



NEWSLETTER

American Society of Plant Physiologists

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**Deadline for the
March/April 1995 issue
of the ASPP Newsletter
is February 20, 1995.**

Possible Deep Federal Budget Cuts Make Member Effort Essential, Siedow Says

In the November/December 1994 newsletter, I discussed the importance of education to our Society, with specific reference to the development of the ASPP Education Foundation (ASPPEF). I would like to begin this letter by reminding you that the formation of the ASPPEF will require changes in the by-laws of the Society, and that you will be asked to approve those changes in the ballots that will be mailed to you later this spring during the annual election (see page 31). I will address this issue more specifically in the next newsletter.

As outlined below, education, broadly defined, has taken on even more importance within the Society since last November's national election, and it is important to consider the roles that both the Society and you, as members of ASPP, need to play in this broad educational effort as science in the United States faces a challenging and uncertain future.

Total U.S. federal support for all research and development currently is around \$70 billion. Since the end of World War II, basic science in the United States has been underwritten largely by the federal government. To the extent that one can draw clear distinctions between purely basic and applied research, federal support of basic research in 1993, about \$16.5

billion, accounted for nearly two-thirds (63%) of the total expenditures for all basic research in the United States during that year (*Science and Science Indicators - 1993*, National Science Board).

It is interesting to look at the recent historical pattern of federal spending for basic research. In the 1970s, spending in this area barely kept pace with inflation, increasing at a rate of 1.6% per year (in inflation-adjusted dollars). In the decade of the 1980s, science did pretty well, increasing at an inflation-adjusted rate of about 4% per year and 2.3-fold in actual dollar outlays over the course of the decade. Without getting into the specifics of where these research funds were targeted (it is not my sense that the ASPP research community as a whole did as well as these numbers might suggest), the general feeling that federal support for basic science has actually slipped over the past 15 years reflects, in part, the fact that the basic research community has grown faster over this period of time than has its primary source of income.

With the above as background and getting back to the immediate concern, the potential problem the scientific community faces today comes about because the federal government has been spending

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reminder

deadline for abstracts for the
aspp annual meeting
is tuesday, february 28, 1995

(abstracts received after that date may not appear in
the annual abstract supplement)

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well beyond its means for a number of years. Despite efforts by the current administration and the last Congress to streamline government and reduce the rate of growth of the federal deficit, the Republican sweep in the Congressional elections last November was predicated, in part, on their promise to reduce the size and scope of the federal government and balance the federal budget.

Some of the major components of the federal budget (including Social Security, defense spending, and interest payments on the debt) either cannot or will not be subject to cuts. Therefore, paying for the costs of the Contract with America alone means that Congress will have to find a way of reducing spending nearly \$150 billion over five years by cutting the remaining discretionary spending items (this includes science funding), which, in total, amount to only about \$275 billion next year. Add in any proposed tax cuts and the costs of paying for a balanced budget amendment, and the total in cuts

needed rises to \$1.5 trillion over seven years.

Given these numbers, it doesn't take the proverbial rocket scientist to realize that federal funding for science (both basic and applied) in the near future will be subject to tremendous political pressures, ranging from wholesale reductions in a worst-case scenario to simply holding even, in the best of all possible worlds.

My goal is not to paint a "chicken little" picture that the sky is falling, but the potential does exist. As pointed out by our director of public affairs, Brian Hys, on page 7 in this newsletter, the budget submitted by the House Republicans last year included some major spending cuts in areas of significant interest to our membership, most notably in the Agricultural Research Service, the Cooperative State Research Service (which has housed the NRI Competitive Grants Program), and the National Science Foundation. While there is a general sense that Congressional Republicans are sympathetic to science funding, given its importance to helping the United States maintain a competitive

position in an increasingly global economy, the numbers cited above suggest that if the new Congress does institute tax cuts and accompanying budget cuts, major reductions for the funding of science seem unavoidable. At present, it is impossible to predict exactly how the funding for such agencies as NSF, USDA (especially the NRI Competitive Grants Program), the Department of Energy, and the National Institutes of Health will be affected when the initial round of budget cutting is done. However, it is not in our best interest to simply sit around and wait for the ax to fall before we do anything. As Brian's article makes clear, your voice is an important one that needs to be heard from now.

Many of the new members of Congress have very little understanding of the importance of federal funding of science to their district constituents. More specifically, most of them probably have no idea of the amount of federal research dollars that flow into their individual districts,

continued on page 3

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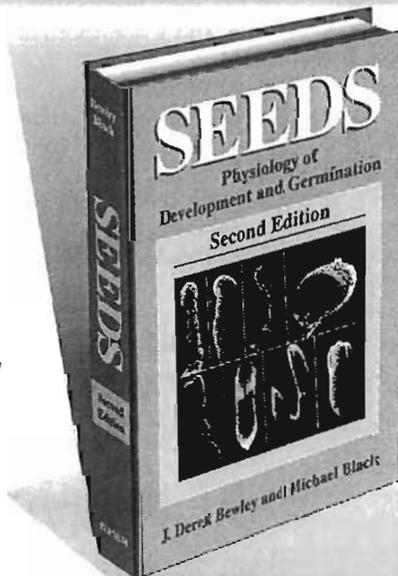
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much less an awareness of the importance of a vital and active scientific establishment for the future welfare of the country. It is crucial that we, as professional scientists, take on the role of educating legislators about the importance of science both to the members of their districts, directly, and to our society, more generally.

The importance of science to society is not a message that should be restricted to our elected representatives. As limited a job as the scientific community has done of selling science to policy makers, I think that it has done no better with respect to the public at large. Simply put, it is up to the scientific community to educate the public about the nature of the fundamental technological changes that are taking place in our society, as well as the important role that science, both basic and applied, plays in the context of those changes. Scientists simply have to do a better job of selling science to the public. This needs to become one of the inherent responsibilities of being a scientist. Imagine if every member of the ASPP spent two to three hours each week doing volunteer work in the public schools promoting plant science. I am not so naive to think that is feasible, but we do need to be doing a lot more of this sort of thing to promote science, generally, and the plant sciences, in particular, to the public. The kinds of initial efforts that the Washington Area Section of ASPP is advancing with the Frederick, Maryland, County School District (see page 15) will, we hope, serve as a model for endeavors ASPP will undertake in the future, particularly as the ASPPEF develops resources to facilitate such endeavors.

Finally, I would point out that the message we need to get across should avoid the self-serving and somewhat arrogant notion that public support of science should exist as a kind of birthright. It does

not, of course, nor should it. Nevertheless, science, basic and applied, is vitally important to the economic future of any society in an increasingly technology-based world, and that is the message that we must get across to both our elected representatives and the general public. Recognition of the importance of getting this message out was what led two of my predecessors in this office, Mary Helen Goldsmith and Ralph Quatrano, to establish the position of director of public affairs, currently held by Brian Hyps. While Brian can only do so much by himself, I am of the opinion that he has over 3,000 subcommittee members out there in the United States on whom he should be able to call to help him in this vitally important enterprise.

There is no question that science will continue to be supported by our government in the next century, but the exact nature of that support will depend on the outcome of the debate the country will be engaged in over the next several years. Just as the New Deal identified areas in which the federal government needed to become more active to promote the general welfare in the 1930s, so the coming national debate will identify areas where the federal government will either abdicate responsibility altogether or, at a minimum, drastically reduce its current level of commitment. Science will not be exempted from this debate nor from these reductions. It is vitally important that we, as members of ASPP and as scientists, take personal responsibility for seeing that the case in support of science, plant and otherwise, is put forth in as loud, as clear, and as well-reasoned a voice as possible.

James N. Siedow
ASPP President, 1994-95
Duke University
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See page 31

for a description of the mission and goals of the
ASPP Education Foundation.



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REPORT OF THE EXECUTIVE DIRECTOR: Looking Ahead to 1995

This report will serve several purposes, the main purpose being to present the approved 1995 budget to the membership. I also will take this opportunity to give thanks to those individuals who have been so much a part of the successes of the past year and who will also be responsible for further progress in the future year.

First, I am blessed with a terrific staff—dedicated, talented, hard-working, and just a great group of people to work with. Next, I must give thanks to the Society officers and committee members, the individuals that lead this organization. These people are an amazingly dedicated bunch, and the amount of talent and work that these good people dedicate to their professional society is truly remarkable. And, finally, it is you, the members of ASPP, that deserve the most thanks. Your support of the Society has not wavered. It is through you and your good work that we fulfill our mission.

1995 Budget

The table on page 6 shows the approved budget for 1995 as well as the budget for 1994 and the actual audited figures for 1993. As can be seen, the actual numbers for 1993 show a modest surplus at year's end, a pleasant change from the loss of some \$91,000 in 1992. The final numbers for 1994 are not available at this writing, but we expect the audited numbers to confirm another modest surplus for 1994. The ASPP auditor meets with and reports directly to the board of trustees and makes recommendations concerning the status of the accounts and records of the Society as well as the overall financial strength of the association. We expect another clean audit for 1994.

The budget for 1995 anticipates another surplus of approximately \$54,000, a very small amount (1.4%) given the size of our total budget. In considering the new budget, the staff and leadership of the Society look at many factors including inflationary pressures, income trends, and the consideration of new programs. The budget that is shown here is a summary of a much greater detailed series of budgets that break down each cost center into its smallest part.

This budget process begins in early in the year with the staff beginning to assemble proposed budgets for presentation

to the various components of the budgetary process. The editors of our journals and the responsible committees of the association have roles to play in developing this document. For example, the publications committee reviews budget figures in its area and makes recommendations to the board of trustees. Similarly, when the new board of directors is formed for the new ASPP Education Foundation, its members also will have appropriate input into their part of future budgets.

It is the board of trustees that functions as the Society's budget committee, and it is this board that sends to the executive committee the recommended budget for the coming year. The executive committee acts on the budget at its summer meeting held in connection with the annual meeting.

The budget for 1995 shows healthy increases in both revenues and expenses, with the main components of our income—dues, subscription and related journal fees, and annual meeting revenues—showing increases brought about by steady or increasing numbers and increased rates in some areas. Dues for regular members increased from \$75 to \$80 in 1995; those for student members were held at \$30. Institutional subscriptions, our largest single income category, increased from \$975 to \$1,075 (this is for both *TIE PLANT CELL* and *Plant Physiology*). Member subscriptions to the two journals went up \$10 to give a 1995 rate of \$115 for *Plant Physiology* and \$90 for *THE PLANT CELL*.

Another area of increased projected revenue is contributions. The corporate member program is being revived in 1995, and we hope to raise \$20,000 for the year. Annual meeting revenues continue to grow, but when balanced against projected expenses, the bottom line is very small. The \$160,074 line item labeled Reserve Fund Allocation is the five percent allocation of income from our invested reserves.

Expenses continue to be tightly controlled, with several new functional areas broken out for 1995. The fund raising area has been separately identified and has a modest budget for 1995. The line item labeled Fund Balance Adjustments continues for the new year, and the executive committee budgets this \$50,000 amount to pay back the deficit that has accumulated in the ASPP operating account.

Other expenses reflect normal increases in the operations of the Society.

Staff and the ASPP leadership are very much aware of the potential effect that these increases in subscription rates and dues could have on our members and other subscribers. We will continue to try to broaden the income base and thereby lessen our dependence on institutional subscriptions. The plan to raise funds through an ASPP foundation is an example of these new efforts. As for expenses, the executive committee has directed me to examine all aspects of our operations to ensure that we are getting the most for our money. Be assured that your leaders and this staff will be diligent in assuring that your member dollars are properly spent.

Investments

The ASPP investments are of two types: the investment of our changing cash balances in our bank account, and the investment of our reserves. Our excess cash that comes in and out of our checking account is invested in a "sweep" account that invests available cash on a daily basis in U.S. government securities. This method gives us both a good rate of return and also the needed protection of insured deposits.

Our reserves are the more stable funds and therefore can be invested with a longer term vision. The fund is managed by the firm of Loomis, Sayles, a local firm that has directed the investment of our reserves for a number of years. The board of trustees reviews the performance of these investment managers annually, and the board also sets guidelines and investment objectives for our portfolio. Currently, the fund is approximately 70% invested in quality stocks, and the remainder in high grade bonds. The ASPP is a cautious investor, and we invest based on sound fundamental principles—there will be no Orange County debacle here at ASPP!

While our average returns on the total portfolio have averaged over 15 percent in recent years, the recent stock market has not matched this performance. We will just about break even for 1994, and our reserves remain at about \$3.2 million.

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SUMMARY BUDGET TABLES, 1995 APPROVED BUDGET

Membership

According to the latest available figures, our total membership stands at 5,053, down 275 from the figures at the same time last year. Student membership is now 603, down 147 from the record high of 750 last year. Membership outside the United States and Canada remains steady at 1,717, or 34 percent of our membership. We are working to increase these numbers, and the greatest help can come from you, the individual member. No one joins without being asked, so please ask! Or, you can send to headquarters names of prospective members and we will do the asking. We have a new membership brochure, and we will send you copies for your use upon request.

Staff

The 1995 budget contains funding for two additional staff members, bringing the total staff to eighteen approved positions. Both new positions are in the publications area, one in the manuscript tracking area and one in the editorial offices of *Plant Physiology*. We have written complete job descriptions for all staff, and new performance evaluation methods are based on these defined duties and responsibilities. As I stated earlier in this report, we have a great staff here at headquarters, and I am proud to be a part of the team. We look forward to the new year and working with you to make this Society the best it can be. Please call me and let us know how we can serve you better. Thank you.

Kenneth M. Beam
Executive Director

	1993 Actual	1994 Budget	1995 Budget
Income			
Membership Dues	292,787	318,000	354,000
Subscriptions: Members	403,799	396,000	517,500
Non-Members	10,091	10,000	12,000
Institutions	1,566,479	1,855,000	1,875,750
Annual Reviews	77,555	65,000	80,000
List rentals	11,896	15,000	18,000
Advertising Income	6,200	20,000	25,000
Book Sales	59,023	25,000	67,000
Investment Income	10,433	15,000	17,000
Annual Meeting	200,517	142,000	230,700
Reprint Sales	136,186	170,000	158,380
Handling Fees/Page Charges	128,005	186,000	178,750
Special Illus & Author Alters	94,661	75,000	127,000
Grants/Contributions	6,676	1,000	20,000
Other Income	16,247	0	0
Reserve Fund Allocations	103,888	155,956	160,074
Total Income	3,124,443	3,448,956	3,841,154
Expenses			
General and Administrative			
Executive	155,000	167,000	176,283
Business Office	120,360	164,500	191,583
Headquarter Operations	179,086	200,000	214,000
Governance	40,154	42,500	50,500
Society Operations			
Member Services	134,500	123,500	152,713
Annual Meeting	158,433	134,000	220,663
Awards	3,725	9,000	10,500
Section Support	11,000	12,500	13,500
Foundation/Development	0	0	11,000
Publications			
Publications General	31,709	22,000	77,198
Plant Physiology	1,153,346	1,346,000	1,389,743
The Plant Cell	927,969	908,500	989,362
Newsletter	55,000	58,000	68,833
Annual Reviews	63,898	55,000	70,000
Professional Programs			
Public Affairs	32,351	123,000	101,234
Fund Balance Adjustment		50,000	50,000
Total Expenses	3,066,531	3,415,500	3,787,112
Net Gain/(Loss)	57,912	33,456	54,042

Fulbright Scholar Awards for 1996-1997

The deadline for Fulbright Scholar awards for lecturing or research grants for 1996-97 is August 1, 1995. Fulbright Scholar awards are available in nearly 140 countries. Awards range from two months to a full academic year. The basic

eligibility requirements include U.S. citizenship and the Ph.D. or comparable professional qualifications. For lecturing awards, university or college teaching experience is expected. Language skills are needed for some countries, but most lecturing assignments are in English.

Funding for the Fulbright Program is provided by the United States Informa-

tion Agency, on behalf of the U.S. government, and cooperating governments and host institutions abroad.

Contact the Council for International Exchange of Scholars, 3007 Tilden Street, N.W., Suite 5M, Box GNEWS, Washington, DC 20008-3009; telephone 202-686-7877, e-mail (requests for applications only): cies1@ciesnet.cies.org.

Public Affairs

HELP PREVENT MASSIVE RESEARCH CUTS

Enormous cuts for research proposed by Republican members on the House Budget Committee were defeated the past two years but may be proposed early in 1995 with a stronger prospect for passage. Under these former proposals: the Cooperative State Research Service (which has housed the National Research Initiative Competitive Grants Program) with an annual budget of less than \$435 million would have been slated for massive five-year cuts of \$331 million; the Agricultural Research Service with an annual budget of more than \$690 million would have faced astonishing five-year cuts of \$830 million; and the National Science Foundation (NSF) with an annual budget of nearly \$3.4 billion would have received reductions in the rate of growth of \$346 million over five years.

You need to contact your members of Congress now to oppose potential damaging cuts which may be proposed again in the upcoming Fiscal Year 1996 budget. Although a number of Republicans and Democrats may oppose huge cuts, there is a clear danger that budget deficit cutting hawks in Congress will prevail.

Address letters to your congressman to: The Honorable _____, U.S. House of Representatives, Washington, DC 20515, Dear Congressman _____; and to your senators to: The Honorable _____, U.S. Senate, Washington, DC 20510, Dear Senator _____. If you have newly elected members of Congress, address the letters to these newly elected members at these same addresses for the House and Senate.

If you send a letter to your members of Congress, please also send a copy to ASPP Public Affairs Director Brian Hysps (ASPP, 15501 Monona Drive, Rockville, MD 20855; e-mail bhyps@access.digex.net). If you would like to schedule a meeting with your Congressman in the local district office, please contact Hysps for assistance in seeking a meeting.

Following is a Sample Letter to Congress To Oppose Massive Federal Cuts in Research Funds

Huge budget cuts in vital research programs have been discussed in Congress the past two years. Although not enacted, these cuts might be proposed again in the Fiscal Year 1996 budget. These cuts would be devastating to (name of your community and state) and the nation. American industry and its workers need a strong research base providing innovative technologies to compete in the global market. The nation has stayed competitive because of vital research supported by the U.S. Department of Agriculture (USDA), National Science Foundation (NSF), Department of Energy, and other federal agencies.

Budget proposals that were not passed during the past two years called for massive cuts of the Cooperative State Research Service (CSRS) and the Agricultural Research Service (ARS) within USDA. However, full funding for CSRS and ARS is vital to assuring the health and safety of all Americans. In addition to assuring a safe, affordable, and abundant food supply, these basic and applied research budgets consistently result in job-creating innovative technologies for

U.S. workers and businesses. Budget cuts of cutting edge research at USDA, NSF, and DOE would weaken the nation's research capability at a time when increased investment is needed for American industries to compete in the global market.

In addition to the losses of American businesses and workers that research budget cuts would cause, they would also have a direct effect on federal funding for important research conducted in (name of your community and state.) (Optional: Give example of NSF, USDA, or DOE funding that you receive for research, the importance of the knowledge it may lead to, and the number of individuals who gain valuable training from it.)

America will need strong support for research to enable its businesses and workers to compete and survive in the face of increasing global competition. We urge you to fully support vital investment in research in the Fiscal Year 1996 Budget.

Sincerely,
Your Name and
Institution



Part of the new order in the United States Senate: Minority Leader Tom Daschle (D-SD) on left and Agriculture Committee Chair Richard Lugar (R-IN) at right.

Letters to the Editor Give a Read on Local Voters' Views

Members of Congress and their staffs regularly read editorials and letters to the editor in their local newspapers. This gives them a read on local voters' views and can help tell them what interest groups are getting organized on an issue. In addition, many in the general public read these same editorial pages.

To take advantage of this public forum, simply call your local newspaper and ask to speak to someone who can give the guidelines for submitting a letter to the editor. Generally, newspapers request letters that are less than 200 or 250 words in length that respond to a news article, editorial, or letter to the editor that recently appeared in that newspaper. With the frequent stories on the federal budget that are carried in many local newspapers, there should be ample opportunities to identify an article for sending your comment letter in response.

By reading a few letters to the editor in the newspaper, it's easy to get an idea of some aspects letters follow, e.g. following is a style commonly used in an opening sentence: "In response to the article on potential federal budget cuts published on (date) in (name of newspaper), it is important to take a look at what some potential cuts in research may mean to (name of local town, state) and nation." Many of the points that are made in the sample letter to your member of Congress on page 7 could also be made in a letter to the editor.

Although hundreds of letters to the editor and op-ed pieces are regularly rejected by national newspapers, there is a much higher success rate in having your letter printed in a local daily or weekly newspaper. For many members of Congress, letters in the local paper are more important to them than letters in a national newspaper because they come from their own constituents.

Severe cuts for federal funding of research, including research in the plant sciences, loom as a real threat as part of the generally accepted interpretations offered of the mandate given from the last election. But different reasonable interpretations can be taken from the last election. It would be helpful to explain the need for support of research

in the plant sciences in your local papers.

Did the voters give a mandate in November to weaken the national research community and diminish the nation's ability to compete in the global market? As regional and world trade barriers continue to fall, all nations are even more dependent on a strong research base that will generate millions of new jobs needed to maintain a healthy, growing economy. Reelected members of Congress on both sides of the aisle have a record of supporting research as a necessary investment in a strong economy.

Economic studies have shown the high return the economy receives from investment in research. George W. Norton, professor, Department of Agricultural Economics, Virginia Polytechnic Institute and State University, found that many of the annual rates of return in these economic studies are in the 30-60 percent range for agricultural research—several times the return typically obtained from conventional investments in manufacturing.

Cutting federal support of research in the plant sciences might reduce U. S. spending somewhat today, but that will be more than offset by the likely resulting loss of agricultural and other exports tomorrow. In floor debate, many members of Congress acknowledge that the answer to the budget deficit lies in curbing mandatory programs instead of discretionary programs like agricultural research.

Cutting research won't solve the problem with the federal budget deficit. Instead, we know that cutting plant science research would give us a weaker economy that is even less able to support the fast growing mandatory programs.

By sharing concerns now with the editorial pages of your local newspapers and with your members of Congress, you can help throw up a needed caution on the scheduled budget cutting train.

HAVE YOU RENEWED YOUR
MEMBERSHIP IN ASPP?
THE SOCIETY NEEDS YOU NOW!
MORE THAN EVER!

New Order in the House



Rep. John Kasich: In past years, new House Budget Committee chair John Kasich (R-OH) has sought five-year budget cuts for the USDA Cooperative State Research Service (which has housed the NRI) of \$331 million; for the Agricultural Research Service of \$830 million; and for NSF, \$346 million. These deep cuts may be proposed again this time if he does not hear concerns over them from constituents and from other members of Congress, particularly from his Republican colleagues.



Rep. John Myers: Chair of the House Appropriations Subcommittee on Energy and Water Development, Myers (R-IN) will play a key role in spending for research funding, particularly within the Department of Energy. Some 60 ASPP members in West Lafayette, Lafayette, and Terre Haute are in his district.



Rep. Joe Skeen: The new chair of the House

Appropriations Subcommittee on Agriculture, Skeen's district includes Las Cruces. His subcommittee makes recommendations for agricultural research spending.



Rep. Bob Livingston: Livingston (R-LA) of Metairie is the new chair of the House Appropriations Committee, having been selected by the leadership over some more senior members on the subcommittee. All research funding goes through his committee.



Rep. Steven Schiff: Schiff (R-NM) of Albuquerque is the new chair of the House Science Subcommittee on Basic Research with authorizing jurisdiction over NSF.



Rep. Robert Walker: Walker (R-PA) of Lancaster is the new chair of the Committee on Science. Walker is close to House Speaker Newt Gingrich (R-GA) and is a senior member of the Budget Committee. His committee has authorizing jurisdiction over NSF and research done by the Department of Energy. ASPP has members in the congressional districts of each influential member of Congress pictured here.

White House Forum Examines Health, Safety, and Food Needs

Coruzzi, Hanson, Daie, Clutter, Bramm Take Part

Several ASPP members offered suggestions for meeting the health, safety and food needs of America during a White House forum held November 21-22, 1994, in Washington, DC.

The national forum was organized by the White House Office of Science and Technology Policy (OSTP) and the Committee on Health, Safety and Food Research and Development (CHSF) of the National Science and Technology Council (NSTC) in cooperation with the Institute of Medicine and the National Academy of Sciences. An important objective of the NSTC is the establishment of clear national science and technology goals and research and development strategies.

Gloria Coruzzi, professor of biology at New York University, discussed how national strategic objectives could be folded into a national priority setting process without compromising long-term, broad-based investment in fundamental research.

She said that in order for a directed funding approach to be successful, it is essential that the scientific community be included in defining the priority areas. She said it would be counterproductive to U.S. science for the government to micromanage research discoveries by imposing priority areas on the scientific community. "The concept of targeting priority areas will work only if they are agreed upon by the scientific community, the government and by the private sector, as we are attempting to do today," Coruzzi said.

Coruzzi noted that basic research on plants with no commercial value, such as arabidopsis, has led to the rapid development of technologies such as genome sequencing, gene-mapping, and genetagging, which have made possible the first cloning of disease-resistance genes from plants. Coruzzi credited the basic research done by the National Research Initiative Competitive Grants Program (NRICGP) of the U.S. Department of Agriculture, the National Science Foundation, and the Division of Energy Biosciences of the Department of Energy for providing the knowledge base needed for many applied discoveries.

Coruzzi also addressed the question of

how federal policy can encourage private sector support. She said that offering tax incentives to industry for funding basic research and training is one possible way to supplement existing federal competitive grants programs supporting basic research.

Maureen Hanson, professor in the Section of Genetics and Development and director of the NSF/DOE/USDA Plant Science Center, Cornell University, addressed the crisis in research and support and graduate education in the biological sciences. She said that inadequate funding of research support for the current population of scientists is resulting in underutilization of the work force, impairment of education, and threats to progress. Hanson said that many talented students have been dissuaded from entering research careers and that scientists face enormous and potentially demoralizing challenges caused by severe competition for insufficient amounts of research funds.

"In the biological sciences, the oversupply of graduating students is not as severe as in mathematics, engineering, and the physical sciences. Graduate students should not be narrowly trained in fields where opportunities are limited," Hanson said. She said the challenge is to maintain quality while lowering pressure on the system. "Given the diverse careers ahead of contemporary graduates, training programs should be judged not only by their research output, but also for the quality of mentoring, breadth of formal courses available, and opportunities for other experiences, such as teaching or administrative and industrial internships."

Hanson added that despite economic and political constraints, efforts must continue to be made to make the federal government and Congress aware of the rich opportunities available at this time for generation of knowledge bearing on health, safety, and food as a result of important discoveries in the last two decades.

Jaleh Daie, professor, University of Wisconsin, submitted a paper on fostering change in the culture and reward system of the academy. In addition to ASPP members Coruzzi, Hanson, and Daie, ASPP member Janet Braam, assistant professor,

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Biochemistry/Cell Biology Department, Rice University, also participated.

ASPP member Mary Clutter, NSF Assistant Director for Biological Sciences, participated in the forum and is a member of the NSTC Committee on Health, Safety and Food R&D. Plant scientists Jim Cook, NRICGP chief scientist, George Bruening, University of California at Davis, and Peter Day, Rutgers, also participated in the forum.

Among the speakers at the forum were Vice President Al Gore; M. R. C. Greenwood, OSTP associate director for Science; John Gibbons, assistant to the President for Science and Technology; and there was a videotape statement by First Lady Hillary Rodham Clinton.

Arizona Innovator of the Year Award for Larkins, Habben, Moro

The 1994 Arizona Innovator of the Year Award for Medical/Biotechnology Product was presented December 8, 1994, to Brian Larkins, Jeffrey Habben, and Gloverson Moro, all of the Department of Plant Sciences at the University of Arizona. The award recognized their discovery of a simple procedure for estimating the lysine content of cereal seeds. This test will aid efforts to improve the nutritional value of cereals throughout the world and thereby fight mass malnutrition.

The test procedure is quicker, more cost-effective, and uses only a small portion of the seed compared to normal amino acid analysis. In research conducted in their laboratory to determine the origin of the lysine-containing proteins in maize endosperm, Larkins and his colleagues demonstrated that mRNAs encoding a specific elongation factor are significantly increased in the high-lysine mutant, opaque2. They reasoned that a specific assay may provide an accurate index of the lysine content of the seed.

Furthermore, since this protein can be detected by an ELISA with an antibody against the specific elongation factor, it should be possible to estimate the lysine content with a relatively quick assay that is cost-effective and uses only a small portion of the endosperm. This approach would greatly facilitate measurement of the genetic variation in lysine content in single seed progeny of genetically segregating populations.

CARLSON AFFIRMS CONTRIBUTION OF BASIC RESEARCH TO SUSTAINABLE AGRICULTURE

The Acting Administrator of the new Cooperative State Research, Education, and Extension Service (CSREES), William Carlson, responded positively in a letter November 23, 1994, to concerns raised in a letter written by CoFARM regarding a USDA protocol evaluating the relevance of research to sustainable agriculture. CoFARM had sent a letter to Carlson on October 25, 1994, citing significant problems with the protocol.

"We are operating under the Executive Office's position to maintain support for fundamental research. The move from a quantitative to qualitative protocol was supported strongly within the Depart-

ment, especially by staff of the National Research Initiative (NRICGP) for the very reason you have stated: 'elimination of the automatic zero for fundamental research.' The cases you cite and many other examples make the case over and over again that fundamental research is essential for sustainable agriculture," Carlson said.

In explaining the status of the protocol, Carlson said that he cannot state at this time whether the latest protocol will be used beyond the application just completed in cooperation with some 24 state agricultural experiment stations.

"I am interested in your comments regarding appropriate methodologies, and I will certainly take your points into account once I have the opportunity to review the analysis (of the protocol)," Carlson said.

In the meantime, Carlson said the Department of Agriculture will continue to work toward improving its means to accountability with regard to research contributing to sustainable agriculture. For example, the staff of the NRICGP has, after each funding cycle, used guidance from the scientific peer review process to identify those projects considered as directly relevant to sustainable agriculture. Carlson said this process would be continued and improved.

Carlson referred in his letter to the USDA-supported workshop on sustainable agriculture held October 20-21, 1994, in Raleigh, North Carolina, that was coordinated by the American Institute for Biological Sciences (AIBS).

"This workshop brought together representatives from both sustainable agriculture interest groups and a broad range of professional scientific societies. I understand that a report of the discussion and conclusions from this workshop is in draft form. We consider it very important that representatives of the scientific community and the sustainable agriculture interest groups continue to dialogue and work towards a scientifically sound this matter of relevance of research to sustainable agriculture," Carlson said.

Several ASPP members participated in that workshop including workshop steering committee member Ken Keegstra,

Based on their research, Larkins, Habben, and Moro have shown that this assay:

- Requires as little as 25 mg of flour to give reproducible results.
- Takes only one-and-a-half days to complete.
- Requires little equipment (microfuge, pipetter, and a plate reader).
- Is relatively inexpensive and easy to run.

The new procedure has broad applicability for enhancing the protein quality of cereals such as maize, wheat, barley, and sorghum. These cereals are all low in the amino acid lysine, which is important in human and livestock nutrition.

Because the human body doesn't produce lysine, it must be supplied through a balanced diet. Insufficient lysine in the diet is not a problem for most people in developed countries, but it is a serious concern in some developing nations where children may be nourished almost entirely on a cereal-based diet. For them, development of staple cereals with a balanced amino acid content is essential to avoid malnutrition and its symptoms, such as stunted growth.

Larkins, Habben, and Moro have taken a patent on this new test procedure. The research was conducted with support from Pioneer Hi-Bred International. Professor Larkins, a member of ASPP, is the editor of THE PLANT CELL. Habben is a postdoctoral associate and member of ASPP. Moro is a graduate student.

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fundamental science speaker Clarence (Bud) Ryan, ASPP president Jim Siedow, and committee on public affairs chair Ralph Quatrano. The workshop was proposed earlier by NRICGP chief scientist Jim Cook at a meeting of plant and soil science societies coordinated by ASPP.

The October 25 letter to Carlson was signed by CoFARM Chairman Robert Zimbelman, who is executive vice president of the American Society of Animal Science. CoFARM stands for Coalition on Funding Agricultural Research Missions. ASPP, a member of CoFARM, had cited the need for a coalition letter in response to the protocol at earlier CoFARM meetings.

ASPP has worked for recognition of the contribution of fundamental research to sustainable agriculture by USDA and the Congress since several ASPP members told the committee on public affairs and ASPP leadership of problems with the protocol that earlier rated the contribution of fundamental research to sustainable agriculture at zero.

The contribution of fundamental research to sustainable agriculture may be further defined in the 1995 Farm Bill. ASPP is seeking accurate reflection of the contribution of basic research to sustainable agriculture in the Farm Bill.

JUST RELEASED!

**POLLEN-PISTIL
INTERACTIONS AND
POLLEN TUBE GROWTH**

Edited by
Andrew G. Stephenson
Teh-hui Kao

Proceedings of the
Ninth Annual Penn State
Symposium in
Plant Physiology

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Order Form on Page 4 of
This Newsletter.

PLANT GENE REGISTER PAPERS NOW BEING PUBLISHED EXCLUSIVELY ONLINE

All Plant Gene Register (PGR) papers received after January 1, 1995, will be published in electronic form only. They will not appear in print in *Plant Physiology*.

Submit manuscripts via electronic mail directly to Dr. Paul Staswick, the editor of the Plant Gene Register, at

pgr@crcvms.unl.edu

Detailed instructions for how to submit electronically appear in the November 1994 and January 1995 issues of *Plant Physiology* and will appear in the February 1995 issue.

ASPP will charge the corresponding author a reduced handling fee of \$100 to process the submissions and maintain the data base.

Any PGR papers that arrive at the ASPP editorial office on or after January 1, 1995, will be returned to the authors with a request to submit them electronically.

Direct any questions about these new procedures for handling and publishing PGR papers to:
Deborah Weiner,
managing editor of *Plant Physiology*,
telephone 301-251-0560, ext. 18,
e-mail diweiner@access.digex.net

OBITUARIES

Randolph T. Wedding

Dr. Randolph T. Wedding, professor of biology at the University of California at Riverside and an ASPP member since 1949, died on January 2, 1995. A memorial to Dr. Wedding will be published in an upcoming issue of the newsletter

Daniel I. Arnon

[Editor's Note: The following obituary is compiled from several sources, but primarily from background material provided by Bob B. Buchanan, University of California, Berkeley.]

Daniel Israel Arnon, one of this century's leaders in the study of photosynthesis, died in Berkeley, California, on December 20, 1994, at the age of 84. Dr. Arnon was a long-time member of ASPP (since 1937) who served the Society as vice president in 1950-1951 and as president in 1952-1953. He was much honored by ASPP, having won the Stephen Hales Prize in 1966 (for "his distinguished contributions toward advancing plant physiology as a science"), the Charles Reid Barnes Life Membership Award in 1982, and the Charles F. Kettering Award for Excellence in Photosynthesis in 1984.

Daniel Arnon was born in Warsaw in 1910. As a youth, he read Jack London's books and, under their influence, vowed to come to California and work in agriculture. He saved his money, taught himself English, applied to the University of California, Berkeley, by mail, and eventually made it to California by hitchhiking across the United States. After a brief stint in a junior college, he transferred to UC Berkeley, from which he earned a bachelor's degree in 1932 and a Ph.D. in 1936 under Professor Dennis Hoagland.

Dr. Arnon's entire professional career (except for the period 1943-1946, when he served as a major in the U.S. Army Air Corps as an expert on hydroponics) was spent at UC Berkeley: he began on the faculty of the Department of Plant Nutrition in 1936; he founded the Department of Cell Physiology; and he finished his career on the faculty of the Department of Plant Biology when he retired in 1978. As an emeritus professor, he continued to conduct research and to write daily up to the time of his death.

Arnon's contributions to photosynthesis changed principal concepts of this fundamental process and made a deep and

lasting imprint on biology. Arnon initially discovered photosynthetic phosphorylation (photophosphorylation)—a finding that ranks in importance with the discovery of respiration. He demonstrated that photosynthetic membranes of chloroplasts use this series of reactions to convert the energy of sunlight into biological forms of energy and in so doing liberate oxygen. Arnon demonstrated that photophosphorylation provides the adenosine triphosphate (ATP) and energy-rich electrons required for the assimilation of carbon dioxide. As a part of this research, Arnon was the first to obtain complete photosynthesis outside the living cell—a feat comparable to that of Buchner with the process of fermentation.

Another discovery came a few years later when Arnon found that a red protein, now called ferredoxin, is a universal part of the photosynthetic apparatus. He found that, in the light, ferredoxin acts as a catalyst of the different types of photophosphorylation he had discovered earlier and thereby fulfills the energetic requirements for carbon dioxide assimilation. This work led the way for researchers to elucidate ferredoxin as a key participant of other basic cellular processes.

In research stemming from the ferredoxin work, Arnon and his colleagues, B. B. Buchanan and M. E. W. Evans, discovered a path of photosynthetic carbon dioxide assimilation in bacteria, "the reductive carboxylic acid cycle," that is independent of the pathway functional in plants. At the time, the plant (or Calvin) pathway was considered to be the only carbon assimilation pathway of cells able to grow with carbon dioxide as sole carbon source. This work, which opened a new area of biochemistry, also uncovered ferredoxin-linked routes of carbon dioxide incorporation and gave insight into the evolution of photosynthesis.

Dr. Arnon also did pioneering work in the micronutrient (trace) element field. He discovered the essentiality of molybdenum for the growth of all plants and of vanadium for the growth of algae. Both findings led to important subsequent developments in nitrogen metabolism. The molybdenum work also found agronomic application: addition of small amounts of molybdenum to deficient soils dramatically increased crop yield in many regions of the world.

During his illustrious career, Arnon spent several sabbatical periods as a Guggenheim Fellow and as a Fulbright

Research Scholar and was honored often both inside and outside the United States. He was a member of the National Academy of Sciences (U.S.A.), and of science academies in Sweden, France, and Germany, and he was a fellow of the American Academy of Arts and Sciences and the American Association for the Advancement of Science. He won numerous awards in addition to those bestowed upon him by ASPP, including the Newcomb Cleveland Prize—the highest honor of the American Association for the Advancement of Science—and the National Medal of Science (U.S.A.) "for fundamental research into the mechanisms of green plant utilization of light to produce chemical energy and oxygen and for contributions to our understanding of plant nutrition."

Arnon's last research contribution to his field will appear with approximately forty invited articles in a special issue of *Photosynthesis Research* to be published in honor of his eighty-fifth birthday late in 1995.

CALL FOR 1995 ASPP AWARDS COMING SOON

Six awards are to be given at the 1995 ASPP Annual Meeting in Charlotte, North Carolina. They are:

The Charles Albert Shull Award

Marlin Gibbs Medal

Excellence in Teaching Award

Adolph E. Gude Jr. Award

Charles Reid Barnes Life Membership

Corresponding Membership

The call for awards, to be mailed to all ASPP members in early February, will detail the qualifications for each award and will provide complete instructions on how to nominate a deserving individual. Deadline for nominations is April 7, 1995.

ASPP Education Forum

Compiled this issue by Robert Wise,
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National Research Council Presents Draft Standards for Science Education

"Science education standards allow everyone to move in the same direction, with the assurance that the risks they take in the name of improving science education will be supported by policies and practices throughout the system."—Draft National Science Education Standards

A draft copy of the National Science Education Standards has recently been released by the National Research Council for review and comment by the science community (see a news release description in the paragraphs following this one). As this is a major effort on behalf of the community to strengthen K-12 science education, it is important that as many individuals as possible review the document. A copy of the draft can be obtained by calling 202-334-1399, or faxing a request to 202-334-1294. All comments must be received by February 28, 1995. The effort needs the input of as many of you as possible.

As part of a larger movement to improve the nation's education system by developing voluntary national education standards in a number of subjects, the National Research Council (NRC) has unveiled the draft version of its National Science Education Standards. The effort is being funded by the National Science Foundation, the Department of Education, NASA, and the National Institutes of Health. The 390-page volume sets forth a series of standards for science teaching, learning, and testing for K-12 education. According to Richard Klausner, chair of the project, "Our aim is to use the draft to build national consensus about what is important in science education."

The primary goal of the effort is to achieve "scientific literacy for all students." The standards are described

as "an integrated set of policies that can be used to improve science education . . . and develop higher levels of scientific literacy." The document advocates hands-on participation by students in their education and empowerment of teachers to make decisions about what the students will learn and what resources will be used. It specifies student achievement goals for the end of fourth, eighth, and twelfth grade. The standards are intended to "help chart the course into the future" and "provide assistance in making decisions and policies that will bring coordination, consistency, and coherence to the improvement of science literacy." The target audience includes science teachers and supervisors, curriculum developers and publishers, school administrators and board members, parents, community and industry members, scientists and engineers, legislators, and policymakers.

The draft contains sections on standards for science teaching, professional development of teachers, assessment of students, and science content of the curriculum. The standards for curriculum content "define what the scientifically literate person should understand and be able to do after 13 years of schooling . . . The standards for assessment, teaching, program, and system describe the conditions necessary to achieve the goal of scientific literacy for all students. "Underlying principles include the belief that all students should have the opportunity to achieve science literacy and learn all the science content defined in the standards, and that learning science is an active process, requiring more resources and less emphasis on content. The content standards stress more overarching concepts and less memorization of facts and vocabulary. They eschew teaching one discipline each year in favor of making connections between the different disciplines and revisiting each, in increasing detail, throughout the grades.

The draft can be obtained without charge from the NRC's National Committee on Science Education Standards

and Assessment. Please leave a message at 202-334-1399, or fax your request to 202-334-1294. All comments must be received by February 28, 1995.

Sources for Benchmarks and Ideas Available

More food for thought on science and math competencies for students who have completed grades 2, 5, 8, and 12 can be found in *Benchmarks for Science Literacy*, recently published by Project 2061 of the American Association for the Advancement of Science (1993, Oxford University Press, ISBN 0-19-508986-3). This book addresses very specific concepts students should master at various grade levels. In addition, if you are working with K-12 students or teachers on hands-on science projects you may find the *Science Experiments and Projects Index* edited by Lisa Holonitch to be a useful source of ideas (1994, Highsmith Press, ISBN 0-917-846-31-1). This is a 310-page compilation of experiment topics and references that would be especially useful in guiding a student looking for a science fair project. All fields of science are represented with many good plant experiments included.

Southern Section Forms Undergraduate Outreach Committee

Deborah Cook, chair of the newly formed SS-ASPP Undergraduate Outreach Committee (UOC) requests that if you have undergraduate students conducting research in your lab, please consider encouraging them to join you in attending this year's Southern Section annual meeting in Knoxville (March 18-20, 1995). The primary goal of the UOC will be to expose undergraduate students to the plant sciences via active participation in sectional activities. Dr. Cook states, "we as a professional society need to increase the participation of undergraduates in plant science research and as research presenters at our regional meetings." You need not be a member of the parent society or live in the

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Southeast to participate. Deborah could also use some help with overseeing the mission of the SS-ASPP UOC and is requesting the volunteer services of four interested parties to work with her in promoting participation of undergraduates in professional plant physiology research.

Send responses to: Deborah A. Cook, Assistant Professor of Biological Sciences, Clark Atlanta University, Atlanta, GA 30314; telephone 404-880-6823, fax 404-880-6756, e-mail dcook@cau.auc.edu.

Plant-Ed Bulletin Board Active

The Plant-Ed Bulletin Board was started on September 8, 1994, with about 25 e-mail addresses. Ten days later it passed 100 and in early November hit 150. In early December it reached 200 and currently stands at 204. Judging from the last part of everyone's e-mail address, about 18% are from countries other than the United States and a total of 15 countries are represented. The number of postings in September, October, November, and December were 32, 33, 54, and 14, respectively. This is well above the limit for maintaining a newsgroup.

As a prototype list, plant-ed will be coming up for a vote in early March. The list will become a full-fledged BIOSCI newsgroup if 80 yes votes are collected and the number of yes votes exceeds the no votes by 40. A 10-day discussion period will precede the vote (on BIOFORUM/bionet.general) in which the charter will be debated and perhaps modified.

To subscribe to the bulletin board, send the message <subscribe plant-ed> to <biosci-server@net.bio.net>.

Plant-Ed Archive Discovered

Carl Pike, a veritable Jacques Cousteau on the inner workings of the Internet, has recently discovered that messages posted to the Plant-Ed bulletin board are being stored in some submarine cavern in the middle of the Caspian Sea.

All of the previous postings sent to Plant-Ed are archived and can be found via World Wide Web at: <gopher://gopher.bio.net/11/plant-education>. In addition, three indexes are available for searching at the gopher site: (1) an

index of all BIOSCI postings; (2) an index of individual journal article references from the Table of Contents postings on the bio-journals newsgroup; and (3) an index of BIOSCI users including regular mail and e-mail addresses, phone/fax numbers, research interests, and newsgroup participation.

Equipment Needed for Chicago HS Lab

In the last Education Forum, a request was made for donations of basic laboratory equipment to help Bennet Brown, a high school science teacher at DuSable High School in Chicago, outfit a teaching lab. Bennet reports that he has received a couple pieces of equipment but he would be grateful if yet others could respond. Electrophoresis equipment and supplies, a sterilizing oven, pipettors, and an incubator top the list. If such equipment is sitting unused in your lab, please contact Bennet at 5211 S. Greenwood Ave, #2, Chicago, IL 60615, telephone 312-643-2192, e-mail <brown@jets.uchicago.edu>.

Space Still Available for 1995 Education Booth

The ASPP Education Booth and the nearby Education Poster Section at the annual meetings in Charlotte are excellent venues in which to exhibit innovative teaching/education ideas. We have had some outstanding displays in past years and are planning for several more in 1995. If you have a plant physiology laboratory project that works or an educational computer program that even DOS dummies can understand, please consider sharing your successes with the rest of the attendees. Some monies are available from the society to defray the costs of supplies, computers, transportation, etc. The deadline to be included in the meeting program is February 28, 1995, so please send your ideas to Carl Pike of the ASPPASAP (or at least PDQ).

Innovative Ideas for Plant Physiology Laboratory Exercises Being Compiled

Jon Monroe of James Madison University recently posted the following message to the Plant-Ed bulletin board regarding the compilation and distribution of novel ideas for plant physiology laboratory ideas. Keep an eye out for Jon's synopses of ideas sent to him.

Dear Plant-Ed:

One of the advantages of the Plant-Ed list is being able to easily share ideas for labs or teaching exercises; however, there have not been many postings in this area. Here is an idea which I got from Joanne Berger-Sweeney at the Department of Biology, Wellesley College (via Project Kaleidoscope), which I think will stimulate LOTS of exchange.

Please send to me (not to the group) one or two 3-line descriptions of something in your plant course that works. This is enough space to spark someone's interest, but not so long that we will not be able to read them all. On the 4th line include your name and e-mail address, and the course in which you use this idea. Two examples are below.

I will simply cut and paste your replies into one (or more?) message and send them to Plant-Ed. If you see something of interest, simply contact the person directly for more information. If you get lots of inquiries to your idea (how many?), then you may want to post your more detailed information to the group.

Example 1: Students act out dispersing Equisetum spores. Spores have four strap-like elaters which are sensitive to humidity. Students are either wind (blowing) spores (arms extended or wrapped) or water (lying on the ground evaporating). Jonathan Monroe, fac_jmonroe@vax1.acs.jmu.edu, General Botany.

Example 2: Laboratory project in which teams of students pick random clones from a plant cDNA library, map, and sequence from both ends and from subclones. Students try to identify their clones by electronically searching sequence databases using BLAST. Jonathan Monroe, fac_jmonroe@vax1.acs.jmu.edu, Molecular Biology.

Don't worry if you don't see this message for weeks—reply anyway. Let me know if you have any suggestions for improving this idea exchange. (Jonathan Monroe, Department of Biology, James Madison University, Harrisonburg, VA 22807; fac_jmonroe@vax1.acs.jmu.edu)

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Plant Science Education Journal Being Considered

The ASPP (through the efforts of Susan Singer) received an NSF grant for a planning meeting held in early December to explore the possibilities offered by a proposed new plant science education journal. Susan met with fifteen other plant scientists and educators and NSF, DOE, and USDA representatives to exchange ideas on possible content, audience, and format for a new publication. Watch this space for a report of this important meeting.

"Get a Job" and "Get a Grant" Workshops Set

As mentioned in the Education Forum in the last Newsletter, several workshops are being prepared for the 1995 ASPP annual meeting in Charlotte, North Carolina. A workshop on the vagaries of the current job market, tentatively titled, "Life After Graduate School—Get a Job!" will bring together a panel of scientists representative of the many career paths that involve plant physiology. They may not have all the answers, but perhaps they will be able to help with some of the questions. For a second workshop, Terry Woodin, Program Director, Division of Undergraduate Education, Directorate for Education and Human Resources, at NSF, will educate us all on the opportunities provided by the NSF for seeking external support for teaching projects at all educational levels.

Phascinating Photos of Physiologists Needed for ASPP Careers Brochure

Dina Mandoli of the Education Committee needs your photographs of plant physiologists hard at work and having fun for the ASPP Careers Brochure. Dina is progressing well with this project and will have copies of the finished product on hand at the 1995 Annual Meeting, but she could use some help in the area of graphics. Of particular interest are photos of people doing hands-on science, light or electron micrographs of easily recognizable plant structures, commercial scale production involving plants, or an attractive diagram of a model depicting some plant physiological process. Thanks go out to those who have

already submitted material—W. Larcher, Innsbruck; L. B. Stauffer and D. R. Ort, University of Illinois; and C. Ryan, Washington State University. Send color photos, slides, or digitized Adobe Photoshop TIF files to Dina Mandoli, Department of Botany, KB-15, University of Washington, Seattle, WA, 98195; telephone 206-543-4335, fax 206-685-1728, e-mail <mandoli@u.washington.edu>.

NTSA

As mentioned previously in this space, the National Science Teachers Association (NSTA) is sponsoring an International Convention on Science and Science Education (ICSSE) to be held December 1996 in San Francisco. They have invited the ASPP to provide a block of science sessions on any topic(s) of our choice. The Education Committee has selected four areas on which to present and recruited ASPP members to prepare an exhibit for the NSTA meetings. The areas and presenters are: fruit development and ripening—Jim Giavannoni, root biology—Hector Flores, leaves and photosynthesis—Liz Van Volkenburgh, and floral physiology—person not confirmed yet (Dina still has to twist some arms).

Because such a program would be of wide interest to our membership (as well as high school science teachers), it will be presented as a workshop at the 1995 meeting in Charlotte. Watch for it in the program and plan to attend.

ASPP Washington Section K-12 Outreach

In an effort to work more closely with K-12 students, the ASPP education committee and representatives of the Washington Area Section of ASPP (WAS-ASPP) met with representatives of Frederick (Maryland) County Public Schools in October 1994 to discuss development of a partnership between WAS-ASPP and Frederick schools.

J. Michael Robinson, Washington, DC, WAS-ASPP sectional representative to the ASPP executive committee, and Doug Luster, member of the section, explained some of the activities that section members have conducted with local schools including those in Prince Georges County, Maryland. The Frederick school superintendent and board president, who were at ASPP headquarters for the meeting, expressed

strong interest in developing a partnership with the WAS-ASPP.

At the meeting, Dr. Luster agreed to be the primary contact with Frederick schools. Since the meeting, Dr. Luster, education committee chair Susan Singer, and Paul Williams, creator of Wisconsin's Fast Plants program, have been working with Frederick schools to bring them a Fast Plants workshop. Other activities are also being considered. Jim Saunders of the Washington Area Section has provided a comprehensive list of local science educational resources available to Frederick schools and has also offered to assist with the partnership.

The proposal for a partnership was advanced by Maxine Highsmith, who got to know officials at Frederick schools when she was working in Maryland. Now back at Shaw University, in Raleigh, North Carolina, Dr. Highsmith is continuing her outreach efforts with Frederick schools and the new partnership. ASPP Immediate Past President Russell Jones and President Jim Siedow worked with Dr. Singer and the Washington Area Section in supporting Highsmith's proposal.

Michigan State's Choices Day Held Last October

Meeting Aimed To Provide Complete and Honest Information about Careers in Science

Choices Day was a new program held at the Michigan State University-Department of Energy Plant Research Laboratory on October 29, 1994. Aimed primarily at graduate students and postdocs, the program was designed to provide information about several types of scientific careers.

Key participants included invited scientists representing small colleges (Drs. Prudy Hall, Hiram College; Mark Brodl, Knox College; Michael Mishkind, Bennington College), universities (Drs. Brian Keith and Celeste Simon, University of Chicago; Paul Ludden, University of Wisconsin), government (Drs. Autar Mattoo, USDA-ARS; Keith Lampel, FDA; Machi Dilworth, NSF), and industry (Drs. Scott Uknes, Ciba-

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Geigy; Dottie Pierce, Pioneer Hi-Bred; Rich Broglie, DuPont).

During the morning program, each of the invited scientists gave a short presentation describing his or her individual career perspective, with questions following each group of talks. In the afternoon, students and postdocs met with the scientists representing each area for small group discussions. Common meals and a reception provided additional opportunities for interactions. The program also included a scientific seminar by Dr. Mark Brodl, who directs a research group composed of undergraduates.

Choices Day participants discussed the specific demands and rewards of different careers, optimal training plans, application strategies, and future job availability. Drs. Keith and Simon, who are married, commented on issues facing couples seeking two scientific careers, as did some of the other invited participants. Evaluations of the Choices Day Program from the invited scientists and PRL students, postdocs, and faculty were overwhelmingly positive. There was unanimous support for holding additional Choices Day Programs in the future, probably at three-year intervals. The PRL is very grateful to the invited scientists for donating their time and expertise, and to the Department of Energy and the MSU College of Natural Sciences for supporting this valuable program. Perhaps its success will encourage interest and support for similar endeavors at other institutions.

A copy of the program for the PRL Choices Day can be obtained by contacting Ms. Karen Bird, MSU-DOE Plant Research Laboratory, Michigan State University, East Lansing, MI 48824-1312; e-mail: 22540kbb@ibm.cl.msu.edu

Applications Sought for NRC Postdoctoral and Senior Research Associateships

The National Research Council (NRC) announces the 1995 Resident, Cooperative, and Postdoctoral Research Associateship Programs. The programs provide opportunities for Ph.D. scientists and engineers of unusual promise and ability to perform research on problems largely of their own choosing yet compatible with the research interests of a sponsoring laboratory.

Approximately 400 new full-time associateships will be awarded competitively in 1995 for research in several areas including life, medical, and behavioral sciences. Most of the programs are open to both U.S. and non-U.S. nationals and to both recent Ph.D. degree recipients and senior investigators.

Awards are made for one or two years, renewable for a maximum of three years; senior applicants who have held the doctorate at least five years may request shorter periods. Annual stipends for recent Ph.D.s for the 1995 program year range from \$30,000 to \$45,500 depending upon the sponsoring laboratory, and will be appropriately higher for senior associates.

Financial support is provided for allowable relocation expenses and for limited professional travel during duration of the award. The host laboratory provides the associate with programmatic assistance including facilities, support services, necessary equipment, and travel necessary for the conduct of the approved research program.

Applications submitted directly to the NRC are accepted on a continuous basis throughout the year. Those postmarked no later than April 15 will be reviewed in June, and by August 15 in October. Awards will be announced in July and November, followed by awards to alternate candidates later.

Information on specific research opportunities and participating federal

laboratories and application materials, may be obtained from the: National Research Council, Associateship Programs, TJ 2094/D3, 2101 Constitution Avenue, N.W., Washington, D.C. 20418; fax 202-334-2759.

NSF Sets March 1 Deadline for Grant Applications for Instrumentation

The Academic Research Infrastructure Program (ARI) of the National Science Foundation comprises two components—instrumentation and facilities modernization. In Fiscal Year 1995, separate competitions will be held for each component. Deadline for proposals related to instrumentation development and acquisition is March 1, 1995.

The instrumentation component of ARI assists in the acquisition or development of major research instrumentation by U.S. institutions that is not usually available through other NSF programs. The maintenance and technical support associated with these instruments are also supported. Proposals may be for a single instrument, a large system of instruments, or multiple instruments that share a common research focus. Computer systems, clusters of advanced workstations, networks, and other information infrastructure components necessary for research are encouraged. Proposals for computer networks as general purpose equipment will not be reviewed, nor will a list of assorted instruments or general lab equipment that do not share a common research focus.

This program is described in detail in NSF announcement 94-156, which can be ordered by e-mail (pubs@nsf.gov), fax 703-644-4278, or voice mail 703-306-1130. Other inquiries can be addressed to Office of Science and Technology Infrastructure, Academic Research Infrastructure, National Science Foundation, Room 1270, 4201 Wilson Boulevard, Arlington, VA 22230; telephone 703-306-1040, e-mail ari@nsf.gov.

MAILING TO YOU ON FEBRUARY 3

Call for nominations for ASPP Officers
Call for nominations for 1995 ASPP Awards

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 USA. 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, Canada

Saturday, August 2, through
Wednesday, August 6

MARCH

March 5-9

XVIII Eucarpia Symposium:

Section Ornamentals

Ornamental Plant Improvement:

Classical and Molecular Approaches

Tel Aviv, Israel

Contact: Dan Knassim Ltd., P. O. Box 57005, Tel Aviv, 61570 Israel; telephone 972-3-5626470, fax 972-3-5612303. See November/December 1994 ASPP Newsletter for details.

March 16-19

37th Annual Maize Genetics Meeting Asilomar, California

Contact: Karen Cone, Chair, Maize Genetics Steering Committee, Division of Biological Sciences, Tucker Hall, University of Missouri, Columbia, MO 65211; fax 314-882-0123, e-mail cone@biosci.mbp.missouri.edu. See November/December 1994 ASPP Newsletter for details.

March 18-20

ASPP Southern Section Annual Meeting UT Conference Center Knoxville, Tennessee

The meeting will include a symposium on cellular mechanisms for surviving protoplasmic water loss. For further information contact: Mary E. Musgrave, Department of Plant Pathology and Crop Physiology, 302 Life Sciences Bldg., Louisiana State University, Baton Rouge, LA 70803, telephone 504-388-1464.

March 22-23

Royal Society Discussion Meeting

Control of Development in Higher Plants London, England

Contact: Mary Manning, The Royal Society, 6 Carlton House Terrace, London, SW1Y 5AG, UK; telephone 171 839 5561, fax 171 930 2170. See November/December 1994 ASPP Newsletter for details.

March 26-31

5th International Botanical Microscopy Meeting Plant Cell Biology

Oxford Brookes University Oxford, England

Contact: Karen Hale, Royal Microscopical Society, 37/38 St. Clements, Oxford, OX4 1AJ; telephone 44-865-248768, fax 44-865-791237. See November/December 1994 ASPP Newsletter for details.

March 26-April 1

Keystone Symposia, Concurrent Meetings

- Frontiers of Plant Morphogenesis

- Signal Transduction in Plants

Hilton Head Island, South Carolina

Contact: Keystone Symposia, Drawer 1630, Silverthorne, CO 80498; telephone 303-262-1230, fax 303-262-1525. See November/December 1994 ASPP Newsletter for details.

APRIL

April 3-6

International Symposium on Weed and Crop Resistance to Herbicides University of Córdoba, Spain

Contact: Dr. J. Jorrián, Departamento de Bioquímica y Biología Molecular, Universidad de Córdoba, 14080 Córdoba, Spain; telephone 57-218439, fax 57-218563, e-mail bf1jonoj@lucano.uco.es. See November/December 1994 ASPP Newsletter for details.

April 7-8

ASPP Midwestern Section Annual Meeting Kellogg Center, Michigan State University, East Lansing

For further information, contact: Ray Zielinski, Secretary/Treasurer MWASPP, Department of Plant Biology, University of Illinois, 1201 W. Gregory Dr., Urbana, IL 61801; telephone 217-333-6785, fax 217-244-1336, e-mail rez@uiuc.edu.

April 7-12

Plant Mitochondria: From Gene to Function Durham, North Carolina

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. See November/December 1994 ASPP Newsletter for details.

April 19-22

14th Annual Symposium: Current Topics in Plant Biochemistry, Physiology, and Molecular Biology Will Plants Have a Role in Bioremediation? University of Missouri, Columbia

Sessions: Heavy metals: accumulators, tolerance, and exclusion mechanisms; plant-assisted decontamination; plant-assisted degradation of organics; environmental considerations of plant-based remediation. Invited speakers: B. Ennsley, D. L. Bedard, M. Tien, A. Baker, R. Reeves, A. Smith, M. MacNair, P. Goldsbrough, C. Cobbett, D. Ow, G. Wagner, D. Salt, J. A. C. Verkleij, F. Leustek, R. Meahger, J. L. Morel, G. Bitton, F. M. M. Morel, R. Alberte, S. Strand, J. Fletcher, S. Angle, L. Wolfe, S. Cunningham, J. Raskin, R. Chaney, S. Jorgensen, N. Terry, R. Boyd, T. Fan, I. Pulford, D. Riddel-Black, B. Hetrick. Additional speakers will be selected from abstracts submitted by March 1, 1995. For more information and registration materials contact: IPG Symposium,

University of Missouri, 117 Schweitzer Hall, Columbia, MO 65211; telephone 314-882-7796, fax 314-882-5635.

April 28-29

ASPP Northeast Section Annual Meeting
University of Rhode Island, Kingston
The meeting will be jointly hosted by Richard Hull and Alison Roberts. The organizers are planning a symposium on the general theme of plant-microbe interactions. Contact Richard Hull (telephone 401-792-5995, fax 401-792-4017) or Alison Roberts (telephone 4091-792-4098, fax 401-792-5974, e-mail awrobrts@uriacc.uri.edu).

MAY

May 8-13

First International Symposium of Sucrose Metabolism
Mar del Plata, Argentina
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. See November/December 1994 ASPP Newsletter for details.

May 18-20

Phytochemicals and Health
10th Annual Penn State Symposium in Plant Physiology
Pennsylvania State University
University Park
The symposium will focus on the biosynthesis and regulation of phytochemicals having beneficial or toxic properties affecting plant, animal, and human health. Sessions and speakers: Biochemistry and Regulation of Phytochemicals (E. E. Conn, H. A. Stafford, H. G. Cutler), Flavonoids and Polyphenols in Plant Health (G. H. N. Towers, D. L. Gustine, J. Kuc), Flavonoids and Polyphenols in Human Health (G. D. Stoner, J. W. Fahey, P. Talaly, R. Croteau, J. M. Riddle), Nitrogenous Compounds (R. T. Sayre, W. Majak, T. Hashimoto, K. E. Panter, P. R. Cheeke, E. Rodriguez, A. Pusztai), Terpenoids and Steroids (H. N. Nigg, P. E. Nelson, A. E. Desjardins, K. K. Burkhardt, H. E. Flores), and The Future of Phytochemical Diversity (A. D. Kinghorn, R. J. Huxtable). Poster presentations are solicited, and up to fifteen \$300 travel awards will be available for student and postdoctoral presenters of posters. For more information contact: Jack C. Shannon, 102 Tyson Building, Penn State University, University Park, PA 16802; telephone: 814-863-2192, fax 814-863-6139, e-mail jack_shannon@agcs.psu.edu.

May 20-24

1995 Congress on In Vitro Biology: Interplay of Cells with Their Environment
Denver, Colorado
Contact Tiffany McMillan, telephone 410-992-0946, fax 410-992-0949. See November/December 1994 ASPP Newsletter for details.

May 23-30

Microinjection Techniques in Cell Biology
Marine Biological Laboratory
Woods Hole, Massachusetts
This research-oriented course is intended for graduate students, postdoctoral researchers, and investigators. Limited to 18 students. Microinjection techniques have developed to a state that permits investigators to bridge the gap between in vivo physiology and in vitro biochemistry. The combination of microinjection with analytical light microscopic methodologies, electroporation, biolistic methods, video imaging, image processing, electrophysiological and photometric approaches offers an unparalleled view of cellular function and mechanisms of action within the cytoplasm of intact, living cells. This short course, taught by leading practitioners, will provide an opportunity to learn techniques of microinjection into a variety of living cells through lectures, demonstrations, and extensive hands-on laboratory exercises. The student will learn to microinject single cells, including, but not limited to: cultured mammalian cells, amphibian oocytes, echinoderm blastomeres, and various plant cells. In addition, many of the latest methods of light microscopy, including the use of fluorescence and video techniques, will be used in conjunction with microinjection. The faculty is drawn from the academic and industrial communities. Director: Robert B. Silver, Cornell University and Marine Biological Laboratory. Application deadline is March 14, 1995. For admission application and information contact Admissions Coordinator. Marine Biological Laboratory, Woods Hole, MA 02543; telephone 508-548-3705, ext. 401, or e-mail admissions@mbi.edu

May 24-26

NABC 7
Genes for the Future: Discovery, Ownership, Access
Columbia, Missouri
Contact National Agricultural Biotechnology Council, 159 Biotechnology Building, Cornell University, Ithaca, NY 14853-2703. See November/December ASPP Newsletter for details.

May 26

Seminar: Mentoring and Teaching Research Ethics
Indiana University, Bloomington
Stephanie J. Bird, who oversaw the Association for Women in Science's "Mentoring

Project," will address this one-day seminar. The Friday seminar, scheduled from 10 AM to 2 PM, is open to the academic public. A \$10 fee—waived for Indiana University faculty, staff and students—covers lunch. Preregistration is required by April 15. For more information and registration forms, contact Kenneth D. Pimple, TRF Project Director, The Poynter Center, 410 N. Park Ave., Bloomington, IN 47405; telephone 812-855-0261, fax 812-855-3315, e-mail pimple@indiana.edu (bitnet: pimple@indiana.bitnet).

May 28-June 3

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 1-4

1995 Symposium on Biochemistry and Molecular Biology of Plant Fatty Acids and Glycerolipids
South Lake Tahoe, California
Contact meeting organizers, John Ohlrogge, Michigan State University, Botany & Plant Pathology, East Lansing, MI 48824 (e-mail 22346mgr@msu.edu, fax 517.353.1926) or Jan Jaworski, Chemistry Department, Miami University, Oxford, OH 45056 (e-mail janj@miamiu.acs.muohio.edu, fax 513.529.4221). See November/December ASPP Newsletter for details.

June 11-16

Gordon Research Conference
Plant Cell Genetics and Development: Apical Meristems and Primordia
Wolfeboro, New Hampshire
Application form in February 3, 1995, issue of *Science*, or from Gordon Research Conferences, University of Rhode Island, PO Box 984, West Kingston, RI 02892-0984. Attendance limited to 135. Posters strongly encouraged. Send poster abstracts with application and e-mail to both messaging@mbcl.rutgers.edu and rajorgensen@ucdavis.edu. Some funding available for developing scientists; apply to chair: rajorgensen@ucdavis.edu. See November/December ASPP Newsletter for details.

June 18-23

Molecular Genetics and Ecology of Pesticide Resistance**Yellowstone Conference Center
Big Sky, Montana**

Contact: American Chemical Society, Meetings Department, 1155 16th Street N.W., Washington DC 20036, telephone 202-872-6286, fax 202-872-6128. See November/December ASPP Newsletter for details.

June 26-30

International Workshop**Peroxidase Biotechnology and Application Puschino (Moscow Region), Russia**

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. See November/December ASPP Newsletter for details.

JULY

July 2-7

**7th International Symposium on Preharvest Sprouting in Cereals
Abashiri, Hokkaido, Japan**

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. See November/December ASPP Newsletter for details.

July 4-7

**9th International Rapeseed Congress
Cambridge, England**

Contact: Denis Kimber, 44 Church Street, Haslingfield, Cambridge, CB3 7JE, England. See November/December ASPP Newsletter for details.

July 9-15

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

Contact: Dr. Carmen Bergareche, Departament de Biologia Vegetal, Facultat de Biologia, Diagonal 645, 08028 Barcelona, Spain; fax 34-3- 4112842, telephone 34-3-4021464. See November/December ASPP Newsletter for details.

July 14-19, 1995

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

Contact: 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. See November/December ASPP Newsletter for details.

July 16-20

**5th Brazilian Congress of Plant Physiology
Lavras, MG, Brazil**

This biennial event organized by the Brazilian Society of Plant Physiology will join participants from Brazil and other Latin American countries. Communications will be presented through posters and oral sessions. Conferences on frontiers in plant physiology will take place in special sessions. Among invited speakers are: D. P. Briskin, J. M. Widholm, M. M. Chaves, R. Cyr, F. A. Einhellig, R. B. Goldberg, S. S. Huber, A. A. Kader, J. Roberts, L. Taiz. For details contact: Renato Paiva, V Congr Bras Fisiologia Vegetal, Dept Biol-ESAL, 37200-000 Lavras, MG, Brazil, telephone 55-35 829-1214, fax 55-35 829-1100.

July 17-21

**Fourth International Symposium on the Molecular Biology of Potato
Wageningen, The Netherlands**

For information please contact the Congress Bureau: IAC-Section OCC, Mrs. M. van Amstel, PO Box 88, 6700 AB Wageningen, The Netherlands; telephone 31 8370 90111, fax: + 31 8370 18552.

July 18-20

**Plant Growth Regulator Society of America
22nd Annual Meeting
Minneapolis, Minnesota**

This meeting will include two joint sessions with the 15th International Conference on Plant Growth Substances being held in Minneapolis July 14-19. Three symposia are planned: The Use of Transgenic Plants in Plant Hormone Research (organized by H. Klee), Natural Products that Influence Growth and Development (organized by H. Cutler), and Ethylene, with an Emphasis on Postharvest Physiology (organized by W. Shafer). Original research reports, to be published in the Society's proceedings, are invited in all areas of plant growth regulation. The Society will award prizes of \$300 and \$100 for the two best student papers. For further information, contact Dr. Duane Greene, Program Chair, Department of Plant and Soil Sciences, Bowditch Hall, University of Massachusetts, Amherst, MA 01003, telephone 413-545-5219.

July 23-28

4th International Symposium on Inorganic Nitrogen Assimilation**Darmstadt, Germany**

Contact: Wolfram Ullrich, Institut für Botanik, Technische Hochschule, Schnittpahstr 3-5, D-64 287 Darmstadt, Germany; fax 49-151-16-4808. See November/December ASPP Newsletter for details.

July 30-August 2

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

Deadline for abstracts is February 28, 1995. Contact: Susan Chambers, ASPP Headquarters, 15501 Monona Drive, Rockville, MD 20855-2768; telephone 310-251-0560, ext. 11, fax 301-279-2996, e-mail chambers@access.digex.net.

AUGUST

August 6-11

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

Contact Widmar Tanner or Norbert Sauer, Lehrstuhl für Zellbiologie und Pflanzenphysiologie, Universität Regensburg, Universitätsstrasse 31, 93053 Regensburg, Germany; fax 49-941-943-3352. See November/December ASPP Newsletter for details.

August 7-11

**4th International Congress on Amino Acids
Vienna, Austria**

Contact: Bijay K. Singh, American Cyanamid Company, P.O. Box 400, Princeton, NJ 08543-0400 USA, or B. Lubec, Department of Pediatrics, University of Vienna, Wahringer Gurtel 18, A-1090, Vienna, Austria. See November/December ASPP Newsletter for details.

August 7-11

**10th International Conference on Frankia
and Actinorhizal Plants****University of California, Davis**

Contact: Dr. A. M. Berry, Department of Environmental Horticulture, University of California, Davis, CA 95616; fax 916-752-1819 e-mail amberry@ucdavis.edu. See November/December ASPP Newsletter for details.

August 13-17

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

Contact: Dr. James A. Saunders, Plant Sciences Institute, USDA, Bldg. 9, Rm 5, Beltsville, MD 20705, telephone 301 504-7477, fax 301 504-6478; or Dr. Pedro Barbosa, Department of Entomology, University of Maryland, College Park, MD 20742, telephone 301 405-3946 office, fax 301 314-9290. See November/December ASPP Newsletter for details.

August 20-25

**10th International Photosynthesis Congress
Montpellier, France**

Contact: Dr. Paul Mathis (Photosynthesis Congress), DBCM-SBE, CEA Saclay, Bâtiment 532, 91191 Gif-sur-Yvette CEDEX, France; fax 33-1-69-08-87017. See November/December ASPP Newsletter for details.

SEPTEMBER

September 3-7

4th International Workshop on Pathogenesis-Related Proteins in Plants: Biology and Biotechnological Potential
Kloster Irsee, Germany
Contact: Dr. Erich Kombrink, Abteilung Biochemie, Max-Planck Institut für Züchtungsforschung, Carl-von Linné-Weg 10, D-50829 Köln, Germany, fax +49-221-5062-313. See November/December ASPP Newsletter for details.

September 13-15

14th Long Ashton International Symposium: Plant Roots—from Cells to Systems
Long Ashton Research Station
Bristol, England
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. See November/December ASPP Newsletter for details.

September 25-27

Harnessing Apomixis: A New Frontier in Plant Science
Texas A&M University, College Station
Contact Dr. David M. Steller, Department of Soil and Crop Sciences, Texas A&M University, College Station, TX 77843-2474; telephone 409-845-2745, fax 409-862-4733, e-mail monosom@rigel.tamu.edu. See November/December ASPP Newsletter for details.

OCTOBER

October 1-4, 1995

International Symposium: Engineering Plants For Commercial Products/Applications
University of Kentucky, Lexington
Co-organizers: Glenn B. Collins and Robert J. Shepherd. To be added to the conference mailing list, send your name and address to: International Symposium on Engineering Plants, c/o Conferences and Institutes, 218 Peterson Service Building, Lexington, KY 40506-0005 USA; e-mail

monica.stoch@ukwang.uky.edu, telephone 606-257-3929, fax 606-323-1053.

October 8-12

Third International Symposium: Cytochrome P450 Biodiversity
Woods Hole, Massachusetts
Contact: Dr. John C. Loper, Department of Molecular Genetics, University of Cincinnati School of Medicine, Cincinnati, OH 45267-0524, fax 513-558-8474. See November/December ASPP Newsletter for details.

October 8-12

International Symposium: Dynamics of Physiological Processes in Woody Roots
Ithaca, New York
Contact Dr. Mary A. Topa, Boyce Thompson Institute, Tower Road, Ithaca, NY 14853-1801, USA; fax 607-254-1242, e-mail mat8@cornell.edu. See November/December ASPP Newsletter for details.

NOVEMBER

November 5-9

First Joint USA-México Symposium Agrobiología, Molecular Physiology, and Biotechnology of Crops Important for Mexican Agriculture
Cocoyoc, Mor., México
The joint symposium will be held simultaneously with the VII Congreso de Bioquímica y Biología Molecular de Plantas, the Mexican equivalent of the annual ASPP meeting. Five symposium sessions and six mini-symposium sessions will be held on: Legume Crops and Nitrogen Fixation, Molecular Mechanisms of Development in Cereals, Plants in Semi-Arid Environments, Signal Transduction, Crop Biotechnology, Regulation of Metabolic Processes, Disease and Insect Resistance. Thirty-six speakers are invited from the USA and Mexico. Twelve additional speakers will be selected for the minisymposia from the abstracts submitted to the meeting. Students and postdocs from Mexico, now working in the USA, are strongly encouraged to apply. Some travel fellowships may be available. For further information, contact Federico Sanchez (federico@pbr322.ceingebi.unam.mx) or Maarten Chrispeels (mchrispeels@ucsd.edu).

1996

MARCH

March 10-16, 1996

Seventh International Symposium on Flower Bulbs
Herzliya, Israel
The symposium will focus on the following topics: growth, development, and flowering; production systems and techniques including forcing; postharvest physiology and technology of the perennating organ and cut flowers; biotechnology; selection, breeding, and genetics; introduction and acclimatization of new crops; ecology, taxonomy, and conservation; plant protection; economics and marketing. Convener of the meeting is A. H. Halevy. For more information, contact Ortra Ltd., P.O.B. 50432, Tel Aviv, 61500, Israel; fax 972-3-5174433.

APRIL

April 11-13, 1996

New Biological Approaches to Understand and Improve Winter Survival of Plants
Århus, Denmark
A working group within the Nordic Association of Agricultural Scientists (NJF) announces a meeting on winter hardiness of plants. The meeting will be divided into three sections: ecology, physiology, and genetics. Invited key speakers are R. M. Crawford, R. S. Pearce, and D. A. Gaudet. Persons interested in presenting papers (30 minutes) or posters please contact: Bjarni L. Gudleifsson, RALA Modruvellir, 601 Akureyri, Iceland; telephone: + 354-6-24477, fax + 354-6-27144.

April 12-19, 1996

9th International Congress on Soilless Culture
St. Helier, Jersey, Channel Islands
Lectures and posters are welcome on all aspects of soilless culture. Contributions on appropriate technologies for waste water treatment and reuse in crop production are especially welcome. Attendance strictly limited to 150 persons. Write for information by April 1, 1995, to Secretariat of ISOSC, P.O. Box 52, 6700 AB Wageningen, The Netherlands.

**1995 ANNUAL MEETING
AMERICAN SOCIETY OF PLANT PHYSIOLOGISTS**

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

❖ ❖ ❖ ❖ ❖ **S Y M P O S I A** ❖ ❖ ❖ ❖ ❖

Issues in Plant Biology

**What Has Been the Impact of
Plant Physiological Research 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

REMINDERS

February

Call for 1995 ASPP Awards
Call for Nominations for New Officers

February 28, 1995
Deadline for Abstracts for 1995 Annual Meeting

March

March 15, 1995
Nominations for Officers Close

April

April 7, 1995
Nominations for Awards Close

June

June 19, 1995
Annual Meeting Early Registration Closes

July

July 29-August 2, 1995
1995 ASPP Annual Meeting, Charlotte, North Carolina

ASPP Education Foundation Proposal

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, in 1994. 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. This statement will be published in the Newsletter until the time of the election.

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.