



NEWSLETTER

American Society of Plant Physiologists

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ASPP EXECUTIVE COMMITTEE APPROVES CREATION OF EDUCATION FOUNDATION

Jones Urges ASPP Members To Place Priority on Education

Many things conspired to make our 70th annual meeting in Portland a tremendous success. Don Ort and his program committee and Ken Beam, Susan Chambers, and other headquarters staff planned an almost flawless meeting that was made an even greater success by a week of wonderful weather and a setting that will be hard to match.

The Portland meeting was also a great scientific success with attendees giving high marks to the symposia as well as the new minisymposia. We look forward to your evaluation via the survey of meeting participants that Don Ort and the program committee distributed.

Several administrative milestones were reached at the Portland meeting. The executive committee supported the proposal that the committee on the status of women in plant physiology be made a standing committee of the Society. The new ad hoc committee on minority affairs was also endorsed by the executive committee, and this committee's plans to raise money from federal sources to encourage participation by underrepresented minorities were enthusiastically endorsed. The executive committee agreed to increase the Society's efforts in education by approving an increase in the size of the education committee from four members to six. Last, but assuredly not least, the executive committee approved establishing an education foundation.

The notion that ASPP should establish a foundation is not new. When Hans Kende was a member of the board of trustees, he proposed that ASPP establish a

foundation to raise funds that the Society could use to support worthy activities other than managing its day-to-day affairs and publishing its journals. Kende's idea was not actively taken up until I as president and Jim Siedow as president-elect of your Society decided to make the establishment of a foundation a major goal.

Planning for the foundation began in January 1994 when the operations subcommittee (comprising the chair of the board of trustees, the past president, president-elect, and sitting president of ASPP, and the executive director) met in Rockville with three individuals who were knowledgeable about foundations and fund raising. With this start and more research, Ken Beam, Jim Siedow, and I met in June of this year to plan the specifics of the foundation and to prepare a proposal that we brought to the executive committee in Portland. This proposal was approved by the executive committee, and the text is published in its entirety on page 5 of this newsletter.

After considerable discussion, the executive committee agreed that the foundation should be called the American Society of Plant Physiologists Education Foundation (ASPPPEF). It was generally agreed that the primary function of the Foundation would be to raise money from corporate and private donors to support its mission—education—and its goal—to promote knowledge about plant sciences in schools and in the global society.

One of the most important challenges that ASPP faces is society's general igno-

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Deadline for the
November/December issue
of the ASPP Newsletter
is October 15, 1994.

Text of Proposal to Create an ASPP Education Foundation
Appears on Page 5 of This Newsletter.

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rance about plant biology. The teaching of biology in elementary and secondary schools is generally poor, but the quality of education in plant biology is even worse. Gauged by the preparation that college freshmen have received in plant science, the situation could be described as critical. As professional plant biologists, we must accept some of the blame for this situation. Although there are members of ASPP who have been particularly active in promoting the teaching of plant sciences in schools, there has not been a concerted effort by ASPP to promote plant biology teaching. One of the goals of the ASPPEF is to help rectify this situation.

Like all worthwhile ventures, ASPP's goal of improving the teaching of plant science in our schools will require the investment of time and money. I am asking ASPP members to become involved in our teaching effort at the grass-roots level by involving themselves with teachers in their local school systems. For example, by acting as mentors to high school biology teachers, ASPP members can promote plant biology as a valid and worthwhile discipline. ASPP should also consider establishing an internship program whereby K-12 teachers can spend time in the laboratories of ASPP members.

Several successful internship programs

have been established by our sister biological science societies, and many of our members have been actively involved in these programs. For example, the American Society of Biochemistry and Molecular Biology (ASBMB) has an active education committee that oversees an internship program for high school biology teachers. Jack Preiss from the Department of Biochemistry at Michigan State University is a member of ASBMB's education committee, and Ken Keegstra, now from the Plant Research Laboratory at Michigan State, acted as a mentor in the summer of 1992 at the University of Wisconsin-Madison for a teacher enrolled in ASBMB's internship program. Such ventures are costly, however. By establishing the ASPPEF, the Society hopes to raise funds from new and different sources to support this and other types of educational activities.

The ASPPEF should also take the lead in promoting public understanding of the plant sciences. Advances in agricultural biotechnology have raised public awareness of plant biology, but it is clear that public understanding of the issues surrounding biotechnology is modest. How can we as plant scientists expect the public's continued support of research in plant biotechnology if we do not help them understand the scientific issues that

are involved and how those issues are critical to their own well being?

The proposal to establish the Foundation includes the transfer of \$1 million from the Society's general endowment fund of about \$3.5 million to the ASPPEF endowment. The importance of this transfer of part of our total endowment is that potential donors will see that the members of ASPP place a high priority on the ASPPEF. The use of the ASPPEF endowment fund will be subject to the same restrictions as exist for the ASPP endowment. Thus, the 5% spending limit will remain in effect for this portion of our endowment funds, meaning that no more than \$50,000 of the ASPPEF endowment may be spent annually. The endowment fund will continue to grow at an annual rate of about 8% if investment returns of the past five years hold.

As members of ASPP, you can show your support for your Society's efforts in education in two ways. The first demonstration of support will be to vote for the ASPPEF when it appears on the annual ballot in the spring of 1995. You will be asked to approve the establishment of the ASPPEF as Article XII of the Society's constitution and bylaws, which are printed at the back of your 1994 Membership Directory.

The second way you can demonstrate your support for the goals of the Foundation is by donating whatever you can afford to the Foundation when a solicitation is sent. I encourage ASPP members to be generous in their donations to ASPPEF. As president I shall donate to the Foundation the honorarium that is given this position.

The success of the ASPPEF will depend on the commitment of ASPP's membership and on the vision and leadership of the individual who agrees to serve as its chair. I ask for your help in identifying possible candidates from among our membership and from the community of plant biologists at large.

This will be my last letter as your president. It has been a privilege to serve our Society, and the experience is one I shall not forget. I know that my colleagues Jim Siedow and Bob Buchanan will continue the thrust in education that we have initiated, and I look forward to working with them to achieve the goals that have been set.

Russell L. Jones
ASPP President, 1993-94
University of California, Berkeley



East met West at the ASPP annual meeting in Portland, Oregon, when the president of the Russian Society of Plant Physiologists joined the three ASPP presidents for this photograph. From left: ASPP Past President Ralph Quatrano, President Russell Jones, Russian Society President Valentin Kefeli, and President-Elect Jim Siedow.

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Zavala Is Outstanding Professor



Dr. Maria Elena Zavala

The California State University at Northridge in May of this year awarded the title of Outstanding Professor to ASPP member Dr. Maria Elena Zavala. Dr. Zavala, a professor of biology, has been on the faculty at CSUN since August 1988, when she was hired as an associate professor. She teaches two undergraduate courses per semester, team teaches a graduate course, runs an active research program, serves as adviser to several master's degree candidates, advises Chicanos for Community Medicine, was a board member and treasurer of the Society for the Advancement of Chicanos and Native Americans for five years, served as ad hoc reviewer for NSF and NIH, is on the Minority Affairs Committee of the American Society for Cell Biology, is on an NIH review committee, and is director of three special programs, two of which are NIH-funded programs for minority students and faculty.

Maria Elena Zavala, a native of California, earned a bachelor's degree in botany from Pomona College in 1972. As a graduate student at University of California, Berkeley, she studied with plant cell biologist William Jensen and botanist Robert Ornduff and wrote her doctoral dissertation on pollen development in heterostylus plants. After earning her Ph.D. in 1978, Zavala worked as a postdoctoral associate in the laboratory of Paul Mahlberg at Indiana University in 1978-79, as a staff researcher for the USDA in Berkeley from 1979 to 1982, and as a Ford Foundation postdoctoral fellow in the laboratory of Ian Sussex at Yale University from 1982 to 1986.

Dr. Zavala, one of very few Chicanas in the United States who holds a Ph.D. in plant biology, has been deeply committed to using her career to benefit minority groups. Following her time in the Sussex lab at Yale, she decided to go to medical school, thinking she would be of more service as a physician than as a scientist. She had been accepted to medical school when she was offered the opportunity to join the faculty at Michigan State University as the Rosa Parks/Cesar Chavez Visiting Professor. After some soul-searching, she rethought her plan and concluded that

she could best benefit the minority community by teaching and encouraging students to pursue science. She accepted the position at Michigan State in the Department of Biochemistry and stayed from 1986 until 1988.

The two NIH programs that Dr. Zavala oversees at CSUN are called Minority Access to Research Careers (MARC) and Minority Biomedical Research Support (MBRS). MARC encourages promising undergraduates from underrepresented groups to pursue careers in scientific research. One measure of the success of the program is that, whereas few minority students from CSUN were accepted in graduate programs before MARC was initiated, minority graduates of CSUN are now enrolled in Ph.D. programs at Stanford, Harvard, UC Davis, UC Irvine, and the University of Iowa. MBRS assists faculty members in institutions with a significant minority population to increase their own research productivity. The program also provides funding to those faculty members to support minority undergraduates as laboratory assistants.

Dr. Zavala's career and dedication to teaching are an excellent example of the type of commitment that ASPP President Russell Jones urges on ASPP members in his final letter to the membership (see page 1). Her achievement is also notable as ASPP's new Committee on Minority Affairs begins an active program to encourage participation by members of underrepresented groups and to seek to increase the numbers of minority students who select plant biology as their life's work (see page 8). The members of ASPP congratulate Maria Elena Zavala on her well-earned recognition from CSUN.

The ASPP NEWSLETTER is distributed to all ASPP members and is published six times annually, in odd-numbered months. It is edited and prepared by ASPP staff from material provided by ASPP members and other interested parties. Copy deadline is about the fifteenth day of the preceding even-numbered month (e.g., December 15 for January/February publication). Submit copy by e-mail whenever possible; submit all other copy by mail, **not by fax**. Contact: Jody Carlson, Editor, ASPP NEWSLETTER, 15501 Monona Drive, Rockville, MD 20855-2768 USA; e-mail jcarlson@access.digex.net, telephone 301-251-0560, ext. 17.

ASPP Education Foundation Proposed

Editor's note: Printed below is the text of the proposal to create an American Society of Plant Physiologists Education Foundation. ASPP's executive committee approved the proposal at its meeting in Portland, Oregon. President Russell Jones discusses the rationale for the Foundation in his letter that appears on page 1 of this newsletter. On the annual ballot that will be mailed to all members in the spring of 1995, the membership of ASPP will be asked to approve the Foundation by adding it to the Society's constitution and bylaws.

Mission Statement

The American Society of Plant Physiologists Education Foundation (ASPPEF) promotes and supports education in the plant sciences to enhance the role of the plant sciences in a global society.

Goals

1. To promote the teaching of plant sciences at all levels.
2. To advance public understanding and appreciation of the value of plant sciences to the welfare of society.
3. To support the development of new initiatives in emerging areas of plant science education.
4. To provide a mechanism for individuals and organizations to support education and research in the plant sciences.

Composition of the ASPPEF Board of Directors

The Board of Directors will be a standing committee of the Society and shall consist of one member designated as the Chair appointed to a three-year term by the President with the approval of the Executive Committee, twelve members recommended by the Chair and the President for approval by the Executive Committee, and the following *ex officio* members: the president, the president-elect, the immediate past president, the chair of the board of trustees, the treasurer, and the executive director. Each appointed member of the Board of Directors will serve a three-year term (NOTE: Initially, the terms of the twelve will be staggered such that four will be appointed for four-year terms, four for three-year terms and four for two-year terms).

Duties of the ASPPEF Board of Directors

The Board of Directors of the ASPPEF shall oversee the management of all activities of the Foundation. The ASPPEF will report to the Executive Committee through the Chair of its Board of Directors. The Board of Directors will be responsible for developing the ASPPEF budget, which will be presented to the Board of Trustees to be included as part of the Society's annual budgetary process. Final approval of the ASPPEF budget will rest with the Executive Committee.

Approval

The structure outlined above will be subject to the approval of the ASPP membership as required by the constitution and bylaws of the Society. Until this approval is granted, the ASPPEF Board of Directors will exist as an *ad hoc* committee of the Executive Committee of the Society.

Review

Continuation of the Foundation will be subject to review once every five years by the Executive Committee to examine the ASPPEF operation and success in achieving its goals. The review committee will be an *ad hoc* committee chaired by the Past President and consisting of five other individuals appointed by the President. The Review Committee will make a recommendation to the Executive Committee which will then make a decision regarding continued authorization of the ASPPEF.

Budgetary Issues

1. The ASPPEF budget will be developed by the Board of Directors as a self-contained, independent fund within the overall society budget.
2. To provide an initial base of funding for the ASPPEF, one million dollars will be moved from the ASPP General Endowment into a separate (restricted) fund, to be designated the ASPP Education Foundation Endowment. Use of the funds in the ASPPEF Endowment will be subject to the same annual limit of 5.0% of the market value currently associated with the use of the General Endowment.

Duties of the Chair of the Board of Directors

The duties of the Chair of the Board of Directors include directing the activities of the Foundation, working with the President to identify members of the Board of Directors, recruiting volunteers to accomplish Foundation goals, assisting in cultivating corporations, foundations and other donors compatible with ASPPEF goals, and reporting to and serving as a member of the ASPP Executive Committee.

See related story on page 1 of this Newsletter.

EDUCATION FORUM

Compiled by Susan Singer, Department of Biology, Carleton College, Northfield, MN 55057, e-mail ssinger@carleton.edu

Education Inspiration at the Annual Meeting

I returned from Portland with renewed appreciation for the diverse and meaningful ways ASPP members are actively involved in so many aspects of education. The new title for this column was selected by the education committee to reflect the breadth of all our efforts in educating ourselves and others about plant biology. It is especially exciting to see the strong commitment of ASPP to education in the proposed ASPP Education Foundation. What an opportunity for ASPP to truly make a difference!

Several colleagues shared their teaching experiences and insight at our pre-meeting workshops, education booth, and education poster presentations. Sheila Tobias energized her audience to examine approaches to testing and grading and to ask what messages we are sending to our students with our exams. As classes resume this fall, workshop participants may well be looking more closely at the fit between curricular goals and evaluation strategies. New faculty members who participated in Carol Reiss's and Jon Monroe's workshop on setting up a lab course will, we hope, be embracing fall term with less trepidation and some useful strategies. Carol's decade of lab teaching and Jon's recent experience as a new faculty member combined to provide a balanced perspective on making it through a new lab course with your sanity intact (or almost...).

The education booth was packed with people engaged in the demonstrations, as well as conversations about teaching. It also offered a gathering point for the Portland teachers who were invited to our meeting. Many thanks to Katie Clark, Dina Mandoli, and Carol Reiss who developed exhibits for the booth. Katie updated us on navigating the Internet. After Dina's wonderful computer-aided demonstration on how to make a great poster, the quality of next year's posters should be even better! If anyone is interested in a

copy of the photosynthesis video from Cornell that was shown at the booth, contact Carol Reiss (215 Plant Science Building, Cornell University, Ithaca, NY 14853, e-mail hcr1@cornell.edu). The cost is \$28.

As usual, the teaching posters were diverse in subject and full of exciting new possibilities for the classroom. Topics ranged from gravitropic experiments using dandelions to tissue culture to a model program utilizing graduate students as consultants for undergraduate lab development. Next year the teaching posters will be by the education booth!

Yet Another ASPP Author!

Arthur Galston's new book, *Life Processes in Plants*, is now available from W. H. Freeman and Company (1994, ISBN 0-7167-5044-9, 245 pages). It is part of the Scientific American Library series. Galston's intended audience is "the intelligent layperson." While it is not really a text, it has some definite possibilities for a non-major course. It is a beautifully illustrated book with unusually clear diagrams and explanations. Galston deals with the broad sweep of plant biology in a brief, meaningful way. Explanations are necessarily simplified, but without giving the appearance of superficial treatment.

Expectations for College-Bound Students

Are we asking enough of our students? The American Federation of Teachers and the National Center for Improving Science Education is beginning to address this issue by looking at expectations for college-bound students abroad. "What College-Bound Students Abroad are Expected to Know about Biology" contains examples of exams from England and Wales, France, Germany, and Japan. It takes a comparative look at the United States, questioning not only the level of challenge, but the percentages of students taking these exams. As you contemplate the background of students entering your college-level introductory biology courses, you may be interested in obtaining a copy of this publication from the American Federation of Teachers, 555 New Jersey Ave., NW, Washington, DC 20001 (ask for item 250).

Education Survey

Thanks to all of you who have so promptly returned the education survey from the last Newsletter. If you haven't completed one, there is still time. Please send it to Brian Hyps at ASPP headquarters. The Education Committee will compile the results and share them with you in an upcoming Education Forum.

New Education Committee Members

As of October 1, Dale Blevins, Bob Wise, and Dina Mandoli will be joining the education committee. Kathie Fishbeck, Ann Hirsch, and John Greenler are moving on to other endeavors and their past contributions are much appreciated. Carl Pike and Susan Singer will be continuing with the committee. Brian Hyps is our liaison at headquarters. We are all interested in hearing your thoughts, suggestions, educational successes, etc. For example, contributions to this Education Forum are always needed and much appreciated.

New Internet Discussion Group

Need some input on one of your courses? Looking for meaningful discussions on education? A mailing list for a new prototype BIOSCI newsgroup, "plant-education," has been established for plant biologists who are involved in teaching courses on plants. BIOSCI newsgroups are electronic forums using USENET news software or e-mail where subscribers can participate in discussions on a variety of specific topics. This is the first such mailing list devoted solely to an aspect of education. It will complement a variety of established newsgroups emphasizing plant research. The plant education mailing list will allow instructors, lab preparators, and graduate assistants who teach courses in any aspect of plant biology to discuss topics pertaining to their undergraduate and graduate level plant courses.

This mailing list is intended to be (1) a resource for the exchange of laboratory methodologies and classroom activities, (2) a source of quick help for last-minute troubleshooting, conditions for plant growth, sources of materials, and practical advice, (3) a forum for

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discussing open-ended investigative laboratory projects, (4) a forum for discussing textbooks, and (5) an archive of searchable information for future use by instructors of plant courses.

To subscribe, send the command "subscribe plant-ed" (do not include the quotation marks) to: biosci-server@net.bio.net. General information about existing BIOSCI newsgroups, subscribing, unsubscribing, searching BIOSCI archives, and FAQs can also be obtained electronically. If you are located in the Americas or Pacific Rim countries, send a message to: biosci@net.bio.net. Instructions will be returned automatically, so the contents of your message do not matter. If you are located in Europe, Africa, or Central Asia, send an e-mail message containing the word "help" (again, do not include quotation marks) in the body to: mxt@dl.ac.uk. In either case the subject will be ignored.

As an unmoderated mailing list, all postings will be automatically distributed to all subscribers. Replies can be made either to the sender individually or to all subscribers. As a prototype newsgroup, this mailing list is currently in the trial period in which the purpose and future of the group should be debated. In February of 1995 the future of the group will be put to a vote after which it will either become a full-fledged newsgroup or be terminated. Therefore, participate and ensure the future of this group! The discussion leaders are Jonathan D. Monroe, Department of Biology, James Madison University, Harrisonburg, VA 22807 (e-mail: fac_jmonroe@vax1.acs.jmu.edu) and Susan R. Singer, Biology Department, Carleton College, Northfield, MN 55057 (e-mail: ssinger@carleton.edu).

Look for more information on using the Internet as an educational resource in the next Education Forum.



REMINDER:

Changes are coming to the ASPP Job Placement section beginning with ads that appear in January 1995. See page 23 for details.



Three of the several past presidents of ASPP who attended the annual meeting in Portland, Oregon. Pictured from left are John Boyer, president in 1981-82; Elisabeth Gantf, ASPP's first woman president in 1988-89; and Aubrey Naylor, president in 1960-61



Some annual meeting attendees sampling the abundant fare at the annual meeting dinner dance, Picnic in Portland, August 2, that was held outside on a beautiful, balmy, clear night. Breaking with tradition, the party was held on the next to the last night of the annual meeting rather than the last night in the hope that more people would be encouraged to attend. The experiment was a resounding success! Nearly 500 people attended and enjoyed a wonderful buffet that was made completely from food grown in Oregon. Even the beers and wines were native to Oregon! After eating to their hearts' content, a large crowd stayed until midnight, dancing to the music of a local group, Panama.

COMMITTEE ON MINORITY AFFAIRS HOLDS FIRST FORMAL MEETING

The newly formed committee on minority affairs of ASPP had its first formal meeting in Portland at the annual meeting. Members of the committee are Bill Gordon, chair, Deborah Cook, Sheila Fennoy, Frank Greene, Emil Orozco, Aurea Vasconcelos, and Eugene Vigil. The committee established as its primary objectives "to develop strategies to encourage greater participation of minorities in ASPP, and to provide opportunities for underrepresented minorities in the field of plant physiology."

Receiving the strong support of President Russell Jones and President-Elect Jim Siedow, as well as the executive committee, the committee on minority affairs has proposed to assist the Society in seeking extramural support from several federal agencies to supplement and support minority student and faculty attendance at the annual meeting. Other planned activi-

ties include identifying and recognizing minorities in ASPP by surveying the membership with the annual dues notice and conducting a luncheon instead of a breakfast at the annual meeting. The committee considers the luncheon to be an important opportunity to honor annually a minority as the speaker.

With these three objectives, which were presented to and approved by the executive committee, the committee on minority affairs believes that it can be a voice for minority members and represent their views to the Society. The committee looks forward to communicating with all members, particularly minority members, as it goes forward in its efforts to strengthen the participation of minority members within ASPP and provide opportunities for these members to present their research.

Program for Minority Researchers in Plant Sciences Completes Second Successful Summer

The Minority Researchers in Plant Sciences completed its second summer research program at Michigan State University with eleven participants, almost three times as many as last summer. This year's participants included eight African-American students from five different historically black institutions and three Hispanic students from the University of Puerto Rico at Mayaguez. During the 10-week period, the participants conducted individual research projects, attended weekly enrichment seminars, and traveled to Indianapolis, Indiana, to tour the plant research facilities of Dow/Elanco. The Honorable Dorothy Gonzales, member of the board of trustees of Michigan State University, presented certificates of award to both students and mentors in the closing ceremonies of the summer program.

During the year, Bill Gordon (Howard University) and Ken Poff (Michigan State University), co-coordinators of the MRPS

program, developed two new components: (1) a minority outreach component in which plant science faculty members from Michigan State University visited historically black institutions to provide one-week workshops; additional outreach workshops are planned for the fall 1994 semester; and (2) a mentoring workshop at Michigan State University to encourage sensitivity when mentoring students of diverse genders, races, and cultures.

The MRPS program has been funded by grants from DOE, Michigan State University, and Dow/Elanco. For further information about activities during 1993-94 and future plans, you may contact: Dr. Kenneth L. Poff, DOE/Plant Research Laboratory, Michigan State University, East Lansing, MI 48824, telephone 517-353-1789, or Dr. William R. Gordon, Department of Biology, Howard University, Washington, DC 20059, telephone 202-806-6933.



Santosh Misra (left) and Maarten Chrispeels (right) enjoy a moment at the opening night mixer at the annual meeting in Portland, Oregon.



Enjoying the Picnic in Portland were (left) Jan M. Anderson, president of the Division of Plant Industry of CSIRO in Australia, and (right) Anne Dalke, of the NRICGP office in Washington, D.C.

NASA RESEARCH ANNOUNCEMENT

Watch for a NASA Research Announcement (NRA) related to plant sciences to be released in September. For information contact: Tom K. Scott, Code UL, NASA Headquarters, Washington, DC 20546; fax 202-358-4168.

Deadline for copy for the
November/December issue of the ASPP Newsletter is
October 15, 1994.

Public Affairs

USDA Officials Prepare Reorganization Implementation

The National Research Initiative Competitive Grants Program (NRICGP) would remain intact as a cohesive program under the reorganization implementation plan prepared at the end of August by key USDA officials serving on a steering committee.

The recommended plan is being sent to USDA Acting Assistant Secretary for Science and Education R. Dean Plowman for his review. Details of the recommendation are expected to be released early in September.

The details of the recommendation are expected to show that NRICGP would be part of a new Cooperative State Research and Education Service (CSRES). CSRES will carry out the functions now performed by the Cooperative State Research Service (CSRS) and the Extension service. NRICGP is currently housed within CSRS.

This internal recommendation responds to proposals in Congress. The Agricultural Research Service (ARS) would merge with the National Agricultural Library under the proposed reorganization. The Senate passed its reorganization plan as part of Senate Bill 1970 on April 13. The House Committee on Agriculture ordered its bill (HR 3171) reported out of committee on June 16. The bill was reported out of committee on August 23. The House bill is on the calendar pending a vote by the full House of Representatives.

The reorganization proposal going to Plowman varies from a plan proposed earlier by USDA which called for combining ARS, CSRS, the Extension Service, and National Agricultural Library into a new Agricultural Research and Education Service (ARES).

FY 95 DOE ENERGY BIOSCIENCES FUNDING AT \$28.9 MILLION

Fiscal Year 1995 appropriations for the Department of Energy were signed into Public Law 103-316 on August 26. The law provides \$28.9 million for the Division of Energy Biosciences for FY 95, an increase of \$3 million over the President's proposal.

The chief supporter of increased funds for the Division of Energy Biosciences in the House was Rep. Ed Pastor (D-AZ) who met with ASPP members Martha Hawes and Brian Larkins and also with Hans Van Etten at the University of Arizona. Hawes also met with the staff of Sen. Dennis DeConcini (D-AZ), who supported increased funding as a member of the Senate Appropriations Subcommittee on Energy and Water Development.

ASPP members Hans Kende of Michigan State University and Peter Albersheim of the University of Georgia played key roles in seeking increased funding. Kende credited Albersheim as someone with "political vision and initiative."

Helping to secure increased funding were ASPP members Terri Lomax of Oregon State University, Norman Lewis of Washington State University, and Bill Lucas of the University of California at Davis, who met with offices of their senators and representative who serve on Appropriations: Sen. Mark Hatfield (R-OR), Sen. Slade Gorton (R-WA), and Rep. Vic Fazio (D-CA). ASPP members Kent Bradford and Muhammad Aslam, both of the University of California at Davis, also wrote to Rep. Fazio in support of Rep. Pastor's proposal. ASPP members William Outlaw, Karthik Aghoram, and Zhironq Du, all of Florida State University, wrote to the office of Rep. Douglas "Pete" Peterson (D-FL) of the Appropriations Subcommittee on Energy and Water Development in support of Rep. Pastor's effort.

NSF FY 95 FUNDS UP 5.4 % FOR RESEARCH

Senators and Congressmen serving on a conference committee resolving differences between the House- and Senate-passed bills appropriating funds for the National Science Foundation (NSF) for Fiscal Year 1995 agreed August 18 to increase funds for NSF by 13.8 percent over this year's amount. This represents an increase of \$412.8 million to nearly \$3.4 billion. The funding level is more than \$195 million higher than the Clinton administration's original budget request.

Research and Related Activities is up 5.4 percent to \$2.28 billion. This is considerably higher than the House-passed version, which had called for an increase of 2.5 percent, but not as high as the President's request for \$2.34 billion. Funds for Education and Human Resources were increased by 6.4 percent to \$606 million.

Funding for the much smaller programs of Academic Research Infrastructure and Major Research Equipment received huge

increases. Funding for Academic Research Infrastructure is up 138 percent to \$250 million. Major Research Equipment is up 641 percent to \$126 million.

The Coalition for National Science Funding (CNSF), of which ASPP is a member of the steering committee, said results as positive as the NSF FY 95 appropriations in a time of severe budget restraints reflect the continuing and constant messages that CNSF and its member organizations are sending to Congress. House and Senate approval of the conference report, which had not been filed at time of ASPP newsletter publication, may occur in September.

You still have time to return the Outreach Survey form that was included in the July/August Issue of the ASPP Newsletter.

The ASPP Education Committee is interested to hear from you. Mail your form to Brian Hays, 15501 Monona Drive, Rockville, MD 20855.

Urgent Need for Plant Biotechnology Reported

A story on the transgenic plants and agriculture symposium at the ASPP annual meeting in Portland published by The Oregonian August 1 reported on the urgent need for agricultural technologies such as biotechnology.

"Future consumers may feast on engineered food. Plant scientists say enhancing crops with genetic alterations is a viable option for feeding a burgeoning world population," explained the headline and subhead. "Food producers who already are struggling to combat plant diseases, pests and the deterioration of farmlands face still another problem: more and more mouths to feed. The earth's population is expected to double in the next 50 years. Feeding this swelling population places an increasing demand on food producers, but some say biotechnology can provide solutions to these problems," the news story said. "And along with it can come better-tasting and more nutritious foods."

"Many see biotechnology as the only practical way to face and solve the big problems facing future generations," Robert T. Fraley of the Monsanto Company's Agricultural Group was quoted as saying.

"New varieties of soybeans, genetically engineered by Monsanto to tolerate her-

bicides, should provide effective weed-control options to growers, according to Roy L. Fuchs also of the company's Agricultural Group," the story noted. "Glyphosate, the weed killer marketed under the name Roundup, normally has detrimental effects on soybeans as well as on the pest plants. When engineered with the glyphosate-tolerant gene, however, the Roundup Ready soybeans thrive even when treated with the herbicide," the report continued.

William R. Hiatt's of Calgene Fresh, Inc., explanation of how the new Flavr Savr tomato is engineered to extend its shelf life was reported. "The Food and Drug Administration says the Flavr Savr tomato is as safe as any other tomato," the story noted.

The newspaper also reported on the presentation of Rebecca Goldberg of the Environmental Defense Fund who argued that the process of genetically engineering crops is fundamentally different from breeding in the traditional ways.

This story on the ASPP symposium on transgenic plants, written by Susan Andrew of The Oregonian staff, was picked up by a news wire service. The Oregonian also carried a brief report on the taxol and phytoremediation presentations at the ASPP annual meeting.

Plant Engineering Containment Guidelines Published

The National Institutes of Health (NIH) published revised guidelines which officially accept Appendices P and Q that describe containment conditions for experiments with recombinant DNA-containing plants, large animals, and microorganisms associated with them. Appendix P has the plant guidelines. The publication of these guidelines in the July 5, 1994, issue of the Federal Register (pages 34472-34494) culminates efforts that were begun by USDA in 1986.

NIH also promulgated new guidelines that suggest containment levels for different levels of potential risk. This is useful to researchers and to Institutional Biosafety Committees charged with setting these containment conditions under the 1986 guidelines and who have relied on unofficial draft versions until now. These new guidelines were also published July 5, 1994, in the Federal Register (pages 34496 to 34547).

PLANT BIOTECHNOLOGY SOWS SEEDS FOR TASTIER, HEALTHIER FOODS

A comment letter by Russell L. Jones, ASPP president, published by The Washington Times on July 11 responded to the Special Report the newspaper carried June 29 on genetically engineered foods. Following is the comment letter which the newspaper ran under the headline, "Plant biotechnology sows seeds for tastier, healthier foods":

"Your June 29 Special Report on genetically engineered foods provided an informative report on the Flavr Savr tomato and other foods developed through biotechnology. The articles also carried a balance of supportive comments from industry and government spokespeople and critical comments from advocacy "scientist" organizations.

"Plant scientists in science societies such as the American Society of Plant Physi-

ologists (ASPP) see that plant biotechnology offers new opportunities to meet the world's future needs for food, fiber, and other products. ASPP members conducting research in plant biotechnology are bringing us better-tasting, more nutritious, and healthier foods and are engineering hardier plants that can naturally resist pests and disease and survive harsh climatic stress. This technology will also bring us plants that will clean up toxic environmental hazards in the soil. It would be a disservice to the public if unsubstantiated and unfounded fears were raised concerning plant biotechnology that might inhibit its development.

"Past generations have depended upon advances in science and technology to help meet the world's needs for food and fiber. Plant biotechnology is a more effective technological tool in today's labora-

tory that will help tomorrow's world garden meet consumer demands."

Comment letters in response to articles in national and local newspapers and magazines give the opportunity to more fully explain or clarify an issue that was covered in a news story. ASPP members who read an article concerning the plant sciences that may need clarification are asked to inform ASPP headquarters about the article soon after publication for review by the Committee on Public Affairs and ASPP leadership for potential submission of a response. More comment letters are submitted to newspapers than are printed but the potential for use is higher with a prompt response. Please fax articles in question to ASPP public affairs director Brian Hyps at 301-279-2996.

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WHITE HOUSE RELEASES NATIONAL SCIENCE POLICY REPORT

Vice President Al Gore released the Administration's policy statement, "Science in the National Interest," at a White House ceremony on August 3, 1994. This report calls for an investment in science as a national priority and links scientific research and education to our national goals and to the future well-being of our country. The report identifies science as "an endless and sustainable resource with extraordinary dividends," and emphasizes that "our scientific strength is a treasure which we must sustain and build on for the future."

"Science in the National Interest" calls for a "strong commitment to investigator-initiated research and merit review by scientific peers." The theme that permeates the document is that pushing back the frontiers of knowledge will produce unanticipated benefits. The policy presented in this report stresses the need to tap scientific talent from every part of our diverse population as well as the need to raise the scientific literacy of all Americans.

The document proposes a series of actions to meet five broad goals for world leadership in science, mathematics and engineering:

- Maintain leadership across the frontiers of scientific knowledge.
- Enhance connections between fundamental research and national goals.
- Stimulate government, industry, and academic partnerships that promote investment in fundamental science and engineering and effective use of physical, human, and financial resources.
- Produce the finest scientists and engineers for the twenty-first century.
- Raise the scientific and technology literacy of all Americans.

The 31-page policy document, as issued by President Clinton's National Science and Technology Council, is available online through the Science and Technology Information System at NSF. Gopher to stis.nsf.gov and look in /nsf/news; file name is whrpt941. To obtain the document by ftp, ftp to stis.nsf.gov; the file is science.txt in the /pub directory.



Members of the executive committee ponder a point at their meeting in Portland. From the left, Stan Roux, chair of the publications committee; Jim Siedow, president-elect; Don Ort, secretary; Brian Hyps, ASPP public affairs director.



Get Your T-Shirts Here!

Did you go to the annual meeting and forget to buy a t-shirt? Did you not go the annual meeting but want to fool your friends into thinking you went? Either way, we have the solution: buy one now. We returned to headquarters with some unsold shirts (mostly large and extra large) that we would love to sell to you. They are heavyweight 100% preshrunk cotton, with a colorful (reds, blues, and purples) representation of the Portland skyline against Mount Hood, designed by t-shirt maven extraordinaire Dave Longstreth. The cost? Only \$12. Contact membership coordinator Shaon Kelly to find out how to order.

Letter to the Membership

Members who attended the ASPP annual meeting in Portland may have noticed some positive developments. There were more postdocs than ever chairing sessions, and more children attending with their parents. While it can't have been too exciting for the kids, it was great to see their parents at the meeting, just as it was great to see so many younger faces introducing their colleagues. I welcome both of these changes because they suggest that ASPP is increasingly interested in the views and interests of young scientists.

My purpose in writing this letter is to try to generate some interest in the idea of forming postdoc and student groups within the ASPP so that we can both share information and also put our views forward more effectively. I am interested in getting feedback on a number of ideas that I will outline below, but I am hoping that people might also volunteer to help get things going.

One of my initial objectives is to arrange special functions for students and postdocs at our meetings. Just as there is a lunch for women in plant physiology, we could also have a "postdoc dinner" to which everyone would be welcome but for which the theme would be issues for postdocs. We could invite speakers to discuss subjects as diverse as "opportunities outside science" to "writing your first grant." By getting postdocs together from all over the country (and world), we would have a great opportunity to discuss prospects and reforms as well as to share experiences and make useful contacts. Grad students may be interested to share opinions on "negotiating a postdoc" or "theses without pain." This would also be an excellent opportunity to hear about the concerns of students and to find out if our society can improve its service to student members.

Other potentially useful ideas include the establishment of a gopher hole (or bulletin board) for ASPP postdocs or grad students for posting job announcements, for example. Similarly, feedback, news, and opinions could be more easily circulated than through the mail. We could also try to develop e-mailing lists so that job ads and other notices

could be automatically distributed to members who had registered an interest in receiving such material.

Student and postdoc groups could focus on career questions. Many young scientists have to decide at various points of their careers whether to continue with science or to change direction. When facing this decision, most of us have little to go on but our own immediate experience. As a group, we may be able to collect more information and experience.

Although careers, or the lack thereof, are a major issue, a myriad of other problems face young scientists and need to be addressed. Amongst these are the standards of high school and undergraduate science teaching, burnout, rampant bureaucracy, absurd pressures on faculty, poor postdoc conditions, and rising conservatism. These are problems for young scientists because we are and will be the ones most directly affected. It makes sense, therefore, that we should be the ones to be doing most about it. If we represent our views forcefully and articulately, we may be able to generate change.

The mood for reform and a concern for young scientists is not limited to the ASPP. Various organizations have begun to realize that they have been expecting too much while giving too little to students and postdocs. An editorial in *Nature* (28 July, 1994) called for "a more civilised way of dealing with the careers of the non-commissioned officers of research [postdocs]" following a massive drop in NIH grants to "young scientists." This sort of talk signals a justifiable concern for the future supply of scientific talent. With groups like the NIH sounding repentant and the economy growing at a healthy rate, we have perhaps one of the best opportunities ever to improve the terms and conditions for younger scientists. I hope we can get organized in time to make the most of it.

Michael Burnet
Postdoctoral Associate
University of Montreal
burnetm@ere.umontreal.ca

FELLOWSHIPS AND TRAINEESHIPS

NSF GRADUATE RESEARCH TRAINEESHIPS IN PLANT BIOLOGY

NSF Graduate Research Traineeships are available in the Department of Botany and Plant Sciences of the University of California, Riverside, to study the regulation of plant growth and development. Signals that control plant growth and development at the cellular, molecular and whole plant level will be studied by the trainees. Participating researchers include Elizabeth A. Bray: plant hormones, especially abscisic acid; Julia Bailey-Serres: regulation of mRNA translation; Timothy J. Close: environmental stress; Anthony H. C. Huang: cell biology of seeds; Elizabeth M. Lord: developmental biology; Eugene M. Nothnagel: arabinogalactan proteins; and Linda L. Walling: aminopeptidases and plant development. This program is also designed to promote student diversity in plant biology leading to an increased number of Ph.D. scientists from currently underrepresented ethnic groups. Minorities are encouraged to apply. Only U.S. citizens or permanent residents are eligible for the traineeships. For more information, please contact Dr. Elizabeth A. Bray, Department of Botany and Plant Sciences, University of California, Riverside, CA 92521; telephone 909-787-4548, fax 909-787-4437, e-mail bray@ucr.ac1.ucr.edu.

A New Training Program Maize: Bridging Basic Biology and Biotechnology

The DOE/NSF/USDA Joint Program on Collaborative Research in Plant Biology is sponsoring a new training grant at the University of Missouri-Columbia entitled Maize: Bridging Basic Biology and Biotechnology. The purpose of our program is to provide graduate students and postdoctoral associates with a comprehensive and multidisciplinary education in maize biology, covering genome organization, gene expression, signal transduction, hormone action, organelle biology, disease resistance, and crop plant productivity. Thirteen faculty members from four different units—Division of Biological Sci-

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ences, Agronomy/Plant Sciences Unit, Biochemistry, and the USDA/ARS—are involved in developing the collaborative interactions that are the basis of this interdisciplinary training program. Our overall goal is to attract top individuals to research in maize biology and to educate them to be leaders in collaborative research. Positions are available for both graduate students and post-doctoral fellows on a competitive basis. For fall 1995, we are seeking to fill 4-6 graduate traineeships with high quality applicants. For more information, please contact: Dr. Kathleen Newton, Division of Biological Sciences, Tucker Hall, University of Missouri-Columbia, Columbia MO 65211; fax 314-882-0123, e-mail newton@biosci.mbp.missouri.edu.

National Needs Fellowships in Molecular Crop Protection

Graduate fellowships are available at North Carolina State University for research leading to a Ph.D. degree in botany, entomology, genetics, or plant pathology will be awarded to highly qualified applicants interested in the utilization of biotechnology approaches for protection of crop plants against pathogens and pests. Research areas may include: (1) identification and characterization of genes from plants, insects, and microorganisms, (2) development and analysis of transgenic plants, and (3) the ecological consequences of transgene deployment. Graduate fellowships will carry a stipend of \$17,500 a year and are limited to U.S. citizens and permanent residents. Applications should be received by February 15, 1995. For information and application forms contact Dr. Charles H. Opperman, Department of Plant Pathology, North Carolina State University, Raleigh, NC 27695-7616; telephone 919-515-6699, fax 919-515-7716.

DEADLINES APPROACH FOR TWO NSF POSTDOCTORAL PROGRAMS

November Deadlines for CISE Programs

The Computer and Information Science and Engineering (CISE) Directorate of the National Science Foundation plans a limited number of grants for support of post-doctoral research associateships contingent upon available funding. The associates are of two types:

- Associateships in Computational Science and Engineering (CS&E associates) supported by the New Technologies Program in the Division of Advanced Scientific Computing (DASC) in cooperation with other NSF CS&E disciplines. The objective of these associateship awards is to increase expertise in the development of innovative methods and software for applying high performance, scalable parallel computing systems in solving large scale CS&E problems.

- Associateships in Experimental Science (ES associates) supported by the Office of Cross Disciplinary Activities (CDA). The objective of the ES associateship awards is to increase expertise in CISE experimental science by providing opportunities for associates to work in established laboratories performing experimental research in one or more of the research areas supported by the CISE Directorate. These awards provide opportunities for recent Ph.D.s to broaden their knowledge and experience and to prepare them for significant research careers on the frontiers of contemporary computational science and engineering and experimental science.

Associateship awards will be based on proposals submitted by the sponsoring institution. Deadline for applications for these programs is November 1, 1994. For more information on NSF 94-104, contact New Technologies Program Director, DASC, 703-306-1970 or ntpd@nsf.gov (CS&E associates) or Program Director,

CDA, 703-306-1980, e-mail espd@nsf.gov (ES associates).

December Deadline for Bioscience Postdoctoral Fellowships

NSF announces a program entitled Post-doctoral Research Fellowships in Biosciences Related to the Environment. Approximately 40 fellowships, each worth a total of \$40,000 per year, will be awarded in the spring of 1995 to begin between July 1995 and January 1996. The fellowships will normally be for two years, unless foreign tenure is requested or the nature of the research project requires more time. Eligibility is limited to U.S. citizens or nationals and lawfully admitted permanent resident aliens who earned the doctorate after December 2, 1991, or will earn the degree by June 15, 1995.

Applicants must propose research into the fundamental mechanisms underlying the interactions between organisms and their environment at the molecular, cellular, organismal, population, community, and/or ecosystem level. The research plan cannot be a duplicate of a research proposal or other fellowship application to NSF. Applicants may not be principal investigators on other Federal grants and, if seeking support for an ongoing project, may not have been involved in the research for more than one year at the time of application.

The deadline to apply for the 1995 fellowships is December 2, 1994. NSF's post-doctoral research fellowships in plant biology have been discontinued. Potential applicants who have requested the application materials for the plant biology fellowships will be sent the new program announcement, NSF 94-114, for Postdoctoral Research Fellowships in Biosciences Related to the Environment. Additional information and applications are available from Carter Kimsey at ckimsey@nsf.gov or 703-306-1469.

Coming in the November/December issue of the
ASPP Newsletter

CALL FOR ABSTRACTS FOR THE 1995 ASPP ANNUAL MEETING

Deadline for abstracts will be February 28, 1995.

ASPP AWARDS

Six awards were presented at the 1994 Annual Meeting in Portland. Reprinted on the next three pages are the citations that were read by President Russell Jones at the awards ceremony that was held Sunday, July 31, 1994. Four of the honored individuals attended the ceremony; the two winners of corresponding membership, Hiroh Shibaoka and Nobutaka Takahashi, were unable to be there.

Charles Reid Barnes
Life Membership Award:
A. Carl Leopold

The Barnes Award, the oldest ASPP award, was established in 1925 at the first annual meeting of the Society through the generosity of Dr. Charles A. Shull and in honor of Dr. Charles Reid Barnes, the first professor of plant physiology at the University of Chicago. It is an annual award of life membership in the Society given to recognize the awardee for meritorious work in plant physiology.

Dr. A. Carl Leopold is the 1994 recipient of the Charles Reid Barnes Life Membership Award. We are grateful for the chance to honor such an outstanding person who embodies so completely the spirit of this award. His career has been devoted to understanding every aspect of plant growth and development, described in lucid terms with an enthusiasm that infects everyone and has persuaded many to join the work. He has made noteworthy research contributions in many areas of plant physiology including flowering, apical dominance, fruit set, photoperiodism, phytochrome action, hormone action dormancy, germination, stomatal regulation, membrane permeability, respiration, wounding, water relations, and leaf energy dissipation described in nearly 300 publications. Particularly noteworthy were the early demonstrations with his colleagues that senescence plays a positive role in the plant and is regulated by cytokinin, that polar transport of auxin involved influx and efflux from cells probably under the control of an auxin transport protein in the plasmalemma, and that abscission was determined not only by auxin concentration but also by the sensitivity of the tissue to the hormone, which together formed some of the first work



Pictured with ASPP President Russell Jones are ASPP's 1994 award winners and Ilya Raskin, 1993 winner of the Charles Albert Shull Award, who was the featured speaker at the 1994 Awards Ceremony in Portland, Oregon. From left, Jones; Richard E. McCarty, Kettering Award; Charles J. Arntzen, Hoagland Award; Raskin; Winslow R. Briggs, Stephen Hales Prize; and A. Carl Leopold, Barnes Life Membership. Not pictured: Hiroh Shibaoka and Nobutaka Takahashi, who were named corresponding members.

on hormone receptors in plants. From his studies of gravitropism has come a new theory of gravireception, and his investigations of seed dormancy have led to an important theory of membrane stabilization during desiccation involving the grassy state of sugars.

Throughout this time, Carl has devoted himself to education by writing textbooks of immense popularity that have served to inspire students of growth and development as well as other writers of textbooks. He has given numerous invitational lectures, served as an officer in several societies, and is a past president of ASPP. In addition, he has spoken eloquently for science and science policy to the Congress and to the public through his writings and public presentations, and has devoted a considerable amount of his energy to preserving and restoring our environmental heritage.

Perhaps we may paraphrase the goals he set for himself in his first book by saying that indeed he has helped immensely

to show our reliance on experiments in forming generalizations in science, he has explained well that science is an evolving complex of imperfect generalizations derived by the scientific method, and he has helped admirably to reorganize his subject to make it more nearly representative of modern plant physiology in the laboratory and field. To this should be added that we have had an uncommonly clear glimpse of how plants function through his work. For the hundreds of scientists you have helped encouraged and educated, Carl, we are enriched by your efforts and take this opportunity to thank you.

Stephen Hales Prize:
Winslow R. Briggs

This award honors the Reverend Stephen Hales for his pioneering work in plant physiology published in his 1727 book *Vegetable Statics*. This award was

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established in 1927 for a resident of North America, whether or not a member of the Society, who has served the science of plant physiology in some noteworthy manner. The award is made biennially, and the recipient is invited to address the Society on a subject in plant physiology at the next annual meeting.

The Stephen Hales Prize for 1994 is awarded to Winslow R. Briggs for serving the science of plant physiology in three major ways: as a teacher and mentor of plant scientists at different levels of their careers—undergraduate, graduate, and postdoctoral scholars; as an investigator who has enlarged our understanding of how light interacts with internal metabolic and hormonal controls of plants to affect their growth and development; as a senior spokesperson for plant physiology and plant biology in general.

Early in his career, Dr. Briggs and his students focused their attention on the phenomenon of phototropism. Initially, this study involved careful determination of fluence-response curves in order to describe the phenomenon in sound biophysical terms. His work branched out into photobiological investigations of a wide range of physiological responses of plants to light of different wavelengths, including solar tracking, circadian rhythms, and a variety of phenomena under the general heading of photomorphogenesis. His work in this area and on the movement of auxin in response to light is classic textbook fare. Later, he and his students worked on the isolation of phytochrome, investigated the relation between its forms and the physiology of developmental response, and carefully mapped its distribution in plants by immunocytochemical techniques. In more recent years, he has studied the difficult subject of blue light perception and is elegantly contributing to our knowledge of that signal transduction process.

Winslow Briggs is an inspiring teacher whose encouragement and thoughtful approach to research have been instrumental in the scientific development of his many talented students and colleagues. He has an unusual ability to mentor his students and rigorously critique their data while simultaneously instilling in them confidence and an independent resolve.

Dr. Briggs has extended his many talents beyond his own laboratory to others in the discipline of plant physiology. As a member of the editorial board of the Annual Reviews of Plant Physiology and

Plant Molecular Biology for 33 years (the last 21 as editor), he has subtly shaped our field while skillfully editing our prose. He was president of our Society in 1975-1976 and of the American Institute of Biological Sciences in 1981. His contributions and accomplishments have earned him many awards and honors including election to the National Academy of Sciences (1974), the American Academy of Arts and Sciences (1975), and the Deutsche Akademie de Naturforscher Leopoldina (1984).

Dennis Robert Hoagland Award: Charles J. Arntzen

This award, established by the Society in 1985 with funds provided by the Monsanto Agricultural Products Company, honors Dr. Dennis Robert Hoagland, recipient of the first Hales award, for his outstanding contributions and leadership in plant mineral nutrition. The award, to be made not more than triennially, is for outstanding plant physiological investigations in support of agriculture.

Charles J. Arntzen is awarded the Dennis Robert Hoagland Award for his remarkable leadership and innovative research in the field of photosynthesis, for his elucidation of the molecular basis of resistance to the triazine herbicides, a discovery which anticipated the genetic engineering of herbicide-resistant plants, and for his achievements as a highly creative builder of scientific institutions.

Arntzen and his collaborators made three critical contributions to our understanding of photosynthesis, a central component of plant productivity. The focus of one study was on correlating structural parameters with biophysical measurements of chloroplast membranes. These investigations were instrumental in identifying photosystem II complexes and their dynamic relationship with light harvesting complexes. Arntzen's group demonstrated that phosphorylation of pigment-binding proteins in the chloroplast membrane regulates distribution of light energy between photosystems I and II. This was one of the earliest proofs of protein phosphorylation regulating biochemical activity in plants. In part because of Dr. Arntzen's pioneering studies, protein phosphorylation is now recognized as a profoundly important mechanism of bioregulation. Laboratories worldwide subsequently built upon this research and the methodologies developed by Dr. Arntzen and his colleagues to further our

understanding of the photosynthetic process.

A second trailblazing innovation was the identification of the protein that binds photosynthetic herbicides and the exciting discovery that herbicide resistance can evolve in the field through the modification of a single residue in this protein. These invaluable insights laid the groundwork for an extensive investigation of the molecular basis of atrazine resistance in plants. Arntzen and his associates developed the concept that triazine herbicides (and other inhibitors of photosynthetic electron transport) occupy a discrete binding site in a plastoquinone protein and that mutations in this protein selectively block herbicide binding without causing loss of physiological function. These findings provided the conceptual basis for the subsequent development of herbicide resistant crops.

Dr. Arntzen's remarkable elucidation of photosystem II proteins led him and his associates to exciting progress in identifying the mechanism of photoinhibition. This mechanism was shown to be via the destruction of a specific membrane polypeptide, the D1 protein, a discovery that was an essential first step in developing crop resistance to photoinhibition.

Dr. Arntzen's extraordinary career as a research scientist is matched by his accomplishments as a visionary motivator of scientists and institutions, both academic and corporate. He helped to accelerate the growth of plant science programs at the MSU-DOE Plant Research Laboratory, Michigan State University, the DuPont Company, the Texas A&M University system and, most recently, at the Plant Biotechnology Program of the Institute of Biosciences and Technology, Texas Medical Center in Houston by championing new ideas and acquiring support and resources to allow them to reach fruition. He has been relentless in raising awareness for plant biology research through his sponsorship of scientific conferences, his service as an editor of key journals and in his vital role in helping shape the public debate over the acceptance of products of biotechnology. As president of The American Society of Plant Physiologists, he was instrumental in sponsoring initiatives which resulted in the publication of the highly successful journal *THE PLANT CELL*, and in fashioning the role of the Society in contemporary plant biology.

The American Society of Plant Physi-

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ologists is pleased to recognize Charles J. Arntzen's virtuoso performance as innovative scientist, cooperater, and mentor to scientists and as a gifted public advocate for plant physiology by presenting him with the Dennis Robert Hoagland Award.

Charles F. Kettering Award:
Richard E. McCarty

This award was established by an endowment from the Kettering Foundation in 1962 to recognize excellence in the field of photosynthesis. This award is made biennially by the Society to an individual for meritorious work in photosynthesis.

Richard McCarty has been a central figure in the remarkable advances made in photosynthetic bioenergetics over the past three decades. His selection for the Charles F. Kettering Award is based on the impact of his studies on the functional and structural basis of photosynthetic energy transduction and ATP formation in the course of photosynthesis research. Dr. McCarty's laboratory can be credited with leading the way in the experimental verification of chemiosmotic coupling in chloroplasts. Through their careful and innovative quantitative measurements of the central stoichiometries and energetics of photosynthetic ATP formation, Dick and his students verified the central tenets of chemiosmotic coupling. McCarty has been in the vanguard of the field in advancing our understanding regarding the structure and the catalytic mechanism of the chloroplast ATP synthase. This work began with the discovery of the chloroplast coupling factor and the demonstration of its role in transmembrane proton transport and photophosphorylation.

In collaboration with Gordon Hammes, McCarty's group has performed extensive structural mapping of CF₁ which remains today as the most detailed structural information that exists on the catalytic portion of this enzyme. This is also vital information in interpreting the relatively low resolution diffraction data that are currently available on this enzyme complex. The structural model proposed by McCarty and Hammes is the basis of nearly all current investigations concerning the structural bases for the mechanism of the chloroplast ATP synthase.

McCarty's laboratory is also responsible for nearly everything that we currently

know about the transport of glycolate—the first stable product of photorespiration—out of the chloroplast. In an elegant series of experiments, McCarty's group demonstrated that this envelope transporter exchanges glycolate for glycerate, and subsequently partially purified the protein responsible for this activity.

Dick McCarty has achieved international recognition as a pioneer in photosynthetic bioenergetics research. His impact on photosynthesis research is further magnified by the activities of former students and associates who are in their own right international figures in photosynthesis research. The Charles F. Kettering Award is fitting recognition of Professor McCarty's many contributions and for the impact these have had on the field of photosynthesis research.

Corresponding Membership:

This honor, initially given in 1932, provides life membership and Society publications to distinguished plant physiologists from outside the United States. The honor is conferred by election on the annual ballot.

Hiroh Shibaoka

Professor Hiroh Shibaoka has a rich history of contributions to the study of plant growth, and he continues to add to our understanding of the role played by cytoskeleton in plant growth and morphogenesis. His work has provided sound evidence that the direction of cell expansion is governed by the orientation of cortical microtubules in the cells and thus the orientation of cellulose microfibrils in the cell wall. Professor Shibaoka was the first to isolate tubulin and microtubule-associated proteins from plant cells. He and his colleagues characterized the cold resistance of plant microtubules and the stabilization of the cortical microtubules by extensin, a cell wall protein. The dynamic interactions of integral membrane proteins with the cytoskeleton and the cell wall are also a focus of his research. In his recent studies of cytokinesis in plants, Professor Shibaoka has provided insights into the dynamic aspects of microtubules in cell plate formation and understanding of the regulation of mitotic kinases during the cell cycle. He has also developed several innovative techniques used in the study of microtubular arrays in plant cells.

Professor Shibaoka is professor of biology in the Faculty of Science at Osaka University. He continues to play a very active role in fostering excellence in the study of plant biology. He has provided leadership in role on editorial boards of several international journals, and he is the current editor-in-chief of *Plant and Cell Physiology*.

Nobutaka Takahashi

Professor Nobutaka Takahashi is an international authority on naturally occurring plant growth regulators and is one of the leading natural products chemists in the plant sciences. The work for which he is best known is the determination of the structure of many fungal and plant gibberellins. He is truly one of the "fathers" of the study of gibberellins. He has studied extensively the occurrence and action of gibberellins in rice, showing the dynamic changes in gibberellins during its life cycle. Professor Takahashi's contributions extend beyond his work with gibberellins to include elucidation of structures of other plant growth regulators. He determined the structure of most known brassinosteroids, as well as the antheridogens in ferns and cytokinins in insect galls. In addition, he has studied the chemistry of mating factors in yeast, natural inhibitors of photosynthesis, and natural fungicides.

Professor Takahashi was a professor in the Faculty of Agriculture at the University of Tokyo for many years. He now holds the position of executive director at RIKEN, a key science administrative position in Japan. His group recently has been focusing on cloning the gene for a gibberellin 3-hydrolase from *Phaseolus vulgaris*. Professor Takahashi continues to be a leader in plant hormone research and an influential scientist in advancing the plant sciences in Japan and around the world.



Membership and subscription renewal forms for 1995 will be mailed in October. Return yours early to assure listing in the 1995 Membership Directory and uninterrupted delivery of *Plant Physiology* and *THE PLANT CELL*.

Gatherings

All announcements are subject to editing. Wherever possible, submit announcements via e-mail to jcarlson@access.digex.net. Alternatively, mail submissions to Jody Carlson, *ASPP Newsletter*, 15501 Monona Drive, Rockville, MD 20855-2768. Because announcements are scanned into the computer, **faxed transmissions will not be accepted.**

FUTURE ASPP ANNUAL MEETING SITES

1995: Charlotte, North Carolina
Saturday, July 29 through
Wednesday, August 2

1996: San Antonio, Texas
Saturday, July 27 through
Wednesday, July 31

1997: Vancouver, British Columbia
Saturday, August 2 through
Wednesday, August 6

OCTOBER

October 20-22
10th Annual Meeting
American Society for Gravitational and Space Biology
San Francisco, California
This conference provides a forum for presentation and exchange of gravitational and space biological information and data from scholarly and applied research. The program consists of oral and poster scientific sessions, symposia, and workshops. Topics include: cellular signalling and molecular regulation of graviresponses; radiation and space; spaceflight experiment results; controlled ecological life support systems; plant gravity perception; plant growth, development, and genetics; calcium role in cell processes; cell biology; biotechnology/instrumentation; animal structural systems/muscle physiology; animal gravity sensing and neurophysiology; and animal growth, development, and genetics. For further information contact: Donald R. Beem, American Institute for Biological Sciences, Special Science Programs, 730 11th Street NW, Washington, DC 20001, telephone 202-628-1500.

NOVEMBER

November 1-4
Cucurbitaceae 94: Evaluation and Enhancement of Cucurbit Germplasm
South Padre Island, Texas
The Texas Agricultural Experiment Station, Texas Agricultural Extension Service, and USDA/ARS Subtropical Research Laboratory will host Cucurbitaceae 94 at the Radisson Resort, South Padre Island, Texas. The purpose of this meeting is to provide a forum for the presentation of current scientific information about germplasm evaluation and research activities in cucurbit crops. The scientific program will consist of posters, invited talks, and panel discussions on diseases, host-pathogen interactions, and genetics related to the enhancement of cucurbit germplasm. Molecular and genetic aspects of diseases, germplasm resources, breeding strategies, and the physiology of fruit quality are a few of the topics that will be covered in the 1994 meeting. To receive additional information on program content and registration material, contact Dr. James R. Dunlap, Texas Agricultural Experiment Station, 2415 East Highway 83, Weslaco TX 78596; telephone 210-968-5585; fax 210-968-0641, e-mail j-dunlap@tamu.edu.

November 13-16

Third International Symposium
Biosafety Results of Field Tests of Genetically Modified Plants and Microorganisms
Monterey, California
Contact: Alvin Young, USDA, Office of Agricultural Biotechnology, telephone 703-235-4419, fax 703-235-4429.

1995

JANUARY

January 7-13, 1995
Keystone Symposium
Plant Cell Biology: Mechanisms, Molecular Machinery, Signals, and Pathways
Taos, New Mexico
Organizers of this meeting are Natasha Raikhel and Christopher Lamb. Keynote address: Phytochrome Phototransduction Pathways: Genetic and Biochemical Dissection, N.-H. Chua. Keynote lecture: Genetic and Biochemical Dissection of the Secretory Pathway, R. Schekman. Sessions and presenters: Cell Surface/Extracellular Matrix: R. Quatrano, J. Nasrallah, T.-H. Kao, C. Lamb; Cell Adhesion, Cytoskeleton, and the Recognition Process: J. Nasrallah, R. Quatrano, S. Long, K. Roberts; Plasmodesmata and Nuclear Pores: K. Roberts, N. Raikhel, S. Lazarowitz, J. Carrington; Cell Division: C. Lamb, P. Doerner, T. Bisseling, V. Sundaresan; Membrane Signaling: M. Chrispeels, J. Schroeder, S. Assmann, P. Hepler, M. Sussman; The Tonoplast and Plasma Membrane: J. Schroeder, W. Frommer, M. Chrispeels, H. Sze; The ER: N. Raikhel, A. Vitale, J. Denecke, G. Galili, C. Somerville; Plastids: J. Chory, A. Staehelin, K. Keegstra, K. Cline; Cytoplasmic Regulatory Mechanisms: J. Ecker, P. Green, M. Mehdy, G. Coruzzi; Signaling to the Nucleus: P. Green, J. Chory, J. Ecker, A. Theologis, R. Dixon. Workshops: Transport Vesicle: Inside and Outside: D. P. Verma; Heat Shock Proteins and Molecular Chaperones: E. Vierling. Application and abstract deadline is September 7, 1994. Attendance is limited to 300. A small amount of funding is available to some students and postdocs to help defray the cost of the meeting. The selection of students and postdocs for this support will be based on the quality and relevance of science presented in the abstracts. For more information contact

Keystone Symposia, Drawer 1630, Silverthorne, CO 80498; telephone 303-262-1230, fax 303-262-1525.

January 15-19, 1995

Plant Genome III
San Diego, California

The International Plant Genome Conference will be sponsored by the USDA/ARS and National Agricultural Library, the John Innes Centre (UK), the Rockefeller Foundation, and the International Society for Plant Molecular Biology. Session topics are: chromosome structure, isolation and transformation of agriculturally important genes, instrumentation/technology, comparative genetic mapping, QTLs/metabolic pathways. Co-chairs are S. Heller, J. Miksche, M. Gale, S. McCouch. For registration materials, poster abstract application, and exhibit information, contact: Plant Genome III, c/o Scherago International, Inc., 11 Penn Plaza, New York, NY 10001; telephone 212-643-1750, fax 212-643-1758, e-mail scherago@biotechnet.com.

January 22-27, 1995

46th Congresso Nacional de Botanica Brazil
Ribeirão Preto, SP, Brasil

The annual meeting on botany, a major forum promoted by the Botany Society of Brazil for an exchange of information among plant scientists, will be held on the campus of the University of São Paulo in Ribeirão Preto. The program includes scientific expeditions, poster sessions, workshops, symposia, lectures, the 2nd Symposium on Gallery Forest, and the 4th Symposium on Bromeliaceae. For information write to: XLVI Congresso Nacional de Botanica, Dep. Biologia/FFCLRP/USP, Av. Bandeirantes, 3900, 14040-901-Ribeirão Preto, Brasil; fax 16-633-5015.

January 29-February 3, 1995

Gordon Research Conference
Temperature Stresses in Plants
Oxnard, California

Meeting organizers: Mike Thomashow, chair; Don Ort, vice-chair. Session topics and chairs/speakers will include: mechanisms of sensing temperature (R. Dhindsa/W. Gurley, T. Palva, B. Pickard); role of membranes in temperature stress tolerance (J. Crowe/N. Murata, J. Browse, P. Steponkus); heat-stress proteins (E. Vierling/A. Gatenby, J. Jordano); links between temperature and drought stress (C. Vertucci/K. Shinzaki, T. Close, C. Lijenberg); breeding for temperature stress tolerance (J. Greaves/J. Paltá, H. Nguyen); effects of temperature on photosynthesis (D. Ort/F. Robertson, I. Davison); life at extreme temperatures (G. Zeikus); and whole plant responses to temperature stress (J. Burke). Funds will be available to help defray meeting costs for a limited number of promising young scientists (senior graduate students, postdocs, and equivalent). To be considered for an award, which will be made on the basis of merit and need, send a

copy of your curriculum vitae to: Mike Thomashow, Department of Crop and Soil Sciences, Michigan State University, East Lansing, MI 48824. For information regarding conference program contact: Mike Thomashow, e-mail, 22676mft@msu.edu; fax 517-353-5174. For application forms and other meeting information contact: Dr. Carlyle B. Storm, Director, Gordon Research Conferences, University of Rhode Island, P.O. Box 984, West Kingston, RI 02892-0984; telephone 401-783-4011; fax 401-783-7644.

FEBRUARY

February 5-10, 1995

Gordon Research Conference
Chemical/Biological Synergies to Reduce
Inputs for Pest Control
Oxnard, California

The meeting will focus on rationally designed mixtures and strategies using biological and chemical mechanisms to synergistically lower inputs in weed, disease, and insect pest management; and to discuss the For registration information see October issue of *Science* or contact either of the following co-chairs (preferably by e-mail): Jonathan Gressel, Plant Genetics, Weizmann Institute of Science, Rehovot, 76100 Israel, fax 972-8-469124, e-mail jggress2@wicmail.weizmann.ac.il; David A. Fischhoff, Monsanto Company, 700 Chesterfield Parkway, North St. Louis, MO 63198, USA; fax 314-537-6047, e-mail dafisc@ccmail.monsanto.com.

MARCH

March 5-9, 1995

XVIII Eucarpia Symposium:
Section Ornamentals
Ornamental Plant Improvement:
Classical and Molecular Approaches
Tel Aviv, Israel

This meeting is organized jointly with the Kennedy-Leigh Centre for Horticultural Research of The Hebrew University of Jerusalem. Topics will include: breeding of ornamental crops; genetic manipulation of ornamental crops; molecular markers for the identification and breeding of ornamentals; genetic resources for widening the assortment of ornamental crops; environmentally friendly ornamentals; molecular control of flower development; genetics of flower longevity; tissue culture for ornamental breeding. Abstract deadline: November 1, 1994. Registration deadline: December 30, 1994. For further information, contact: Dan Knassim Ltd., P. O. Box 57005, Tel Aviv, 61570 Israel; telephone 972-3-5626470, fax 972-3-5612303.

March 22-23, 1995

Royal Society Discussion Meeting
Control of Development in Higher Plants
London, England

Organized by P. R. Bell, C. J. Leaver, and R. I. Pennell. This meeting will cover all aspects of plant development from the regulation of gene expression by environmental factors, signal transduction, cell development to the generation of plant form. Speakers will include, Chua, Chory, Knight, Ecker, Jurgens, Sussex, Pennell, Coupland, Coen, Hake, Goldberg, Langdale, Franssen, and Roberts. For further information contact: Mary Manning, The Royal Society, 6 Carlton House Terrace, London, SW1Y 5AG, UK; telephone 171 839 5561, fax 171 930 2170.

March 26-31, 1995

5th International
Botanical Microscopy Meeting
Plant Cell Biology
Oxford Brookes University
Oxford, England

The program of this meeting will include: microtubule and cytoskeletal dynamics, microscopy of living cells and ion imaging, plant cell organization, molecular mechanisms of plant development, plant microbe interactions. Keynote speakers: B. Gunning, H. Shibaoka, J. Hush, S. Gilroy, K. Oparka, K. Roberts, M. Parthasarathy, Z. Cande, J. Doonan, R. Howard, A. Hardham. Attendance will be limited to 150. For further information, contact Karen Hale, Royal Microscopical Society, 37/38 St. Clements, Oxford, OX4 1AJ; telephone 44-865-248768, fax 44-865-791237.

March 26-April 1, 1995

Keystone Symposia, Concurrent Meetings
• **Frontiers of Plant Morphogenesis**
• **Signal Transduction in Plants**
Hilton Head Island, South Carolina
Organizers of Frontiers of Plant Morphogenesis are Richard J. Cyr and Barry A. Palevitz. Organizers of Signal Transduction in Plants are Daniel F. Klessig and Winslow Briggs. Topics and speakers for Frontiers of Plant Morphogenesis: Current perspectives in plant morphogenesis—I. Sussex, W. Briggs; Cytoskeleton and morphogenesis—J. Traas, D. Menzel, P. Benfey; Mitosis and division planes—K. Dawes, W. Sheridan, P. Hepler, L. Smith; Cell cycle (joint)—M. Van Montagu, T. Bisseling; Extracellular matrix and morphogenesis—K. Roberts, A. Staehlin, D. Cosgrove, R. Williamson; Genetic analysis of morphogenesis—J. Schiefelbein, R. S. Poethig, J. Medford, F. Sack; Cytoplasmic/cell wall communications in morphogenesis—R. Wayne, R. Quatrano, M. Hahn, N. Carpita; Cell-cell communication (joint)—J. Nasrallah, N. Brewin, W. Lucas; Signal transduction and morphogenesis—A. Harmon, M. Wada, S. Long. Topics and speakers for Signal Transduction in Plants: Hormonal signaling—R. Quatrano, J. Ecker, E. Meyerowitz, A. Jones, M. Estelle, R.

Hedrich; Signaling in plant-pathogen interactions—D. Klessig, J. Ryals, J. Ebel, D. Scheel, F. Ausubel, P. De Wit, L. Walling, C. Lamb; Signaling by light—W. Briggs, A. Cashmore, J. Chory, P. Quail, X. Deng, E. Schafer, N. Chua; Stress signaling—C. Ryan, D. Bowles, E. Farmer, N. Raikhel, J. Huber. Contact Keystone Symposia, Drawer 1630, Silverthorne, CO 80498; telephone 303-262-1230, fax 3093-262-1525.

APRIL

April 3-6, 1995

International Symposium on Weed and Crop Resistance to Herbicides

University of Córdoba, Spain

This symposium will be jointly sponsored by the European Weed Research Society and the Spanish Weed Science Society. General topics: herbicide target sites and resistance mechanisms associated with them; resistance mechanisms associated with herbicide metabolism and detoxification; other resistance mechanisms; biotechnological approaches to develop herbicide resistance in crops—problems and possibilities; integrated mechanical, chemical, and biological methods for weed control—managing or avoiding resistance. Deadline for abstracts: November 30, 1994. For further information, contact Dr. J. Jorrín, Departamento de Bioquímica y Biología Molecular, Universidad de Córdoba, 14080 Córdoba, Spain; telephone 57-218439, fax 57-218563, e-mail bfljonoj@lucano.uco.es

April 7-12, 1995

Plant Mitochondria: From Gene to Function

Durham, North Carolina

This international meeting will cover topics of plant mitochondrial molecular biology, biochemistry, genetics, and physiology. The meeting will focus on the unique aspects of plant mitochondria and their importance to plant functioning. Topics will include: mitochondrial genomes: structure, evolution and plasticity; mitochondrial genes: editing and regulation of expression; mitochondrial biogenesis; mitochondrial electron transfer: structure and function; photorespiration: genetics and biochemistry; respiration in plant carbon balance, and environmental regulation of plant mitochondrial function. Particular attention will be paid to those areas that are presently best positioned to interface molecular and biochemical-physiological approaches to the study of plant mitochondrial structure and function. Organizers are Lee McIntosh and Jim Siedow. For further information, contact Jim Siedow, DCMB-Botany, Box 91000, Duke University, Durham, NC 27708-1000, USA; telephone 919-613-8180, fax 919-613-8177, e-mail jsiedow@acpub.duke.edu.

MAY

May 8-13, 1995

First International Symposium of Sucrose Metabolism

Mar del Plata, Argentina

This meeting will commemorate the 40th anniversary of the discovery of the two sucrose metabolizing enzymes and honor the memory of their discoverers, Drs. Luis Leloir and Carlos Cardini. The aim of the meeting is to present a comprehensive and integrated view of sucrose metabolism under the following main topics: sucrose biosynthesis and its regulation; sucrose cleavage and its regulation; molecular biology of sucrose metabolizing enzymes; sucrose conversion to starch; sucrose conversion to fructans and raffinose-based polymers; sucrose transport (long distance and intracellular) and the role of sucrose in plant stress. The symposium will consist of six to eight sessions of four to five speakers each with discussion session and evening poster presentations. Those interested in receiving additional information in the future please contact: Dr. Horacio Pontis or Dr. Graciela Salerno, Fundacion para Investigaciones Biologicas Aplicadas, Casilla de Correos 1348, 7600 Mar del Plata, Argentina, telephone 54-23-74-8257, fax 54-23-74-3357; or Dr. Ed Echeverria, Citrus Research and Education Center, 700 Experiment Station Road, Lake Alfred, FL 33850, USA, telephone 813-956-1151, fax 813-956-4631.

May 24-26, 1995

NABC 7

Genes for the Future: Discovery, Ownership, Access

Columbia, Missouri

Gene mapping, currently a central issue in agricultural biotechnology, will be the theme of the seventh annual meeting of the National Agricultural Biotechnology Council (NABC). Plenary sessions with invited speakers and workshops will address the discovery of genes, the ownership of genes, and access to genes of species important to agriculture. Topics for discussion include the status of gene mapping; economic, legal, and institutional issues surrounding the ownership of genes; and public and private rights of access to genes. These topics will be considered in the context of research policy as well as the national and international agenda for agricultural biotechnology. For information, contact NABC, 159 Biotechnology Building, Cornell University, Ithaca, NY 14853-2703.

May 28-June 3, 1995

10th International Congress on Nitrogen Fixation

St. Petersburg, Russia

Organizer of this meeting is Igor Tikhonovich, and it will be held under the auspices of the Research Institute for Agricultural Microbiology. For more

information, contact: Prof. I. Tikhonovich, Congress Organizer, Research Institute for Agricultural Microbiology, P. B. 364, General Post Office, 190000, St. Petersburg, Russia; fax 812-470-43-62, e-mail chief@riam.spb.su.

JUNE

June 26-30, 1995

International Workshop

Peroxidase Biotechnology and Application Puschino (Moscow Region), Russia

The scientific program of this workshop will include these topics: novel peroxidase sources; gene cloning, expression, and protein engineering; peroxidase substrate specificity, stability, mechanism of action and inactivation; peroxidase in analysis, biosensors, environmental control; peroxidase in industry, production of drugs, phenolic resins, lignin biodegradation. To receive the second circular, a program, and registration forms, contact Dr. I. G. Gazaryan, Division of Chemical Enzymology, Department of Chemistry, Moscow State University, 119899 GSP Moscow, Russia; fax 7-95-939-27-42.

JULY

July 2-7, 1995

7th International Symposium on Preharvest Sprouting in Cereals

Abashiri, Hokkaido, Japan

Specific topics will include: Physiology and molecular biology of grain development and germination; influence of environmental, physical and agronomic factors on sprouting; genetics and plant breeding; effects of sprouting damage on cereal end products. To receive a first announcement contact: Secretariat, 7th International Symposium on Preharvest Sprouting in Cereals, Kitami Agricultural Experiment Station, Kunneppu, Hokkaido 099-14, Japan; telephone 0157-47-21 46, fax 0157-47-2774 or M. K. Walker-Simmons, USDA-ARS, 209 Johnson Hall, Washington State University, Pullman, WA 99164-6420; telephone 509-335-8696, fax 509-335-8674, e-mail simmons@wsuvm1.edu.

July 4-7, 1995

9th International Rapeseed Congress

Cambridge, England

Since the last Congress in Saskatoon in 1991, interest in rapeseed has been aroused by awareness of the superior nutritional advantages of rape oil. There is also growing recognition of outlets for industrial purposes, for which the perceived benign effect on the environment is an added attraction. It is intended that the congress should cover these and other aspects of rapeseed production and utilization. Cambridge is in a major rapeseed growing area and has a distinguished background in agricultural research. The first announcement and call for papers

is currently being distributed. Copies are available from the secretary: Denis Kimber, 44 Church Street, Haslingfield, Cambridge, CB3 7JE, England.

July 9-15, 1995

**European Symposium on
Photomorphogenesis in Plants**
Sitges, Barcelona, Spain

Specific topics will include: Blue-UV light photoreception, phytochrome properties and phytochrome genes, photoregulation of gene expression, signal transduction in photomorphogenesis, photocontrol of plant growth, photomorphogenesis in lower plants, photomorphogenesis in natural conditions. Second announcement containing the final program and all details of registration and accommodation will be mailed in November 1994. Contact address: Dr. Carmen Bergareche, Departament de Biologia Vegetal, Facultat de Biologia, Diagonal 645, 08028 Barcelona, Spain; fax 34-3- 4112842, telephone 34-3-4021464.

July 14-19, 1995

**15th International Conference on
Plant Growth Substances**
Minneapolis, Minnesota

The scientific program will cover all aspects of plant growth regulation. The proposed program will consist of plenary sessions, concurrent symposia with invited speakers, posters, and workshops. Plenary sessions will cover subjects on: (1) signal transduction, (2) integration of growth processes, (3) hormonally regulated gene expression, and (4) generation of fundamental knowledge and applications using transgenic plants. Twenty symposia are planned, each consisting of three to five speakers, on topics including hormone biosynthesis, hormone metabolism, tropisms, flowering, hormone perception/sensitivity, and interactions of hormones with other signalling systems. Arrangements have been made to have all posters on display throughout the meetings. Workshops will be designed to accommodate last-minute breakthroughs. The organizing committee for the IPGSA meeting is chaired by Gary Gardner (University of Minnesota) and Bernard O. Phinney, president of IPGSA (University of California, Los Angeles), and includes M. Brenner, R. Coolbaugh, M. H. Goldsmith, W. Hackett, E. Jaworski, R. L. Jones, H. Kende, T. Lomax, N. Olszewski, I. Rubenstein, M. K. Walker-Simmons, and J. Zeevaert. All scientific sessions will be held at the headquarters hotel, the Hyatt Regency, in Minneapolis. This meeting will be held in conjunction with the Annual Meeting of the Plant Growth Regulator Society of America, and joint sessions are being planned that emphasize applied aspects of plant growth regulation. The first circular will be mailed this summer (1994). The second circular, containing registration and abstract preparation materials, will be sent in late 1994.

Additional information can be obtained by contacting Gary Gardner, Department of Horticultural Science, University of Minnesota, 305 Alderman Hall, St. Paul, MN 55108, USA, fax 612-624-3606, e-mail ggardner@maroon.tc.umn.edu.

July 29-August 2, 1995

**American Society of Plant Physiologists
Annual Meeting**
Charlotte, North Carolina

Call for abstracts will be published in the November/December ASPP Newsletter. Abstract deadline is February 28, 1995. For more information, contact Susan Chambers, Director of Finance and Administration, 15501 Monona Drive, Rockville, MD 20855-2768; telephone 301-251-0560, ext. 11, fax 301-279-2996, e-mail chambers@access.digex.net.

AUGUST

August 6-11, 1995

**10th International Workshop on
Plant Membrane Biology**
Regensburg, Germany

Meeting is intended to cover the following topics: pumps, carriers, channels, long distance transport processes, and transduction of chemical and electrical signals. Second announcement containing the final program and all details on registration and accommodation will be mailed in October 1994. To obtain the second announcement, contact Widmar Tanner or Norbert Sauer, Lehrstuhl für Zellbiologie und Pflanzenphysiologie, Universität Regensburg, Universitätsstrasse 31, 93053 Regensburg, Germany; fax 49-941-943-3352.

August 13-17, 1995

**Phytochemical Society of North America
Annual Meeting**
Sault Ste. Marie, Ontario, Canada

The meeting will feature a symposium entitled Phytochemical Redundancy in Ecological Interactions. The theme of the symposium will stress the diversity, overlap, and variety of plant chemical defenses against biological stresses including insects, fungi, and large herbivores. Speakers for the symposium are being solicited from persons active in the area. Interested potential speakers or persons with suggestions for speakers should contact either program co-chairperson for additional information: Dr. James A. Saunders, Plant Sciences Institute, USDA, Bldg. 9, Rm 5, Beltsville, MD 20705, telephone 301 504-7477, fax 301 504-6478; Dr. Pedro Barbosa, Department of Entomology, University of Maryland, College Park, MD 20742, telephone 301 405-3946 office, fax 301 314-9290.

August 20-25, 1995

10th International Photosynthesis Congress
Montpellier, France

Topics: molecular organization of the photosynthetic apparatus; photophysical and photochemical processes; mechanisms of energy conservation; regulation of carbon metabolism and related enzymes; assimilation of nitrogen, sulfur, and other elements; structure of membranes, organelles, cells, and tissues; genes and regulation of their expression; development of the photosynthetic apparatus; photosynthesis and evolution; stress and adaptation; photosynthesis in global environment; photosynthesis in agricultural production and forestry; design and action of herbicides; chemical models and artificial photosynthesis; biotechnology; photosynthesis and renewable energy resources. A limited number of fellowships may be granted to some students and scientists encountering financial difficulties. For further information, contact: Dr. Paul Mathis (Photosynthesis Congress), DBCM-SBE, CEA Saclay, Bâtiment 532, 91191 Gif-sur-Yvette CEDEX, France; fax 33-1-69-08-87017.

September 13-15, 1995

**14th Long Ashton
International Symposium:
Plant Roots—from Cells to Systems**
Long Ashton Research Station
Bristol, England

Topics and speakers: Development and morphology—B. Scheres, T. Rost, P. Barlow, A. Tomos; Structure and function—L. Kochian, E. Stuedle, W. Lucas, K. Raschke; Environmental interactions—R. Sharp, P. Stamp, A. Bengough, M. Jackson, N. Robinson; Molecular interactions with other organisms—P. Sijmons, C. Shaw, V. Gianinazzi-Pearson, T. Bisseling, D. Chriqui. Keynote lecturer: M. McCully. Contact H. M. Anderson, Department of Agricultural Sciences, University of Bristol, Institute of Arable Crops Research, Long Ashton Research Station, Bristol, BS18 9AF, United Kingdom; telephone 275-392181, fax 275-394007.

OCTOBER

October 8-12, 1995

**Third International Symposium:
Cytochrome P450 Biodiversity**
Woods Hole, Massachusetts

The symposium will be held at the Swope Conference Center of the Woods Hole Marine Biological Laboratory. The scientific program will focus on cytochromes P450 from microorganisms, plants, and insects, and will include all aspects of research on P450s from these organisms. Contact: Dr. John C. Loper, Department of Molecular Genetics, University of Cincinnati School of Medicine, Cincinnati, OH 45267-0524, fax 513-558-8474.

Mark your calendars now for the 1995 ASPP Annual Meeting Charlotte, North Carolina

Saturday, July 29, through Wednesday, August 2

Five major symposia are planned:

Issues in Plant Biology

What Has the Impact of Plant Physiological Research
Been on Crop Productivity?

Organizer: James Cook, USDA/ARS, Washington State University

President's Symposium

Unraveling Unique Features of Plant Mitochondria

Organizer: James N. Siedow, Duke University

Journal Editors' Symposium

Long Distance Signaling in Whole Plants

Organizers: Malcolm C. Drew, Texas A&M University and
Robert E. Sharp, University of Missouri

Breakthrough Developments in Understanding
Cellulose Biosynthesis and Structure

Organizer: Malcolm Brown, University of Texas

General topic: Plant Pathology, title to be announced

Organizer: Shauna Somerville, Carnegie Institution of Washington

for general maintenance and operation of the EMs and other laboratory equipment and will also conduct periodic workshops designed to teach other employees the use of such equipment. Maintenance of greenhouse plant and disease culture will also be part of the duties. The employee will be responsible for the general day-to-day operations of the laboratory and coordinate ordering and maintaining materials and supplies. An M.S. (or B.S. with equivalent postgraduate experience) in a relevant biology field, e.g., plant pathology, mycology, botany, cell biology, etc., will be required. Experience and/or training in I.M, TEM, and/or SFM, as well as with immunochemical techniques, protein purification and separation protocols, and with other general biochemical techniques (including molecular) normally found in a cell biology laboratory would be useful. Salary will be commensurate with experience and qualifications. For more details, contact H. C. Hoch, Department of Plant Pathology, Cornell University, New York State Agricultural Experiment Station, Geneva, New York 14456; telephone 315-787-2332, fax 315-787-2397; e-mail harvey_hoch@cornell.edu.



Ann Umbach discusses her poster with Miguel Ribas-Carro.



Robert E. Sharp, University of Missouri, takes a moment to pose with his two-year old daughter, Nicole, at the opening night mixer at the annual meeting in Portland.



Ken Beam (center), ASPP's executive director, discusses Society concerns at the executive committee meeting in Portland with (left) Bernard Rubinstein, Northeast Section representative, and (right) Russell Jones, ASPP president.