chloroplast movement is linked to changes in the cytoskeleton and reveals the involvement of both red and blue light sensory systems in fern and moss but only blue light in Arabidopsis. These sensory systems act not only through different photoreceptors but also through different mechanisms. Using Arabidopsis mutants, Wada showed that chloroplast movements protect the bleaching of leaf color and necrosis associated with growth under high light conditions. In addition to the rigorous detail in which these studies were carried out, Wada's studies on organelle movement are of note for the novel microscopic techniques that he developed to conduct many of his experiments. Over the course of three decades of concentrating on ferns, Wada developed molecular and genetic tools that facilitated detailed dissection of the light responses of these plant systems. Most notably, in characterizing photoreceptor genes in *Adiantum,* he and his colleagues identified a chimeric photoreceptor consisting of a phytochrome fused with a phototropin. This chimeric molecule appears to have derived from the fusion of conventional phytochrome and phototropin cDNAs via reverse transcription and chromosomal integration. Very recently he and his colleagues found similar chimeric photoreceptors in green algae Mougeotia, probably being raised by simple fusion of phytochrome gene and phototropin gene, indicating that the chimeric photoreceptors were raised twice independently during the course of plant development.

Wada was born and educated in Tokyo, where he earned his bachelor's, master's, and Ph.D. degrees in plant biology at the University of Tokyo. In addition to his scientific contributions, he has served the plant biology community in a variety of editorial and leadership capacities. These have included editorships of the *Botanical Magazine,* the *Journal of Plant Research,* and *Plant Cell and Physiology,* as well as terms as secretary of the Botanical Society of Japan, president of the Photobiology Association of Japan, and vice president of the International Union of Photobiology. He is currently a co-editor of *The Plant Cell,* president of the International Union of Photobiology, and president of the Botanical Society of Japan.

Plant Physiology Archive Complete

January 1926 through Present Now Online



At long last, *Plant Physiology* has been digitized in searchable PDF format back to volume 1, number 1, January 1926! The archive resides in its entirety at PubMed Central (PMC; http://www.pubmedcentral.gov/tocrender.fcgi?journal=69&action=archiv), which scanned all back files from 1926 through 1992 at no cost to the Society. Years 1993–1997 reside at both PMC and at HighWire Press, the journal's online provider. HighWire expects to have the full archive, back to 1926, on the journal site (http://www.plantphysiol.org) by year-end. *The Plant Cell* was digitized in its entirety—back to January 1989—several years ago, and that archive now resides at both HighWire and PMC.

All legacy content is available free of charge to anyone with access to the Internet, in keeping with ASPB's policy of making its research content free after 12 months. (ASPB also makes its current content free to institutions in developing nations through its participation in AGORA, an initiative of the United Nations Food and Agriculture Organization. See *ASPB News,* May/June, 31(3):7; http://www.aspb.org/newsletter/mayjun04/07agora.cfm for the full story.)

"This freely available archive represents a tremendous resource for plant biologists," said Crispin Taylor, ASPB's executive director. "In addition to the sense of completeness that comes from having the entire content of both the Society's journals available online, the *Plant Physiology* archive includes numerous classic papers that collectively represent the intellectual foundation of the discipline."

A "latte" happened at Plant Biology 2005

From July 16 to 20, nearly 1,700 attendees from 39 countries and five continents gathered in Seattle, Washington, for Plant Biology 2005 —ASPB's annual meeting. The city lived up to its promise of more sun than rain and lots of java. No dripping umbrellas needed juggling as attendees carried their coffee into each day's morning events.

On Saturday, July 16, the meeting officially opened with the awards ceremony, the first major symposium, and an evening reception in the Exhibit Hall. Four more days followed, offering 30 minisymposia, four more major symposia, nine well-attended workshops, and poster sessions that were open daily from 7 a.m. to 11 p.m. By late afternoon of July 20, after the President's Symposium, participants left the convention center tired but well informed, concluding PB2005.

Less than one month later, we had collected feedback from 538 attendees on the plusses and minuses of the 2005 meeting. Here's what they thought…first the highlights!

Attendees enjoying the opening reception in the Exhibit Hall.

Maarten Chrispeels visits an exhibitor with ASPB staff member Jean Rosenberg.

Visitors line up at the ASPB Education Booth to learn about Fast Plants and more from Paul Williams.

. . . and here is what 500 people said!

Posters, Posters, Posters

The 1,206 posters were clearly the #1 event at PB2005. Posters are always a highlight of every meeting, but in 2005 they achieved new heights—a few people even commented that the posters were so good it was hard to take any breaks from the meeting to see local attractions! You can view the abstracts online at http://abstracts.aspb.org, and interested parties can contact each poster's primary author. In addition to the many positive comments, we also received some great suggestions for better organization of next year's posters.

The Symposia

Each one of PB2005's major symposia was praised for its outstanding presentations on recent developments in plant biology. Pioneer Hi-Bred was, for the first time, a sponsor of a symposium, supporting "New Approaches for Integrating Plant Genomes for Function," organized by Natasha Raikhel (University of California, Riverside), the 2005 Stephen Hales award winner. *Plant, Cell and the Environment* sponsored "Photosynthesis—From Photons to Sugar," which was organized by Don Ort (University of Urbana–Champaign). The three other featured symposia were "Epigenetic Control of Gene Expression," organized by Vicki Chandler (University of Arizona); "Proteolysis Controlling Plant Growth and Development," organized by Rick Vierstra (University of Wisconsin); and ASPB's President's Symposium, "Cellular Dynamics and Plant Growth, organized by Roger Hangarter (University of Indiana).

Networking!

Whether outside the registration area, during coffee breaks, or at scheduled opportunities for networking, all 538 respondents said that the opportunity to reconnect with old colleagues and meet researchers in their field was more than just a highlight—it was a major benefit of attendance. Some commented that the convention center, because of its layout and open atmosphere, further enhanced the networking function.

Careers and Jobs

This year ASPB's job board featured more than 60 openings, and Monsanto had a recruiting booth in the Exhibit Hall. In fact, one attendee told us he had gotten a job by the end of the meeting! This year's annual career workshops —"Where Are the Other Jobs?" and "Getting and Keeping a Job"—were sponsored and organized by the Women in Plant Biology Committee (WIPB) and attracted nearly 200 people for four hours on Sunday, July 17. Some of the comments we got: "It was good to hear [about] actual experiences in hiring" and "Very insightful! Great program!" Rest assured that WIPB will be working hard to develop equally rewarding workshops for next year's meeting in Boston.

continued on next page

Laura Olsen (left), and Judith Verbeke before Judy's talk at the Women in Plant Biology Committee lunch.

Attendees networking at exclusive poster session.

Featured Speakers

The Minority Affairs Committee luncheon speaker, Dr. Elma Gonzalez, Department of Ecology and Evolutionary Biology at UCLA, spoke movingly of her 40-year professional journey from south Texas, where she grew up in a family of migrant farm workers, to her current position on the faculty at UCLA. Beginning with a tough but fair English teacher, Gonzalez was fortunate to encounter a number of supportive mentors along the way who encouraged her to pursue her goals with vigor and dedication. Among many other things, Gonzalez's talk demonstrated that there are many pathways into the plant sciences and that these pathways should be open to all. What you need are the proven ingredients for success: preparation, courage, hard work, opportunities…and a dash of luck. Her bottom line: No one can know which child will grow up to be a scientist. ALL children are entitled to a good education. There is a need for well-trained teachers, a need to abolish overcrowded classrooms, and a need to hold school management accountable. Excellent counselors—many more than we now have—are critical. And we must have high expectations for our children, coupled with a first-rate science curriculum. In closing, Gonzalez thanked many people, but most passionately her mother and father…and her "little kitty cats."

This year's Women in Plant Biology Committee luncheon, sponsored in part by Monsanto, was attended by 180 people. The luncheon speaker, Dr. Judith Verbeke, National Science Foundation, gave a heartfelt and humorous account of her career beginnings, aided by the lyrics of crooner Garth Brooks. Essentially offering an extended, multimedia biography, Verbeke also spoke about the importance of mentoring, as well as the joy of finding the right professional niche in life.

Richard Jefferson, who received the 2005 ASPB Leadership in Science Public Service Award and gave the Perspectives of Science Leaders seminar on Saturday evening, has clearly found his calling. Most recently noted for his efforts to develop readily available technologies for plant transformation, Jefferson has spent a good portion of his career working in international crop development centers; he currently directs CAMBIA, the Center for the Application of Molecular Biology to International Agriculture, in his adoptive Australia. He spoke passionately of his concerns that the current status quo, in which an array of organizations own patents on technology required to generate transgenic crops, creates obstacles in agricultural biotechnology, particularly in the developing world. (See the full story on page 27 of this issue of the *ASPB News*.)

Jefferson did double duty at the meeting, joining Joe Tohme of the International Center for Tropical Agriculture (CIAT) in Colombia and the other panelists in the "Where Are the Other Jobs?" career workshop put on by the Women in Plant Biology Committee.

And Now for the "Lowlights"…Oi Vay! The Dinner Dance—A Bust!

Although 700 people attended this year's Tuesday evening event at the Pacific Science Center, and many seemed to greatly enjoy the venue, overall the affair did not meet expectations. Some of our respondents liked the Pacific Science Center, but many gave the food two thumbs down for the price. The feedback was deafening, and we definitely heard you! You can look for something different as ASPB's Program Committee plans ahead for 2006. More to come…

The Badges

What started out as a good idea for networking turned out to be unpopular because of designations such as "graduate student" or "postdoc" at the bottom of the name tag. The rumor mill had it that there was a "gentle revolution" of turning around the inserts so the designation was hidden. So next year in Boston, look for bigger lettering for the names (another comment) and no inserts!

ASPB president Roger Hangarter presided over Plant Biology 2005.

Roger Hangarter and Pamela Ronald were among many ASPB members expressing appreciation to awardee Richard Jefferson (center).

New members are welcomed at the sections' ice cream social.

THE MEETING HAD SOME GREAT FIRSTS

This year, ASPB sections banned together to host an ice cream social instead of their usual individual section receptions. The event was attended by 125 people, making it a great venue for sharing and learning more about the makeup and activities of the sections.

For the first time, the Minority Affairs Committee provided travel recognition awards to seven faculty members and six students, most from the New York City area and one from Greensboro, North Carolina. After the awardees arrived in Seattle, an orientation lunch was hosted on Saturday, July 16, at the convention center. Awardees were greeted and welcomed by Anthony DePass, chair of ASPB's Minority Affairs Committee; Roger Hangarter, ASPB president; and Crispin Taylor, executive director.

This year's awardees follow:

Faculty Members

Carolle Bolnet, Medgar Evers College
Charles desBordes, Medgar Evers College
Tony Nicolas, New York City College of Technology
Marva Butters, Long Island University
Miguel Cervantes-Cervantes, Lehman College
Michelle Garrett, Bennett College
Nathley Ceasar, St. Marks Day School

Students

Aymar Borel Soh Fotso, Medgar Evers College
Cordula Hunze, Medgar Evers College
Shakira Humphrey, Lehman College
Tenneil Simmons, New York City College of Technology
Venkata Ambati, Lehman College
Adam Kavalier, Lehman College

First Early Career Award Presented

The Early Career Award was instituted by the Society's executive committee in 2005 to recognize outstanding research by scientists at the beginning of their career. This award is a monetary award made annually for exceptionally creative, independent contributions by a member of the Society who is not more than five years post-Ph.D. on January 1 of the year of the presentation.

The first award was presented to Dr. Shin-ya Miyagishima. Miyagishima received his Ph.D. from the University of Tokyo under the supervision of Professor Tsuneyoshi Kuroiwa. Since August 2003, he has been at the University of Michigan with Professor Katherine Osteryoung.

Miyagishima is recognized for elucidation of the sequence of events that occur during the division of the plastid via a series of beautiful studies combining electron and immunofluorescence microscopy to monitor the dynamics of the plastid division complex. He is also recognized for the discovery of both plasti-localized and cytosolic molecules that catalyze each step by applying a repertoire of approaches—from bioinformatics to brute force genetic screens—and by using the best model system for the question with parallel studies of cyanobacteria, alage, and vascular plants.

Miyagishima's mentors describe him as a rising star with unusual scientific depth and insight.

Because of the high quality of this year's nominees, the Award Selection Committee also chose three young scientists for special recognition. Dr. Simon Chan, mentored by Professor Steven Jacobsen, is a Department of Energy Life Science Research Foundation fellow at UCLA. He has made seminal discoveries in the area of de novo methylation. Dr. Jeffrey Moseley, mentored by Dr. Arthur Grossman at the Carnegie Institution, is also a DOE Life Science Research Foundation fellow. Moseley has discovered key genes involved in nutrient deficiency responses in Chlamydomonas. Dr. Jan Zouhar, at present a research associate at Masaryk University in the Czech Republic, was mentored by Professor Natasha Raikhel. He is recognized for his contribution to vacuole proteomics and the discovery of new chemical inhibitors of the vacuole targeting pathway in Arabidopsis.

(left) MAC chair Anthony DePass addressed the crowd gathered to hear luncheon speaker Elma Gonzales.

(below) A mere bottle cap became a plant biology lab in the hands of Paul Williams (left) and Education Booth visitors.

Margaret Corbit from the Cornell Theory Center participated in the Education Workshop on informal science education, coordinated by David Salt.

Ideas or suggestions for Plant Biology 2006?
Expresso your thoughts to jean@aspb.org.

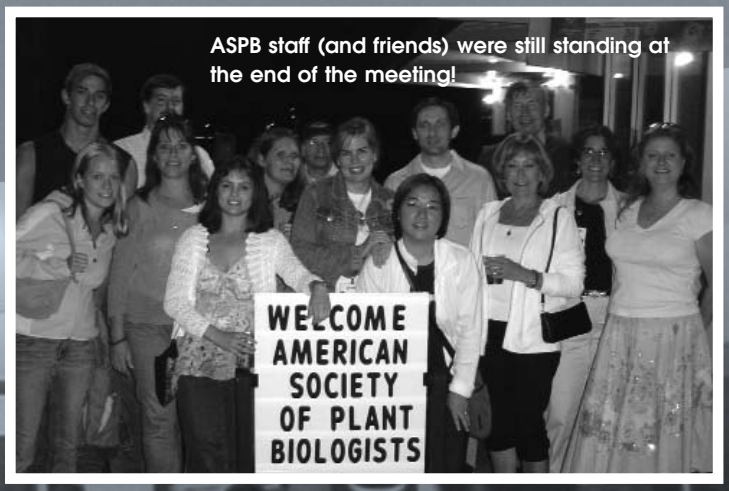
Plant Biology 2005 • Seattle, Washington

Ed Kaleikau (left) discusses NRI research programs with Bob Spreitzer.

Natasha Raikhel, whose term as editor-in-chief of *Plant Physiology* recently ended, and Don Ort, her successor.

Recipients of the first MAC Recognition Travel Awards get to know each other at the start of the meeting. Photo credit: Cordula Hunze

(from left) William Terzaghi, Susan Lee Blauth, Jodie Ramsay, and David Becker shared insights at the PUI breakfast.

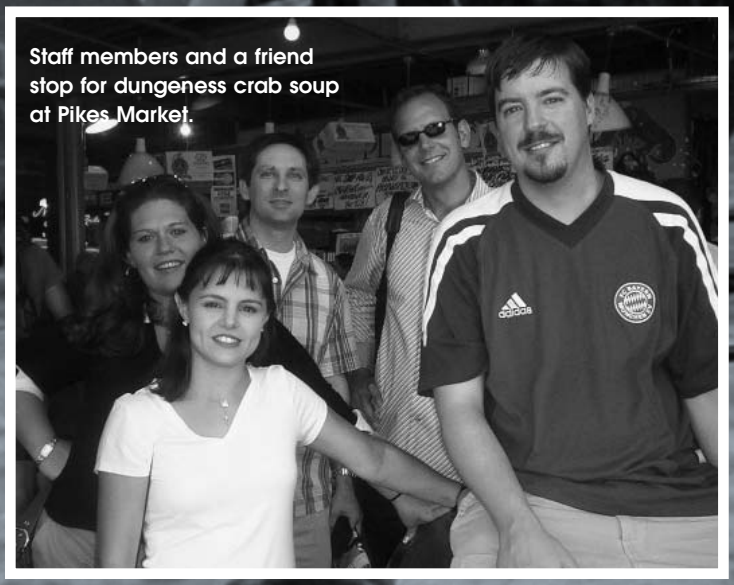


ASPB staff (and friends) were still standing at the end of the meeting!

Anthony DePass and Suzanne Cunningham study Education Booth plant lab materials.

(from left) Parag Chitnis, Michael Mishkind, Gerald Berkowitz, Judy Verbeke, and Machi Dilworth see a future young scientist, Annie Sunshine Berkowitz, in Jerry's arms.

(from left) Natasha Raikhel, former editor-in-chief of *Plant Physiology*; Jocelyn Brimo, Natasha's assistant; Melissa Junior, former managing editor of *Plant Physiology*; and Nancy Winchester, ASPB publications director.



Staff members and a friend stop for dungeness crab soup at Pikes Market.

Former President Dan Bush shows off his skills with a yo-yo.

Addressing Ethical Standards: Establishment of Publisher and Staff Guidelines Puts ASPB Ahead of the Curve

Over the past two years, ASPB has developed a number of documents outlining the Society's expectations for the various parties who contribute to the publications process, along with procedures and policies to help us deal with allegations of misconduct. It appears that this comprehensive series of documents regarding ethics in publishing puts ASPB ahead of the curve compared to many other scientific societies. In 2003, we developed guidelines for authors, followed in early 2005 with guidelines for editors and reviewers. Also in 2005 we addressed conflicts of interest. Finally, we tackled staff and publisher responsibilities, and on July 19, 2005, *ASPB Policies and Procedures for Handling Allegations of Publisher or Staff Misconduct* was approved by the ASPB Executive Committee during the Plant Biology meeting in Seattle. With this publication, ASPB's suite of documents outlining proper scientific conduct in publishing is complete. All documents are available via http://www.aspb.org/publications/ethics.cfm.

Although a number of disciplinary society publishers have developed ethics guidelines for their authors, fewer have done so for their editors and reviewers. In fact, we wondered whether we had stepped into uncharted territory as we began to develop this final document on staff and publisher conduct. Staff found relatively little in the published literature upon which to build, as discussions of ethics as they relate specifically to the publisher are apparently not common. Covering guidelines for staff is particularly tricky because, as ASPB's legal counsel pointed out, the involvement of employees adds a whole new dimension of adherence to employment laws and Society employee requirements.

Perhaps for many of our readers, it is not too hard to imagine what constitutes ethical behavior for authors, editors, and peer reviewers. You might not, however, think too much about the obligations of the staff who are handling your papers or the publisher of the journal to which you entrust your work. Therefore, reproduced here in its entirety is *ASPB Policies and Procedures for Handling Allegations of Publisher or Staff Misconduct.* As we stated in a previous column (*ASPB News,* March/April 2005), we want our publications to be at the cutting edge not only of plant science, but of science in general. And we recognize that, to do so, they must be models of scientific responsibility and integrity. This document lays out explicitly ASPB's commitments as a publisher to you—our editors, authors, and readers.

C. Robertson McClung
Chair, Publications Committee
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Nancy Winchester
Director of Publications
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ASPB Ethics in Publishing: Policies and Procedures for Handling Allegations of Publisher or Staff Misconduct

The American Society of Plant Biologists expects members of the Society and all individuals involved in the peer review and publication of its journals to maintain high ethical standards for scholarship. This document is the fourth in the ASPB "Ethics in Publishing" series, which describes ethical guidelines for all parties involved in the publishing process as well as procedures for addressing allegations of ethical violations. *Ethics in Publishing: ASPB Policies and Procedures for Handling Allegations of Publisher and Staff Misconduct* has been developed to offer guidelines for sound publishing practice. Please also refer to *Ethics in Publishing: ASPB Policies and Procedures for Handling Allegations of Author Misconduct; ASPB Policies and Procedures for Handling Allegations of Editorial Misconduct;* and *Conflicts of Interest* at http://www.aspb.org/publications/ethics.cfm.

Expectations for the Publisher

Expectations for the American Society of Plant Biologists, as journal publisher, include the following. The Society will

- provide the human, financial, and other resources needed to publish the journals
- facilitate the prompt review of manuscripts submitted to its journals
- facilitate the timely publication of articles accepted by its journals
- not seek to delay publication of a paper for any reason other than to address technical issues associated with publication (for example, should authors be tardy in submitting corrected page proofs or submit final figures that fail to meet the technical requirements for publication), adherence to journal policies, or credible concerns about the science
- work to educate its member, author, and editorial communities through a variety of venues about ethical conduct in scientific publishing
- in cases of alleged misconduct by authors or editors/reviewers, adhere to the procedures outlined in the ASPB "Ethics in Publishing" series and "ensure that investigations are handled as expeditiously as possible and without harming the reputation of anyone against whom an allegation is made but who is found not to have violated the Society's standards" (*Science and Engineering Ethics,* volume 9, issue 2, 2002, p. 236)
- ensure that retractions or corrections approved by an editor are published promptly in the journal.

Expectations for Staff

As representatives of ASPB, staff members are expected to uphold the ethical responsibilities of the Society. Specifically, staff will

- maintain confidentiality about reviewers, reviews, comments, and decisions
- not misrepresent the review process to an author
- not forge or fabricate a reviewer's report or alter the scientific content of reviews
- not alter the scientific content of an article under review or accepted for publication in the journals without author and editorial approval
- ensure that papers are scheduled for publication in accordance with established procedures and without bias
- not falsify data related to the journal (e.g., impact factors, acceptance rates, turnaround times)
- adhere to the procedures for handling allegations of ethical misconduct by authors or editors/reviewers as described in the ASPB "Ethics in Publishing" series and immediately refer any allegation of ethical misconduct by an author or editor/reviewer, or any instance of possible conflict of interest, to the Executive Director
- cooperate with the Ethics Review Committee or other investigative bodies regarding possible ethical violations by an author or editor/reviewer
- keep all details of an alleged ethical violation confidential
- ensure that retractions or corrections approved by an editor are published promptly in the journal.

Procedure for Addressing Allegations of Publisher or Staff Misconduct

1. Any person who has reason to believe that the journal publisher or any member of the ASPB staff has engaged in misconduct or committed an ethical violation in connection with their handling of an author's work or with any other work they perform for the Society's publications must summarize the reasons for such allegations in writing and transmit this written document to the president, who chairs the Ethics Review Committee (ERC; president, past president, executive director, chair of the Publications Committee, and the editors-in-chief of both journals).
2. The allegations and all information relating to allegations and subsequent inquiries will be kept confidential by the party making the complaint, the ERC, and any Society members and staff working on the matter. The complaint and information developed in any subsequent investigation will not be disclosed to any third parties except as required by law or as may be necessary to enforce the decision of the ERC.
3. The ERC will review the allegations to determine their validity and if further action is necessary. The ERC will conduct all inquires it deems necessary to resolve the matter and shall consider all relevant information and make findings and recommendations concerning any action that needs to be taken.
4. Legal advice will be obtained to determine the proper legal procedures to be followed by the ERC if the compliant alleges a violation of law or Society employment rules, or if the ERC determines that such advice is needed to aid in conducting the inquiry.
5. The executive director will not participate on the ERC when the allegation is directed against him/her. If the allegation is against the Society as publisher, or against a staff member other than the executive director, then the executive director will be notified of the allegation. If the allegation is against an ASPB employee, the executive director will assist the ERC to ensure that ASPB employment procedures are followed in the investigation.
6. The person against whom the allegation is made shall be given the opportunity to respond to the allegations unless the complaint alleges violations of law or ASPB employment practices. If such violations have been alleged, then legal advice will be sought to determine if it is proper for the ERC to seek information from the accused.
7. All actions taken in connection with an investigation of an allegation, including telephone calls, must be documented in writing. Copies of documentation and correspondence should be sent to the president, who shall ensure the security and confidentiality of the records.
8. The ERC may seek the assistance of the executive director, the Executive Committee, and any other available ASPB resources in carrying out its confidential investigation and enforcing its decision.

This document was approved by the ASPB Executive Committee July 19, 2005.

RNAi Explained

Rich Jorgensen Featured on Special NOVA Broadcast

Richard Jorgensen, associate professor of plant sciences at the University of Arizona and editor-in-chief of *The Plant Cell,* was featured in the NOVA-scienceNOW program "RNAi Explained," which aired on PBS on July 26, 2005. The 15-minute program can be viewed online at http://www.pbs.org/wgbh/nova/sciencenow/3210/02.html.

Rich Jorgensen

NOVA-scienceNOW airs five times a year and covers "breaking science stories, science and politics, and science and culture," according to host Robert Krulwich. In "RNAi Explained," Krulwich tells the story of this powerful discovery that could lead to cures for a seemingly endless number of human diseases, including Alzheimer's, arthritis, cancer, HIV, muscular dystrophy, and influenza, to name just a few. He describes how RNAi (RNA interference) was a puzzle that first appeared in petunia plants in experiments conducted by Jorgensen in 1986, when he was attempting to create an intensely purple petunia flower in his work for a biotech startup company. Jorgensen explains how he inserted extra copies of a gene for purple pigment (the gene encoding the enzyme chalcone synthase) into petunia plants, expecting to get deeper purple flowers, but to his surprise found that the plants produced white flowers completely lacking in pigmentation. Jorgensen, along with Eric Lander of the Broad Institute and Massachusetts Institute of Technology and Greg Hannon of Cold Spring Harbor Laboratory, describes how it took another decade to work out the mystery of the white petunias.

The secret of RNAi lies in the ability of living cells to recognize abnormal RNA and destroy it. It is believed to have evolved as an antiviral mechanism that allows cells to recognize viral RNA and degrade it, preventing the virus from becoming established inside the cell. Unbeknown to Jorgensen at the time, the gene that he inserted into his petunias produced RNA transcripts that folded into a structure recognized by the cell's RNAi machinery as "virus," and all copies of the gene transcript were destroyed, leaving the plants unable to make any purple pigment and resulting in white flowers.

Lander explained how scientists now can make use of RNAi to turn off any gene at will just based on knowing its DNA sequence. This ability has great potential for investigating gene function and curing disease. RNAi therapy has been used successfully in mice to treat Huntington's disease, Lou Gehrig's disease, hepatitis, and breast cancer. The program highlights a successful clinical trial involving RNAi in a woman with age-related macular degeneration. Lander concludes that "any sort of disease that you can imagine is fair game" as a candidate for RNAi therapy. And it all started with Rich Jorgensen's white petunias.

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Energizing Plant Biology

Chris Somerville Speaks on Future of Biofuels in U.S.

ASPB member Chris Somerville delivered the keynote address at the 16th International Conference on Arabidopsis Research in Madison on June 15, 2005, during which he spoke on the importance of research and development in plant biology in the area of biomass energy.

Somerville, director of the Carnegie Institution of Washington, Department of Plant Biology at Stanford University, delivered an eloquent and inspiring message advocating a wider view of plant biology as an important source of energy, and not only agricultural commodities. The U.S. ethanol industry is one of the fastest growing energy industries in the world. Somerville cited a recent USDA–DOE study that estimated that planting biofuel crops on existing available (fallow) cropland could contribute more than 100 billion gallons of liquid fuels each year in the United States. However, he noted that grain crops such as maize are not the best suited for biomass production, owing to a substantial requirement for inputs from fossil fuels. Certain undomesticated perennial species, such as *Miscanthus x giganteus* (Elephantgrass) and *Panicum virgatum* (Switchgrass), have far greater potential as biomass energy crops. These species require minimal inputs and also have significantly higher net energy outputs than conventional grain ethanol crops.

Miscanthus x giganteus (Elephantgrass) crop growing in southern Germany. From Scurlock, J.M.O. (1998). Miscanthus: a review of European experience with a novel energy crop. ORNL/TM-13732. Oak Ridge National Laboratory, Oak Ridge, Tennessee. http://bioenergy.ornl.gov/reports/miscanthus/toc.html.

Grain ethanol crops will continue to be the primary focus of the biomass energy industry over the next 20 years or so, but in the longer term we will see a shift to the development and use of more efficient perennial biomass crops. Because these species are undomesticated, there is great potential for their improvement as biofuel crops and a need for research in basic plant biology to improve our understanding of plant growth and development related to biomass production. Biomass crops have not yet been subjected to selection, and in addition, most breeding of crop plants has been focused on minimizing biomass and maximizing seed yield. Somerville argued that basic discoveries in plant biology will enable increased biomass production through rational improvement of many different aspects of plant growth and development, ranging from stress tolerance and disease resistance to fundamental changes in developmental processes.

"Plant biomass is basically polysaccharides and lignin," said Somerville, indicating that basic research in these areas is of particular importance because many useful changes can be envisioned in the chemical composition of biomass. He stated that significant increases in biomass yield were possible because plants "have the capacity to increase photosynthesis if we unlock the key to growth." Arabidopsis has become a powerful tool for basic research in plant biology, and it is increasingly clear that much of what is learned from studying this small weed is directly applicable to other species. A view of plant biology as having a significant impact on improving our ability to develop renewable sources of energy should pave the way for increased federal funding for plant biology research. "Legislators often view the big problem in agriculture as overproduction and do not see the point of further investments in basic research that might cause more overproduction," Somerville lamented, concluding that "in the developed world, a more relevant social context for basic research in plant biology is energy." He asserted that basic research on plants supports both the food and energy uses of plants. However, because the importance of plants as sources of energy is poorly understood by comparison with food uses, the community of plant biologists can play an important role in increasing public awareness of the opportunity to develop sustainable and renewable sources of energy from plants.

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One Day at a Time

How I Got into Biology and Graduate School

My primary school education was most unusual. It seemed like an unending battle to learn one language after another. As a child of a diplomat, I had lived in Scheveningen in The Hague, Taipei, Panama City, Tehran, and Amman. I had studied Chinese, Spanish, and French for about one year each when my parents sensed that English, not French, was going to be the next "international" language. The curiosity and interest in science began naturally and quite early, in part due to my mother. As a diplomat's wife she stayed home, but she was interested in what I learned at school. She had majored in psychology and minored in biology at Tsing-Hua University (Beijing), so she could understand the textbooks I brought home, answer questions, and discuss topics in biology, chemistry, and mathematics. The Ahliyyah School for Girls was the best secondary school for girls in Amman. The students were expected to sit for and pass GCE exams at the "O" level and sometimes "A" level. Several classmates saw themselves as future leaders of society whether they came from prominent families or not. The education prepared us well for university. I enjoyed biology in particular, and so I picked botany as a major when I applied to the National Taiwan University.

We were extremely fortunate when Dr. Chu-yung Lin returned from the United States and offered for the first time a course in biochemistry at the university. It was the new emerging discipline in biology at the time (around 1966), much like molecular biology became in the mid-1970s. I was also encouraged when he mentioned that some of us had "potential." So I applied to a master's program at the University of California at Davis. There, Thomas Ragland, who taught plant biochemistry, summoned me to his office one day and asked why I was studying for a master's degree. It was not unusual in those days for women graduate students to get a master's degree, take a technician position, and get married. Without any good prospects of getting married, I took his advice and applied for a Ph.D. program. Thomas Hodges was taking a sabbatical leave at Davis, and he persuaded me to work with him. I was fascinated by the idea that transporters were like protein enzymes and joined his laboratory.

By the time I got a Ph.D. degree from Purdue University, I was married to another scientist. We both knew that finding jobs for two Ph.D.s was going to be a challenge. Fortunately, my husband found a postdoctoral position at Harvard Medical School in Boston, and A. K. Solomon at the Biophysics Laboratory valued my biochemical perspective of transport proteins and overlooked any weakness in biophysics. He offered me a postdoctoral fellow position to study transport across human red cell membranes. The environment was so stimulating that I began to develop into an independent scientist. When my spouse got a faculty position at the University of Kansas, I followed, readily thinking that I would do whatever I could.

Heven Sze searching for roots in the Shanghai Library.

Overcoming Hurdles

I got a courtesy (non–tenure track) faculty position and planned to conduct an independent research project in Eugene Fox's laboratory as long as I could bring in some grant funds. In 1979, I started developing an in vitro membrane vesicle system to verify if the plasma membrane K^+-stimulated ATPase was an ion or an H^+ pump. This was originally my Ph.D. thesis project, but I had failed before to get any active transport. The initial results that a membrane-bound ATPase was stimulated by ionophores that dissipated H^+ and K^+ gradients and that ATP generated an electrical potential in isolated vesicles (later published in PNAS in 1980 and 1981) caused considerable excitement among transport physiologists at the 1980 annual ASPP meeting in Pullman. It was the first direct evidence (to my knowledge) that ATP generated an ion gradient in isolated microsomal vesicles from plants.

Back in Kansas, I got several calls from established laboratories asking how I got sealed vesicles. By 1981, at the joint ASPP/CSPP meeting in Quebec, several laboratories reported on ATP-driven proton pumping in low-density vesicles, although, unlike the PM-ATPase, the activity was not sensitive to vanadate. These findings combined with results of purified vacuoles led to the "discovery" of the vacuolar-type H^+-ATPase that acidifies intracellular compartments of plant and other eukaryote cells (see Sze, H., 1985, *Annu Rev Plant Physiol* 36, 175). In 1981, the National Science Foundation (including unidentified panel members of the Metabolic Biology program) recognized the significance of the breakthrough and awarded me a grant as sole P.I. in spite of my tenuous position. Yet, this was insufficient to get a tenure-track position at the University of Kansas. Frustrated, I discussed the situation with invited seminar speakers, including Mary Dell Chilton, who advised I seek a position elsewhere. To the university, a "faculty wife" was unlikely to leave the area and should be satisfied with some bench space. By the time I received an offer from the University of Maryland in 1982, I had just received a grant to study calcium transport (see Sze, H., et al., 2000, *Annu Rev Plant Physiol & Plant Mol Biol* 51, 433). In August, I drove eastward to College Park, thrilled to be a tenure-track faculty member at last!

Balancing Act

New students and postdocs were attracted to my laboratory and were excited to be working at the forefront of plant membrane biology. I strongly felt that if a researcher

(student or postdoc) was interested in the project, he or she would make new and exciting discoveries. I tried to match the natural talent, interest, and inclination of the person with the project. I quizzed and challenged students often to stimulate their thinking and development into independent scientists. I tried to cultivate a concept of sharing responsibilities in the laboratory for the good of all. A congenial laboratory environment was contagious and would lead to synergistic results. I continued two traditions I enjoyed as a student. Like my Ph.D. mentor, I had (and still have) lunch with the lab nearly daily where we would talk about anything. Also, I liked to take everyone to the ASPP meetings, held at affordable venues then, like campuses in Davis, Providence, and Baton Rouge. The exposure gave the students and postdoctoral fellows opportunities to interact with other scientists professionally and socially, to present their work, and to gain recognition. As I served on faculty search committees, I learned to write effective recommendation letters. To my delight, the first generation of students and postdocs began to get job interviews. At that time, there was a lack of senior role models in the department. So I must have been doing some things right!

Though I was relatively successful in sustaining a lively research program, grant funding, and attracting outstanding students, I gradually felt unhappy. What was wrong? I had everything, or so it seemed. I achieved tenure in three years and had invitations to author reviews and to give talks. Yet instead of being energized, I felt exhausted to the point that I could hardly function. I escaped to Kansas for peace, tranquility, and contemplation. I thought I would recover in the summer, as I was not diagnosed with any illness. How could I leave three graduate students afloat? I had to get back to them. Yet for months, there was little or no improvement. The positive slope to recovery began only when I accepted that professional life as I had defined it was dispensable, but that one's personal life was not. Inner strength comes from caring and love for and by family and friends. I had taken that for granted, as I have always had it. As I began to rejoin the professional world, I learned that I was not alone in losing balance. Several prominent scientists shared their experience with me. One advised me to "take breaks often." My advice to young scientists is to "strive toward your dreams but listen to your inner self." In pursuit of "success" as defined and expected by promotion and tenure committees of U.S. universities, I had lost touch with what I was—my roots and my culture. Thankfully, I have regained energy and balance with the support of family, friends, students, and colleagues. I now know how to maintain a balance and a sense of inner peace that is so essential to meeting new challenges and to being creative and productive.

Working in a rapidly developing field, like biology, is not unlike my childhood. One faces constant challenges to learn a new language and new concepts of a discipline, and to adapt to the changes. Falling and failing are parts of the journey and the adventure. However, there will be a new discovery or new insight over the next horizon as long as one maintains the childhood curiosity and interest and continues to learn and probe with an open mind and a positive outlook.

Heven Sze
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Dear ASPB Member in Alabama, Louisiana, and Mississippi:

We're alarmed at the extent and duration of devastation caused in your coastal state by hurricane Katrina. Your colleagues in the ASPB membership and staff and in the ASPB Southern Section are deeply concerned about the effects the hurricane may have had on you and your institution. ASPB is looking at establishing a mechanism through which ASPB members, Southern Section members, and other plant biologists at affected institutions can get in touch with plant scientists elsewhere who are willing and able to help, for example by providing lab space to displaced scientists. Please let us know by sending e-mail to ctaylor@aspb.org if such a service would be helpful or if there is anything else that ASPB, the ASPB Southern Section, or their members at institutions in other states and nations can do to assist.

Sincerely,

Roger Hangarter, ASPB President
James Mahan, ASPB Southern Section Chair
Crispin Taylor, ASPB Executive Director

Membership Corner

ASPB members share a common goal of promoting the growth, development, and outreach of plant biology as a pure and applied science. This column features some of the dedicated and innovative members of ASPB who believe that membership in our Society is crucial to the future of plant biology. If you are interested in contributing to this feature, please contact ASPB Membership at info@aspb.org.

Name: Abidur Rahman
Title: Senior Postdoctoral Researcher
Place of Work or School: University of Massachusetts, Amherst
Research Area: Hormone signal transduction, gravitropism, auxin transport
Member since: 2000

1. **Why has being a member of ASPB been important?**
   I believe that ASPB represents the largest community of plant biologists. Definitely, it is an honor to be a part of this community. During my graduate study, which I did in Japan, I always felt that communicating with the scientists in the USA who were part of ASPB was instrumental to my work. I had the privilege of attending ASPB annual meetings, which helped me connect with researchers working in diverse fields of plant biology. Membership also provides a platform to share research results and interact with fellow researchers to develop collaborations, which I believe is one of the most exciting parts of doing science. Another sweet part of attending ASPB conferences is to meet old friends and colleagues whom I hardly get to see. Being a member, I also get immediate online access to the Society's two highly ranked plant biology journals, helping me stay on top of the current research affairs. Lastly, I think that ASPB membership provides me with an incredibly important resource for pursuing my career in plant biology.

2. **Was someone instrumental in getting you to join ASPB?**
   Not really. I was planning to attend the Plant Biology meeting in 2000 and found that ASPB offers some benefits to members for attending the conference. I opted to get a membership and since then have been enjoying the privileges of membership.

3. **What would you tell colleagues to encourage them to join?**
   ASPB provides resources, contacts, and opportunities to its members. Anybody who wants to pursue a career in plant biology should take advantage of these benefits. From my experience, I would strongly encourage graduate students and postdocs to join this professional society. Attending the ASPB meeting always helps one make professional contacts, and that in the long run is important for career enhancement.

4. **Have you enhanced your career using ASPB job postings or through networking at an ASPB function?**
   Yes, for sure. The ASPB meeting is a perfect place for exchanging ideas and developing collaborations with fellow researchers. I take full advantage of these opportunities and so far have made two successful collaborations. Right now I am looking for a faculty position and have applied for a couple that I found on the ASPB online Job Bank. I am keeping my fingers crossed and hoping for the best.

5. **Have you had any success at finding candidates as a result of a job posting at the meeting or on our online Job Bank?**
   No. I am not in that position yet. I hope that in the future I will be able to use this resource in hiring somebody!

6. **Do you read print journals? If so, where do you usually read them?**
   Yes. I love to read the print journals, including printed PDF files, and I really feel comfortable with print over the online version. Although I have to admit that for a quick look, the online journals are very handy and good. Usually I read them at my workplace.

7. **What do you think is the next "big thing" in plant biology?**
   That's a very difficult question to answer. So many new fronts have opened up in the past five years, and more new things are coming…it is really difficult to predict. I think one of the most exciting things will be an integrated study of genomics, proteomics, and metabolomics. This will help us to fit a lot of puzzle pieces together. Considering environmental pollution and its influence, phytoremediation should and must play a greater role in the future.

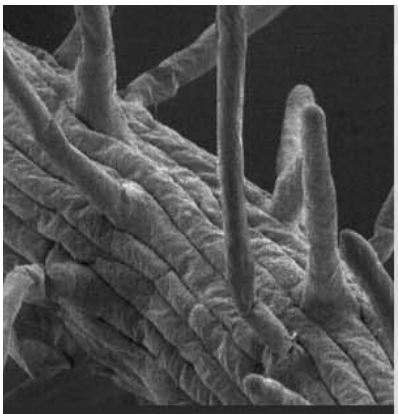
8. **What person, living or deceased, do you most admire?**
   It's really difficult for me to pick a single person to identify as the one I most admire. There have been many people who in some way or the other have helped or are still helping me to achieve my goals. My parents and my wife are always supportive. I am indebted to all of them.

9. **What are you reading these days?**
Besides science reading, I just finished reading *Harry Potter and the Half-Blood Prince*!

10. **What are your hobbies?**
I like traveling, photography, and music. Nowadays, most of my leisure time is dedicated to my three-year-old son.

11. **What is your most treasured possession?**
I am tempted to say my family and friends, but I really don't possess them. I am fortunate to have many wonderful friends all over the world. These relationships are probably my most treasured possessions.

12. **What do you still have left to learn?**
Everything. Let me answer this with one of my favorite quotes, by Ethel Barrymore: "You must learn day by day, year by year, to broaden your horizon. The more things you love, the more you are interested in, the more you enjoy, the more you are indignant about, the more you have left when anything happens."



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DOE Examines Basic Research Needs for Improved Solar Energy Use

The Department of Energy Office of Basic Energy Sciences held a workshop on solar energy utilization April 18–21 that has led to the recently released report "Basic Research Needs for Solar Energy Utilization." The report can be found at http://www.sc.doe.gov/bes/reports/files/SEU_rpt.pdf.

Research opportunities in plant biology and other science disciplines to better exploit energy from the sun were addressed in the workshop and report.

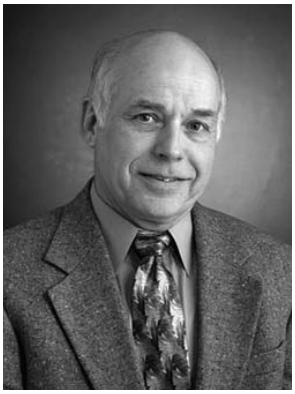
The report noted that solar energy conversion systems fall into three categories according to their primary energy product: solar electricity, solar fuels, and solar thermal systems. Each of the three generic approaches of exploiting the solar resource has untapped capability well beyond its present usage, the report said.

Biomass-derived fuels were cited in the report as a category under basic science challenges, opportunities, and research needs in solar fuels production. "Through understanding and discovery, it is possible to increase solar energy–dependent biofuels production in plants and microbes. Challenges associated with achieving this goal include the following:

- mining biological diversity to discover improved catalysts for biofuels production
- capturing the high efficiency of the early steps of photosynthesis to produce high-value chemicals and fuels
- understanding and modifying the bioprocesses that constrain biofuels production because of photosynthetic sink limitations, inefficient reductant use, and environmental factors
- elucidating plant cell wall structure and understanding how it can be modified and efficiently deconstructed by protein assemblies
- extending nitrogen fixation to biofuel crops to reduce dependence on fossil fuel nitrogen fertilizer
- developing an overall deeper understanding of the biological processes needed to improve plants and microbes to increase solar energy–dependent biofuels production.

In considering basic research challenges for solar fuels, the key challenges identified in the report involved in cost-effective formation of solar fuels were the following:

- use advances in biotechnology to genetically engineer plants to more efficiently—by a factor of 10—harvest solar energy into biomass, so as to require less land area to produce the needed amount of stored biomass energy
- genetically engineer photosynthetic bacterial organisms to produce solar-derived fuels
- replicate the essential components of the machinery of photosynthesis outside a natural organism or plant (i.e., in an artificial photosynthetic system) and obtain the needed 10- or 100-fold efficiency improvement in a robust, cost-effective system
- construct entirely manmade chemical components (out of either organic or inorganic molecules or inorganic semiconductor particles) that, as an assembly, mimic photosynthesis by absorbing sunlight and converting the energy into chemical fuels such as CH_4 and H_2; the process developed must be efficient, robust, scalable, and cost-effective.


Don Ort


Robert Tabita


Chris Somerville

ASPB members made important contributions to the workshop's and report's consideration of plant biology. ASPB member Chris Somerville of Stanford University gave a presentation that is detailed in a separate article (see p. 17) in this issue of the *ASPB News*. Somerville and ASPB member Bob Tabita of Ohio State University also served as sub-panel chairs. ASPB member Don Ort of the University of Illinois and Agricultural Research Service and editor-in-chief of *Plant Physiology* contributed as a panelist.

Plant Genome Solicitation Includes Support for Translating Knowledge Gained from Model Systems to Understanding Basic Mechanisms of Crops

The National Science Foundation (NSF) announced that an estimated 30 awards, pending availability of funds, will be made in the Plant Genome Research Program (PGRP) in June 2006. The combined new grant awards would total approximately $35 million in fiscal year 2006, pending availability of funds. The program solicitation can be found at http://www.nsf.gov/pubs/2005/nsf05603/nsf05603.htm. Full proposal target date is November 1, 2005.

Three primary areas of opportunity will be offered as components of the PGRP in FY 2006 as described in the program solicitation:

Genome-Enabled Plant Research (GEPR)

The NSF PGRP is evolving by increasing use of the new tools and resources that have become available through the National Plant Genome Initiative (NPGI). While there still remain some large community resources to be built, those available now are sufficient to begin to address major unanswered questions in plant biology, some of which have not been tractable using traditional approaches alone. To be eligible, projects should be developed on a whole genome, whole organelle, or whole network scale.

Proposers are encouraged to think outside the box and to put forward imaginative and creative ideas, selecting experimental systems best suited to the research focus and taking advantage of the available genomics tools and resources.

Translational Research from Model Systems (TRMS)

Model systems, whether non-plant (for example, yeast) or plant (for example, *Arabidopsis* and rice) are a powerful way to access complex biological pathways that may not be readily accessible in many plants of economic importance. Substantial investments have been made in model systems, including whole genome sequences, expressed sequence collections, mutant collections, whole genome microarrays, and proteome resources. These resources have already enabled considerable progress in understanding the genomic basis of a range of complex biological processes, including traits of economic importance. For example, regulatory networks controlling complex traits such as plant size and cold tolerance have been identified in Arabidopsis. The time has come to transfer the knowledge gained in a model system to uncover basic mechanisms underlying important traits in plants of economic importance.

Those submitting proposals are encouraged to choose important problems and traits of economic importance that combine the strengths of the chosen model system or systems with the importance of the work in the chosen target plant. Proposals should clearly justify the relevance of the research activities to the goals of the NSF PGRP as well their potential downstream impacts.

To be eligible, projects should be developed on a whole genome, whole organelle, or whole network scale. Proposals are solicited from single investigators, small groups, and multi-institution "virtual centers." The scale of the project in terms of personnel and budget should be consistent with the proposed activities. The management plan should be appropriate for the proposed activities, and a carefully developed plan and timetable will strengthen a proposal.

Tools and Resources for Plant Genome Research (TRPGR)

While tremendous advances have been made in the development of tools and technologies for plant genome research, there is still a demand for additional resources to tackle unmet needs. Proposals writers are encouraged to develop novel approaches focused on a specific problem or need. Risky proposals are welcome. Priority will be given to new or novel tools that are likely to contribute broadly to the advancement of the field of plant genomics.

Proposals submitted to GEPR, TRMS, and TRPGR will be generally supported at award levels of up to $2 million per year for up to five years depending on the scale and scope of the proposed research. If the requested levels are higher, it is incumbent upon the person submitting the proposal to provide sufficient justification of need.

The Senate Appropriations Committee is recommending $100 million for PGRP for FY 2006. The House is recommending $94.2 million for the program as requested by NSF. Senator Christopher (Kit) Bond (R-MO), together with Senators Richard Shelby (R-AL), chairman, and Barbara Mikulski (D-MD), ranking Democrat, and their colleagues on the Appropriations Subcommittee of Commerce, Justice, and Science continue to champion support for the PGRP in the Senate.

International Team Maps Rice Genome

Bement Cites Benefits to Science and Humanity

Genetic sequence of world's most important crop holds promise for the growing human population

Researchers with the International Rice Genome Sequencing Project (IRGSP) have published the "finished" DNA blueprint for a crop that feeds over half the people in the world. Analysis of the rice genome, reported in the August 11 issue of the journal *Nature,* revealed the location and sequence of more than 37,500 protein-encoding genes in 389 million bases of DNA.

Rice now holds the distinction of being the first crop plant whose genome has been sequenced. Scientists around the world will use the wealth of new information in efforts to improve yields not only in rice, but also in other closely related grass crops such as barley, corn, rye, sugarcane, and wheat.

"Knowing the sequence of one of the world's most important crops will be invaluable to plant genomics researchers. This project will potentially help millions of people around the globe," said National Science Foundation (NSF) director Arden L. Bement, Jr.

The IRGSP used the *japonica* subspecies of rice, which is cultivated in Japan, Korea, and the United States. The group made public a draft sequence of the *japonica* genome in late 2002. Since then, IRGSP scientists have increased the quality of the sequence to 95 percent complete at greater than 99 percent accuracy. By comparison, the 3 billion-base-pair human genome, with its 25,000 genes, reached that quality level in 2004, some three years after its draft sequence was completed.

Formally established in 1998, the Japanese-led IRGSP consortium also includes the United States, China, Taiwan, Korea, India, Thailand, France, Brazil, and the United Kingdom.

"This is a monumental achievement. Enough credit cannot be given to the IRGSP members for working together to advance the research of such an important world crop," said Mary Clutter, assistant director for NSF's biology directorate.

Estimates predict that world rice production must increase by 30 percent in the next 20 years to keep pace with the growing world population. Thus, maximizing rice yields is particularly crucial now, as worldwide environmental degradation has caused decreased rice production for the past four years.

Rice plants also provide more than just food. Grain is fermented into wine. Rice straw makes cattle feed, paper, rope, and bricks. Rice oil goes into soap and cosmetics, and seed hulls provide fuel for simple stoves and packing material for fragile cargo. Even the ash from the hulls is useful—it cleans discolored teeth!

The U.S. National Plant Genome Initiative coordinated the U.S. component of the project. The U.S. Department of Agriculture–Cooperative State Research, Education and Extension Service, NSF, the U.S. Department of Energy, and the Rockefeller Foundation provided support for the work.

In a news story written and distributed by the Associated Press (AP), ASPB Committee on Public Affairs chair Pamela Ronald noted that the sequencing of the rice genome lets scientists do new experiments to unlock secrets of the plant.

Ronald, who studies disease resistance in rice but didn't participate in the project, AP noted, used data released earlier from the sequencing project to develop a way to identify rice genes that become active when the plant deals with stresses like a germ attack or drought. That can help scientists track down particular genes for targeting in breeding programs, she said.

Rice feeds over half the people in the world. The crop's genome was recently sequenced by an international team of researchers. Drawing by Nicolle Rager Fuller, National Science Foundation.

The Washington Post (front-page coverage) and many other media outlets reported on the landmark first sequencing of a crop plant.

This article was adapted from an August 10, 2005, news release from NSF.

Transgenes Vanish from Oaxaca Corn Fields

Zero of 153,746 Seeds Sampled Have Transgenes

Remnants of the reported 2000 invasion of Oaxaca, Mexico, corn fields by foreign genes from genetically modified corn have not been found in a recent study published in the *Proceedings of the National Academy of Sciences,* August 10, 2005.

PNAS has published results from a large screen of Mexican maize for transgenes in a study conducted by Allison Snow of Ohio State University and her colleagues. The article can be found at http://www.pnas.org/cgi/content/abstract/0503356102v1/.

Researchers found no cases of transgene contamination from 153,746 seeds sampled in 2003 and 2004 from Oaxaca, the site where Ignacio Chapela and David Quist of the University of California at Berkeley reported transgene contamination in 2000.

Snow, Sol Ortiz-García, and colleagues surveyed transgene frequencies in local maize in Mexico and found no evidence of transgene introgression, PNAS reported in its "This Week in PNAS Early Edition" highlights. "Since 1996, genetically modified (GM) transgenic maize has been grown commercially in the United States, and bred for insect and pesticide resistance. GM maize has never been approved for cultivation in Mexico, yet in 2000, transgenes were detected in local maize varieties in the mountains of Oaxaca, Mexico," the PNAS highlight added.

"To measure the frequency of transgene infiltration during 2003–2004, Ortiz-García et al. sampled maize seeds from 125 fields in 18 Oaxaca localities. Seeds were screened for the presence of two transgene elements present together or alone in all GM commercial varieties of maize: the 35S promoter of the cauliflower mosaic virus and/or the nopaline synthase gene from *Agrobacterium tumefaciens,*" the PNAS highlight continued. "The researchers did not detect transgenic sequences in any specimens and concluded that transgenic maize seeds were absent or extremely rare in the fields sampled in 2003 and 2004."

Authors suggest that an education campaign might have deterred Oaxaca farmers from planting more genetically modified corn. Chapela is reported in *Science* as saying that the team's sampling and testing methods may have missed extremely low levels of transgenes.

Preparations Conducted to Assess Opportunities for Basic Science Supporting Agriculture Research

The White House Office of Science and Technology Policy (OSTP) is advancing with preparations to do a multi-agency assessment of the opportunities for basic science to support agriculture research. OSTP has been in contact with several federal agencies, and representatives from agencies are being identified to work together in assessing research opportunities.

OSTP's actions come in response to report language in Committee Report 109-088 accompanying HR 2862 approved by the Senate Appropriations Committee. The report language points out the need for assessing opportunities for improving merit-based, peer-reviewed basic science to support food and agriculture research.

In the section of the committee report concerning the OSTP, the committee said: "Recognizing the critical challenges and important opportunities in agricultural research in this new century, the Committee encourages OSTP to assess the merit-based, peer-reviewed basic science to support food and agriculture research across all Federal agencies. The Committee further encourages OSTP to assess future opportunities and avenues for improving merit-based, peer-reviewed basic science to support food and agriculture research and to report their findings to the Committee."

Award Recipient Jefferson Warns Against Patents That Obstruct Progress

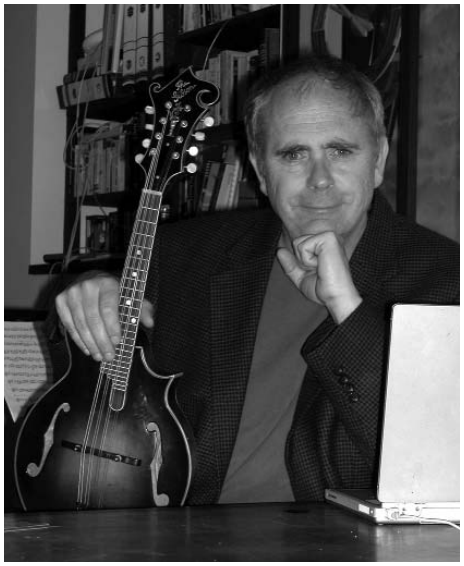
Even without his mandolin in hand at the ASPB annual meeting in Seattle, Richard Jefferson strummed a refrain of warnings against restrictive patents on plant research innovations.

Recipient of the 2005 ASPB Leadership in Science Public Service Award for outstanding contributions to science and humanity, Jefferson was the featured speaker in the Perspectives of Science Leaders Program coordinated by Committee on Public Affairs chair Pam Ronald and her colleagues.

As chairman and chief executive officer of CAMBIA, the Center for the Application of Molecular Biology to International Agriculture in Australia, Jefferson has succeeded in working through a complex web of patents to make plant transformation technology more widely available. He developed a workaround for a key enabling technology in plant biotechnology, Agrobacterium-mediated transformation. He and his colleagues found that other species of benign bacteria can be modified in a surprisingly simple way to do the same job, and the resulting gene transfer technology is to be made available on an "open source" basis as part of the biological open-source initiative (BIOS; *Nature* 431, 494; 2004).

Jefferson's contribution of open source plant transformation vectors could have a major impact in making genetic engineering technologies freely available in the United States and developing world. His contributions are scientific but with substantial public service implications, observed Steve Howell, a member of the ASPB Committee on Public Affairs.

In his Perspectives presentation, Jefferson scorned the pursuit of financial enrichment through royalty-generating, restricted-use patents and urged scientists to stay focused on discoveries for the greater good of humanity. He said there needs to be further discoveries and dissemination of free-use technology tools, especially for millions of hungry people in developing countries.



2005 ASPB Leadership in Science Public Service Award winner Richard Jefferson. Photo credit: Osmat Jefferson.

ASPB president Roger Hangarter introduced Jefferson and presented him with the Leadership in Science Public Service Award.

Jefferson was born in 1956 in Santa Cruz, California, and began his molecular biology career in 1974 at the University of California, Santa Barbara, obtaining his bachelor's degree in molecular genetics in 1978.

In 1985, with an NIH fellowship, he moved to the Plant Breeding Institute (PBI) in Cambridge, England, where he adapted the GUS system for plants and agriculture. The GUS reporter gene system—through active distribution to thousands of labs—is now arguably the most widely used tool in plant molecular biology. While working at PBI, Jefferson also initiated and managed the world's first field release of a transgenic food crop on June 1, 1987.

In the past several years, Jefferson's expertise in intellectual property matters and agriculture and biotechnology research strategy and policy worldwide have become widely recognized. He was chosen as an Outstanding Social Entrepreneur by the Schwab Foundation and is a regular participant and panelist at the World Economic Forum Annual Meeting at Davos.

In December 2003, he was named by *Scientific American* to the List of World's 50 most influential technologists and cited as the World Research Leader for 2003 for Economic Development.

He is recognized as a pioneer in new democratized innovation and intellectual property mechanisms and as the founder of the BIOS movement. He has been profiled in *The Economist, New York Times, New Scientist, Financial Times, Science, Nature, Wired,* and many other publications.

Jefferson is a dedicated musician, composing and performing on guitar and mandolin. Those familiar with him know his dedication extends beyond music to science and humanity.

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Taking Plants to the People

Education at the Royal Botanic Gardens, Kew

Founded in 1759, the United Kingdom's most prestigious garden, the Royal Botanic Gardens (RBG), Kew, opens its gates to over 1.5 million visitors for 364 days each year. Kew is increasingly regarded as a leader in the field of education about plants, conservation, and the sustainable use of our vulnerable natural heritage; the key driver lies in its mission to "facilitate understanding of plant and fungal biodiversity and to promote sustainable management of these resources." Education at Kew is therefore all about challenging attitudes; encouraging actions in support of sustainability; and enhancing knowledge and skills about plants, global and local biodiversity, and conservation. Our ultimate aim is to awaken an empathy with the natural world in as many of our audiences as possible; to inspire them to take action in support of our rich, yet vulnerable, natural heritage; and to give them the skills with which to do so.

The Palm House at Kew enables adults and children to explore and learn about vulnerable rain forest and marine habitats. Photo credit: A. McRobb/RBG Kew.

The RBG, Kew has a very strategic and unique identity as a role model for "the research, conservation, sustainable management, and use of plant and fungal biodiversity, both in the United Kingdom and worldwide." To facilitate their programs, education staff at Kew can draw on a wealth of collections, both living and preserved, including 7 million pressed plant and fungal specimens, 30,000 living taxa, 75,000 plant-based artifacts, and a library of over 750,000 items. RBG, Kew also incorporates two very different, yet complementary sites: Kew Gardens near London and Wakehurst Place in West Sussex.

The London-based site offers a multilayered heritage landscape, including features from the 17th century through the present day, with many listed buildings and plantings that range geographically from the Arctic to the equator. This extraordinary combination of historic landscapes and wonderful heritage collections led to Kew Gardens being awarded World Heritage Status in 2003. Wakehurst Place, set in an Area of Outstanding Natural Beauty on the Weald in southeast England, includes a range of exceptionally fine U.K. biodiversity habitats, including two nature reserves; temperate plantings from across the globe; national plant collections; and the Millennium Seed Bank, which aims to store 10 percent of the world's seeds by the year 2010. Both sites are also enjoyed as "gardens," playing a major part in raising the status and value of horticulture and attracting a large and diverse audience. They also offer huge potential to relay vital messages about plants and their habitats and about how we should care for and sustainably use our plant treasures; through those messages we can also enlist support for Kew's mission.

But it is not only the fantastic buildings and plant collections that inspire the educational delivery; it is also the fascinating stories behind Kew's scientific research work and development. The Orange Room Exhibition at Kew's Millennium Seed Bank, Wakehurst Place, was developed in close association with the seed bank research staff. Working with the real-life researchers to draw out exciting tales of how they collect, store, research, and use seeds from around the globe breathes life into education messages. Visitors are able to take a virtual tour of the laboratory and its work, watch the scientists beavering away beyond huge glass windows, try their hand at examining seed

continued on next page

Hands-on and minds-on activities help build positive attitudes. Photo credit: C. Newton/ RBG Kew.

Children can find out what a flower looks like in "Climbers and Creepers." Photo credit: A. McRobb/RBG Kew.

continued from page 29

X-rays to determine whether our latest seed collection is bankable, and even play a seed bank game to see if they are budding conservationists!

In developing this key educational resource, the seed bank scientists offered support in a number of ways, providing raw information for interpretative and exhibition text, ensuring that high-quality photographs were taken on expeditions and during other work activities, suggesting themes for the exhibition, and checking education material for scientific accuracy. Their role continues today, building on their original input, by giving tours and talks to visiting secondary school or university students, facilitating debating sessions on their research and its outcomes, and working alongside the school's manager to offer an accredited further education science module on seed-banking and plant conservation. This latter resource is now available for teachers as a CD-ROM and is proving to be very popular. Recently, a BBC-TV crew traveled alongside one of Kew's seed collectors from Wakehurst Place to film his expedition and collection work. This piece was featured in the new 10-week TV series "A Year at Kew" and provided not only an exciting example of conservation in action but great media coverage for Kew's vital work.

Kew's festivals are another way that visitors come to understand the key role that Kew plays in research and conservation. Each year Kew Gardens delivers up to five events for its visitors, including an orchid festival, a spring woodland festival, a summer-themed festival such as the recent one on U.K. biodiversity, an autumn "harvest" festival, and a Christmas extravaganza. The events are colorful and fun-packed, and all carry important messages about the wonderful world of plants and Kew's role in conserving them. Our U.K. biodiversity festival, for example, displayed a corn field to highlight the importance for wildlife of hedgerows and wild native plants in arable crops, took people on a raised treetop walk to explore and interact with wildlife among some of Kew's tallest trees, offered tours and lectures to view nightime biodiversity such as bats and badgers, and provided wildflower trails around Kew. Kew guides worked with scientific staff to tell up-to-date stories of Kew's work on U.K. biodiversity, and the research staff in Kew's Economic Botany collection worked alongside education staff to deliver a "field hospital" and an exhibition entitled "Wild Harvest." Similarly, Kew's 2005 orchid festival highlighted the work of the herbarium staff working on orchids as well as the extraordinary but vulnerable orchid family.

Reaching the right audiences is critical to Kew's mission. More than 85,000 schoolchildren and teachers visit the two sites of RBG, Kew, and programs for schools are geared to engage children and teachers alike, using plants as a focus to deliver activities across the curriculum. Catching children at an early age helps build positive attitudes toward the environment, and many of Kew's school programs are focused not only on developing scientific literacy, but also on the ability to engage with and articulate the need for conservation and sustainable resource use. Activities exploring fair trade in chocolate production, working out "food miles" by researching major food crops to see how far they travel before they arrive in the supermarket, actively taking part in the restoration and development of a wildlife zone at Kew, and researching biodiversity in Wakehurst Place's ancient woodland zones offer ample opportunities for discussion and

reflection. Building an empathy with nature and sustaining it through a progressive education program into secondary and tertiary education, from the formal to nonformal, helps develop the right skills and mindset for sustainable management. Kew even engages the very young through its newly opened "Climbers and Creepers" zone. An imaginative and colorful activity zone for parents and young children to play and learn in, the theme of this new feature is plant and animal interaction. Children can climb inside a giant flower to see what it looks like, get swallowed up inside a huge pitcher plant, dig for fossil plants in the sandpit, or crawl into a harvest mouse's home to see what plants it is made of.

There is also plenty to re-engage the adult mind in a more formal way, from study days and short courses on fungi and grasses to plant photography and botanical illustration. Professional education is encouraged in a number of ways, from the acclaimed Kew Diploma of Horticulture (three years) and various university modules on plant science and conservation to a range of international diplomas on conservation strategies, herbarium techniques, botanic garden management, and education. Kew's education facilitates access to both heritage resources and cutting-edge science for our audiences and delivers from cradle to grave. We aim to make a difference.

Gail Bromley
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MBE FLS

The Arabidopsis Book

The American Society of Plant Biologists is pleased to publish ***The Arabidopsis Book (TAB)***, a dynamic, fully electronic compilation of chapters co-edited by Chris Somerville, Elliot Meyerowitz, Jeff Dangl, and Mark Stitt and available free of charge on the Internet.

TAB offers a new model for scientific publishing. Each of the chapters in the book reviews in detail an important aspect of the plant *Arabidopsis thaliana*, and the content continually evolves as new information becomes available, making ***TAB*** the most comprehensive and current work on Arabidopsis.

ASPB is providing funds for the posting and maintenance of ***TAB*** on the Internet as a public service. All chapters and updates are hosted in partnership with BioOne (http://www.bioone.org) in both HTML and PDF formats.

Future ASPB Annual Meeting Sites

2006: Boston, Massachusetts

August 5–9
Hynes Convention Center

ASPB will hold its 2006 annual meeting in conjunction with the Canadian Society of Plant Physiologists, la Société Canadienne de Physiologie Végétale. Mark your calendars and look for more information soon.

2007: Chicago, Illinois

July 7–11
Hilton Chicago

ASPB will hold its 2007 annual meeting in conjunction with the Botanical Society of America (BSA), the American Bryological and Lichenological Society (ABLS), the American Fern Society (AFS), and the American Society of Plant Taxonomists (ASPT). Mark your calendars and look for more information soon.

Plant Biology 2008

to be determined

Plant Biology 2009

Honolulu, Hawaii
July 18–22

For more information go to http://www.aspb.org/meetings/.

ASPB Headquarters

Telephone Extensions and E-Mail Directory

For your convenience, keep this listing of extension numbers and e-mail addresses handy when you contact ASPB headquarters so that you can reach the person best able to assist you.

● Our office telephone number is 301-251-0560

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