ASPB News

THE NEWSLETTER OF THE AMERICAN SOCIETY OF PLANT BIOLOGISTS

Volume 30, Number 1
January/February 2003

President's Letter

Membership: The Foundation of a Successful Professional Society and a Key to a Successful Career

An engaged and dedicated membership is the cornerstone of a successful scientific society. ASPB provides many valuable services to plant science — such as our journals and books, including *The Arabidopsis Book*, which ASPB in partnership with BioOne is making freely available via the Internet; our educational film, *History's Harvest: Where Food Comes From;* the annual meeting; the Society's first specialist conference, "Plant Genetics 2003: Mechanisms of Genetic Variation"; and public outreach — that would not be possible without the enthusiastic participation of leading plant biologists who are members of the Society. In return, ASPB provides many tangible and intangible benefits to its members throughout their scientific careers. Although the ASPB Membership Committee has mounted a very successful campaign to attract new members, and its current recruiting drive increased membership by more than 1,200 (wow!), young scientists are still underrepresented in ASPB. Since young plant biologists are the next generation of leaders that will keep ASPB at the leading edge of plant science, I challenge my colleagues to get directly involved in recruiting young scientists for membership in our Society. Of course, to be successful, we need to be armed with sound arguments in favor of joining and participating in this Society. Below, I enumerate some of the more compelling reasons for joining ASPB.

Quantifiable Benefits of ASPB Membership

- FREE electronic access to *Plant Physiology* and *The Plant Cell*
- Access to the searchable ASPB Job Bank
- Discounted page charges for papers published in *Plant Physiology* and *The Plant Cell*
- Discounts on all ASPB publications, including *Biochemistry & Molecular Biology of Plants*, by Buchanan, Gruissem, and Jones
- Discounts on additional plant science journals and *Annual Reviews*
- Discount on *Plants, Genes, and Crop Biotechnology*, by Chrispeels and Sadava (published by Jones and Bartlett), and free access to the images from the book at http://www.aspb.org/education/foundation/pgcb
- Lower registration fees for all ASPB meetings
- Minority and Student Travel grants to the annual meeting
- Awards for Young Scientist's Best Paper of the Year
- Opportunities for symposium presentations and peer recognition
- Bimonthly newsletter

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ASPB Officers & Staff

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Deadline for May/June 2003
ASPB News: April 5, 2003

NOTICE: The *ASPB News* no longer carries job ads or meeting announcements. Job ads appear online at www.aspb.org/jobbank. The list is updated every Friday. Meeting notices can be posted at www.aspb.org/meetings.

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ASPB News is distributed to all ASPB members and is published six times annually, in odd-numbered months. It is edited and prepared by ASPB staff from material provided by ASPB members and other interested parties.

Copy deadline is the 5th day of the preceding even-numbered month (for example, December 5 for January/February publication). Submit copy by e-mail whenever possible; submit all other copy by mail, ***not by fax.***

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- Opportunities to network with colleagues at ASPB meetings

Intangible Benefits of ASPB Membership

- Opportunities for leadership and service
- Opportunities for serving on editorial boards
- Recognition for membership in one of the largest and most visible plant science societies
- The power of numbers: ASPB speaks with authority in the public domain because of its size and diversity
- Good works: Your dues help support "good works" funded by the Society, including
  1. Minority and Student Travel grants to the annual meeting
  2. Career workshops held at the annual meeting
  3. ASPB-funded workshops in underdeveloped countries
  4. Summer Undergraduate Research Fellowships

In addition to organizing meetings, publishing journals and books, and maintaining an informative web site, ASPB is a powerful voice in plant science heard by government leaders, funding agencies, and the general public. Tell your students and postdocs about the benefits of membership in ASPB and get them involved in this dynamic and proactive association of plant biologists.

For more information about the benefits of joining ASPB, please visit us at http://www.aspb.org/memberjoin/.

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Plant Biology 2003 Update

Donna Nakai, Robert Paull, Paul Moore, Jody Moore, Dave Christopher, Susan Rosenberry, and John Lisack in front of the Renaissance Ilikai Hotel in Waikiki.

Bishop Museum–Treasure Trove of Hawaiiana. Honolulu, Hawaii

USS Arizona Memorial. Pearl Harbor, Hawaii

John Lisack and Susan Rosenberry traveled to Honolulu in early November on behalf of the Program Committee and made great progress on logistics for the Plant Biology 2003 meeting. The Hawaii Convention Center has now confirmed that registration can be set up on Thursday, July 24, allowing attendees to begin registration on Friday, July 25. The opening mixer will also be held on Friday, and the posters and exhibits will be open on Saturday instead of Sunday.

John looked at several possible locations for the Tuesday night party and decided that the best choice would be the Ilikai Hotel. The Ilikai is located on the water overlooking a picturesque yacht harbor. There is a large, two-level patio/swimming pool area (the pool will be roped off) complete with Hawaiian plantings and torches. The lower level leads directly into a large ballroom that we can flow into for music and dancing later in the evening. The food will include Pacific Rim cuisine and Hawaiian microbrews. Donna Nakai, the Hawaii Convention and Visitors Bureau representative, took John and Susan to two microbreweries that the committee will inspect in March.

John and Susan also met with a number of our Hawaiian members and got their input on our ideas for the party as well as their thoughts on optional field trips for attendees on Monday afternoon/evening. Jody Moore (you may know her as Jody Carlson), former director of publications at ASPB, also agreed to write a series of articles for the *ASPB News* in early 2003 that would give information of interest about plant biology research in Hawaii. See her first column on page 4 of this issue.

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Revised Schedule: Plant Biology 2003

Times are tentative and final schedule may vary slightly.

Thursday, July 24
Registration set-up

Friday, July 25
Registration open early afternoon to 7:00 pm (exhibit and poster set-up in Exhibit Hall)
Undergraduate Reception: 6:00 pm–7:00 pm
Opening Mixer: 7:00 pm–10:00 pm

Saturday, July 26
Opening, Awards, & Symposium I: 8:00 am–12:00 noon
Posters open 8:00 am–11:00 pm
Exhibits open 12:00 noon–4:30 pm
PUI luncheon: 12:00 noon–2:00 pm
One-overhead posters: 1:00 pm–2:00 pm
Minisymposia (two sessions of four minis): 2:00 pm–6:00 pm
Posters/Exhibits & Beer Session: 8:00 pm–11:00 pm

Sunday, July 27
Symposium II: 8:30 am–11:40 am
Posters open 8:00 am–11:00 pm
Exhibits open 9:30 am–4:30 pm
Minority Affairs Committee luncheon: 12:00 noon–2:00 pm
One-overhead posters: 1:00 pm–2:00 pm
Exclusive posters & exhibits session: 2:00 pm–6:00 pm
Optional workshops: 7:30 pm

Monday, July 28
Symposium III: 8:30 am–11:40 am
Posters open 8:00 am–11:00 pm
Exhibits open 9:30 am–2:00 pm
Women in Plant Biology Committee luncheon: 12:00 noon–2:00 pm
Exhibits close at 2:00 pm
Afternoon & evening off (optional field trips or leisure time)

Tuesday, July 29
5k Fun Run: 6:30 am–8:00 am
Symposium IV: 8:30 am–11:40 am
Posters open 8:00 am–11:00 pm
Minisymposia (two sessions of four minis): 2:00 pm–6:00 pm
Off-site party at Ilikai Hotel 7:00 pm–11:00 pm

Wednesday, July 30
Minisymposia (two sessions of four minis): 8:00 am–12:00 noon
Posters open 8:00 am–11:00 pm
Annual Business Meeting: 1:00 pm–2:00 pm
Symposium V: 2:00 pm–5:10 pm

Plant Biology 2003, continued from page 3

At left is the revised basic schedule for the meeting. This revised schedule departs in several key ways from schedules of previous annual meetings. Hawaii's location means that almost everyone will need to arrive in Honolulu by Friday for a meeting that starts on Saturday. So, registration will open on Friday afternoon, and the opening mixer will take place Friday night as well. The opening session, awards program, and first symposium will be held Saturday morning. Adjusting the schedule in this way frees up Monday afternoon and evening so that attendees can do some sightseeing or take part in optional field trips of interest to plant biologists. It also lets us have the posters up for five full days instead of four. There may be more than 1,600 posters at this meeting! Also, if people can fly over earlier in the week than Friday, they may find less expensive airfares.

Relaxing in front of the Hawaii booth at the 2002 annual meeting in Denver are May Che and her son Channing. May's husband is ASPB member Ping Che.

Plant Biology in Hawaii

Aloha! Jody Moore (formerly Carlson) here. Hello to old friends. To those of you I've never met, let me introduce myself. In 1987, I was hired as ASPB's first editorial employee and ultimately became its first publications director. In 1997 I moved to Hawaii (remarried and returned, actually, but that's a story for another day). Over the next three issues of the *ASPB News*, in anticipation of next summer's annual meeting in Honolulu, I thought I might tell you a bit about Hawaii, especially from a plant biology angle.

Contrary to myth, serious science can be done, has been done, and is being done in Hawaii. Hawaii's preeminence in astronomy is well known. Not so much is known about its research in plant science.

The first agriculture experiment station west of the Mississippi, the Hawaiian Sugar Planters' Association (HSPA), was built in Honolulu around 1895. Because sugarcane is now grown on only two plantations in Hawaii, HSPA has been succeeded by the Hawaii Agriculture Research Center. The University of Hawaii began in 1907 with the College of Agriculture, predecessor to today's College of Tropical Agriculture and Human Resources (CTAHR). USDA's Agricultural Research Service has been a presence since the early 1950s and is in the process of building a multimillion-dollar agricultural research center in Hilo on the Big Island of Hawaii. In addition to these research institutions, many of the world's large seed companies are established in Hawaii and use it as a nursery.

One of Hawaii's major claims to plant biology fame, but one little known, is that C_4 photosynthesis was discovered by HSPA biochemist Hugo Kortschak. ASPB recognized Kortschak's contribution when it named him co-winner (along with Australians Marshall Hatch and Charles Slack) of the George Kettering Award in 1980. It took 15 years for Kortschak's work to be recognized. It was

first published in *Plant Physiology* in 1965. In a newspaper article published in Honolulu in 1980, Dr. Kortschak commented that many people initially didn't believe his findings. "Even my publisher didn't believe it in 1965," he said. In 1981, Kortschak also won England's J. Arthur Rank Prize for the same work.

Yet another HSPA researcher, Constance Hartt, was, I believe, one of the founding members of the American Society of Plant Physiologists when it spun off from the Botanical Society of America in 1924. Dr. Hartt did important work in the translocation of sugar. She was also recognized for her efforts to encourage women in science.

CTAHR is the only college of tropical agriculture in the United States. It has a long history of variety development of crops other than sugarcane and pineapple. Those efforts are paying off today as the state's agriculture industry diversifies away from those two plantation crops. Most recently, CTAHR was the site of the first-ever transformation of a fruit crop by a public institution. Richard Manshardt, of CTAHR, and Maureen Fitch, USDA Agricultural Research Service, used the coat protein of the papaya ringspot virus to transform papaya to make it resistant to the disease. For their work, they were named recipients of the 2002 Alexander von Humboldt Award, the most prestigious award in American agricultural research.

Another member of the papaya transformation team that won the von Humboldt Award is Dennis Gonsalves, newly named director of the U.S. Pacific Basin Agricultural Research Center (PBARC) in Hilo. Gonsalves, a plant pathologist, came to Hawaii from Cornell University in May 2002. PBARC is planned as an ARS regional research center for the American Pacific. When it is completed, it will be a major tropical agriculture research center with a focus on tropical plant germplasm conservation, preharvest control of insect pests (primarily fruit flies), postharvest quarantine for disinfestation to allow export, and tropical plant physiology and crop production.

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From the Web

Have you visited the ASPB web site lately? The site is ever-evolving, and just by visiting the front page you can update yourself on the latest ASPB, education, and plant biotechnology news. New things to check out on the site include *The Arabidopsis Book* (TAB), Plant Biology 2003 and Plant Genetics 2003 meeting information, the Norman Borlaug video from Dr. Borlaug's Plant Biology 2002 presentation, and the ASPB Summer Undergraduate Research Fellowship (SURF) program, which is taking applications online until February 4.

The ASPB web site is also expanding with some new features. One of these is a resume piece for our online Job Bank. The resume piece allows users to post their resume online for employers to view. Employers can then search through the resumes for suitable candidates. Those who post a resume get a "My Jobs" page that will automatically give them a list of jobs matching their resume profile. Beginning in January, we are also posting the entire *ASPB News* online for our members. It is available in an easy-to-print PDF file or viewable online in HTML.

We are also working on expanding our members-only area. If you have logged in recently, you will notice that the menu is getting larger. More information is being added to this special section available only to our members. The ASPB home page is also going to get a facelift to make it easier for members to log in.

In addition, we are beginning work on connecting our IMIS database directly to the web. What does that mean? Our membership database, IMIS, is what holds all our members' information. We currently have to enter each new membership, renewal, and order manually. Having the online forms eliminates the paper copies and manual payment processing, and this is the next step to fully automating those forms. The new database connection will directly enter the information into our database from the forms. What that means for our membership is that renewals, registrations, and orders will move much more quickly through the administrative process. Plus, we will have the latest information for each member on the web faster.

If you haven't visited the site in a while, take a few minutes to do some browsing at http://www.aspb.org. Keep an eye on our Hot News, check out the Resource Links, or join a discussion in the forums. Feedback is always welcome. Send me an e-mail.

Wendy Sahli
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Southern Section Election Results

SS-ASPB Representative to Executive Committee
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(USDA–ARS, Lubbock, Texas)

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(Virginia Tech)

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SS-ASPB Executive Committee
Tim Sherman
(University of South Alabama)

2004 Meeting Site
University of Louisiana at Lafayette

Agricultural Biotechnology
Some Unspoken Truths

As a plant biologist with experience in both academia and the agbiotech industry, I have considerable interest in the issue of genetically engineered (GE) plants. However, I am troubled by recent discussions in the *ASPB News* that have downplayed consumer and farmer rights and ignored corporate abuses of GE technology.

Perhaps the most important issue is the right of consumers to know what they are eating and how it was produced. It is the consumer's prerogative to act upon the information found on food labels, or not. It is not the responsibility of government, private industry, or academia to decide what consumers want or are capable of understanding. Instead, these institutions should work together to provide the clearest and most informative labels possible, on every issue that may be of concern to the consumer. With these principles in mind, I was appalled that Dr. Vicki Chandler would use me, as one of 6,000 ASPB members, to lend weight to her letter of opposition to HR 4814, a bill that calls for labeling of GE foods (*ASPB News*, 2002). How can one person claim to speak for all of us on such a divisive issue?

Labeling would begin to address one of the main objections to GE foods and products: a deep mistrust of the companies producing them and a regulatory process that appears susceptible to political and corporate pressure. Unfortunately, this distrust has been earned. In general, the commercial brokers of GE seeds are large multinational corporations known for their production of herbicides and pesticides and their poor track records regarding environmental and consumer protection. Even today, pesticides and herbicides (DDT, paraquat, clopyralid, atrazine, diazinon, methyl bromide, and EDB, to name a few) are being banned, restricted, or phased out after decades of use because their purported safety for workers, consumers, and the environment was false.

A relevant example of where the priorities of these corporations lie and the robustness of our regulatory institutions is Monsanto's quest for regulatory approval of rBST, or recombinant bovine somatotropin (Epstein, 2001). Monsanto asserted that milk produced using rBST was "substantially equivalent" to that produced by conventional means and therefore did not need to be labeled. It has since been found that such milk contains altered protein composition (Baer et al., 1989; Mepham, 1992); elevated levels of antibiotics used to treat the increased occurrence of mastitis (Epstein, 1996); pus from mastitis infections (Millstone et al., 1994); and significant increases in the hormone IGF-1 (Epstein, 2001; Mepham, 1992), which is a suspected carcinogen associated with breast, colon, and prostate cancer (Epstein, 2001; Holmes et al., 2002; Yu and Rohan, 2000). As a result, approval of rBST has been revoked in Canada and is under review in the European Union. Meanwhile, U.S. regulatory agencies still assert that no significant difference exists between milk produced with and without rBST, and no labeling is required for milk from rBST cows. Thus, it appears that U.S. regulatory agencies are more responsive to pressure from corporate interests than to consumers or the science. This does not help consumers trust the U.S. government with regulation of GE foods.

Much of the argument for "substantial equivalence" and against a blanket labeling of GE products is that GE technology is a process and that a process does not determine content or safety. The problem with this argument is twofold. First, it assumes that we know what to look for when proving substantial equivalence. Considering the complexity and diversity of metabolism, chemical contents, and protein–protein interactions in plants, it is arrogant to say that we could truly document "substantial equivalence" and insulting to suggest that it could be done by looking at a handful of parameters selected by an entity that has a vested interest in the outcome. Second, although the "process" is genetic engineering, the product is a genetically modified organism that becomes an ingredient. If this ingredient is different enough that it is patented, then how could it be "equivalent" to the parent organism? At the very least, GE foods should be identified in the ingredients by their patent or trademark name.

By asserting "substantial equivalence," corporations are able to avoid serious scrutiny of their products until after they are released. Labeling would encourage the agbiotech industry to prove the safety and benefits of its products to the people that matter most, the consumers. At least one major agbiotech company, Syngenta, supports labeling to promote consumer choice because it promotes the development of better products.

Another issue that has been ignored is the rights and needs of farmers. Although more independent research is needed, there is evidence that many current GE plant products do not live up to their promise to increase earnings and have instead caused devastating economic consequences as a result of market resistance (American Corn Growers Association, 2001) and the spread of GE traits to neighboring farms (Friesen, 2002; "GM Fields Spread New Superweeds," 2002; Kietke, 2002; Rieger et al., 2002). In both developed and underdeveloped nations, GE contamination is a clear threat to the certification and livelihoods of organic farmers, some of the few small farmers who are actually able to earn a decent living. But GE contamination is also an economic threat to large conventional farmers as a result of increased herbicide application to combat multiple-herbicide–resistant volunteer plants from neighboring farms (Friesen, 2002) and

aggressive legal action by patent-holding corporations (Lyons, 2002; Schubert, 2001). For example, Monsanto recently won a judgment against Canadian canola breeder Percy Schmeiser for patent infringement (Schubert, 2001). The ruling stated that regardless of how Round-Up Ready canola ended up in Schmeiser's seed stock and on his farm, and even though he did not use Round-Up herbicides, he was still responsible for paying a technology fee to Monsanto for having GE-contaminated plants on his property (a condition now endemic to many canola-growing regions) (Friesen, 2002; "GM Fields Spread New Superweeds," 2002; Kietke, 2002; Rieger et al., 2002). Is it any wonder that nations such as Zambia* refuse to accept unmilled cornseed from the United States (even when it's free), lest some unwitting farmer try to plant the seed and face the legal team of Monsanto? Would Monsanto demand that GE-contaminated harvests in other nations be destroyed in the same way nations are urged to round up and destroy music CDs produced without a license? Could an entire nation be hit with tariffs or World Trade Organization penalties at a corporation's behest because of GE contamination of exported foodstuffs? These are troubling questions for farmers in developed and developing nations alike.

ASPB needs to take a more assertive and proactive voice in laying out tough guidelines for agbiotech products that will gain the public's trust that such technology will be used safely, justly, and for overall human benefit. A policy similar to that advocated by the Sierra Club (see http://www.sierraclub.org/policy/conservation/biotech.asp) would be prudent yet allow for the development of products that actually benefit humankind, as opposed to only the corporate bottom line. Would you put a new vehicle on the market before you developed steering and braking technology? If ASPB is to get involved in this public policy issue, it needs to be at the forefront of advocating the development of truly useful GE products with all the desired environmental, health, and safety features. This means that the Society must speak out against misuse of this technology and push for protection of farmer and consumer rights. Such action may put us at odds with the short-term interests of some multinational corporations, but it is the best way to assuage public fears and ensure the long-term growth of plant biology research and the agbiotech industry.

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*Reuters reported on December 9, 2002, that the United States promised to provide 30,000 tons of non-GE food aid to Zambia, which had previously refused 17,000 tons of GE corn.

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The ASPB News *welcomes member commentary. Publication is at the discretion of the editor, and articles may be edited for length. The views expressed are those of the authors and do not necessarily reflect ASPB's position. Responses are welcome; send them to the editor at nancyw@aspb.org. Because the newsletter is an ASPB member publication, at least one author must be an ASPB member for an article to be eligible for publication.*

The HighWire Portal: "CiteTrack"

Free E-mail Alerting Service That Finds Articles You Might Have Missed

This piece is another in a series of short articles highlighting tools and features of the new HighWire Library of the Sciences and Medicine Portal.

The HighWire Library of the Sciences and Medicine portal (http://highwire.stanford.edu.) provides free access to literature in the biological sciences and medicine. More than 430,000 full-text research articles are published by the 340+ HighWire journals, including *The Plant Cell* and *Plant Physiology*. In addition, the portal allows you to search all the journals found in Medline. In the November/December 2002 issue of the *ASPB News*, we explained how to quickly look up an article based on a reference citation and do an "advanced search" to fine-tune your searches.

When HighWire interviewed scientists about their needs for information retrieval and access, one of the major points was that researchers and their labs could scan only a few dozen journals among a lab team, in terms of examining them for important articles. One lab reported on an informal, time-limited study in which they found 30 articles related to the lab's work in their "usual" journals, but when they looked broadly across many other journals, they found another 30 articles that were related and would have been overlooked.

HighWire's new portal has a solution to this problem: "CiteTrack," a free service that can alert you to articles that match your interests by automatically looking across all new content in Medline and all the new full text in more than 340 HighWire-based journals every day. You can focus on your core journals and let CiteTrack track thousands of other journals for you.

If CiteTrack finds a match with a term or author you've specified, you will get an e-mail the same day the article is published. The e-mail gives you the full author/title/citation to the newly published article, plus a hyperlink to take you to it.

You can register as many CiteTrack alerts as you'd like—each with a different set of keywords and/or authors. You can also be alerted when articles of interest to you are cited and see who cited them—perhaps citations to your own articles! You can tell CiteTrack to look only in particular journals (perhaps the ones in your journal club), in journals that publish in particular topics, in all 340+ HighWire-based journals' full text, or across all of HighWire plus all of Medline.

In the future, you'll be able to tell CiteTrack that you are interested in certain topics—defined by detailed subject categories—and have CiteTrack tell you whenever new content is published in your favorite categories. This will allow you to match your general interests without having to figure out all the possible keywords and authors that determine those interests. You'll be able to receive a daily or weekly list of articles published—the table of contents for a "virtual journal" that matches just your interests.

How to Set Up CiteTrack Alerts

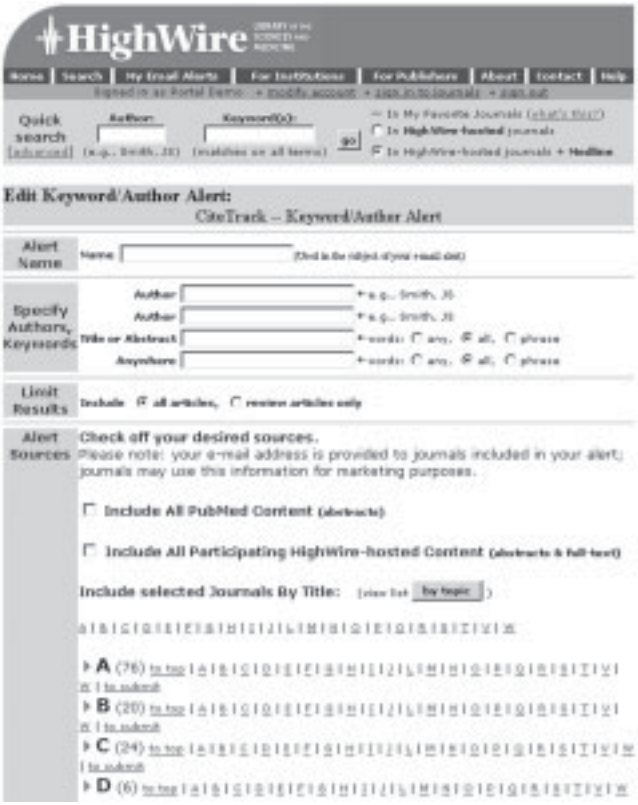
Just click on the My Email Alerts link on the HighWire home page at http://highwire.stanford.edu. From the My Email Alerts page you can create an alert by author, by words in the title or abstract, or by text anywhere in an article. The My Email Alerts page also shows you all your e-mail tables of contents alerts ("eTOCs"). Figure 1 shows the summary of alerts you will get on the My Email Alerts page;

Figure 1

if you look for the links to "ADD" an alert, you'll see how to create a new alert. Figure 2 shows how easy it is to add an alert once you've clicked on the ADD link from the previous page: You just fill out a form as if you were going to do a search. In fact, this is the way CiteTrack works: It does a search for you, and whenever it retrieves something it hasn't retrieved before, it e-mails you. (The list of topics is abbreviated in Figure 2.)

If you are not a registered user of the HighWire portal or haven't signed in when you click on My Email Alerts, you'll see a link to register or sign in. Registration takes only a minute or two; it's fast and free. And once you've registered, other new features discussed in this series become available to you, too.

Figure 2



Call for 2003 Nominations for ASPB Awards will be sent to all members in February.

Nominations are due at ASPB headquarters by Monday, March 3.

Questions should be addressed to John Lisack, Jr., executive director, at jlisack@aspb.org.

ASPB now accepts checks over the web.

It is simple and secure.

We will accept your university, company, or personal check.

Just go online, fill out the web form, and put the check information in the system.

We will receive your order of renewal as soon as you hit the submit button.

This process is for checks drawn on U.S. banks in U.S. funds only.

If you have questions about this new service, please e-mail Kelley Noone at knoone@aspb.org.

Membership Corner

ASPB members share a common goal of promoting the growth, development, and outreach of plant biology as a pure and applied science. This column features some of the dedicated and innovative members of ASPB who believe that membership in our Society is crucial to the future of plant biology.

If you are interested in contributing to this feature, please contact Kelley Noone, ASPB membership and marketing manager, at knoone@aspb.org.

Name: Dina F. Mandoli

Title: Research Associate Professor

Place of work or school: University of Washington

Research area: Acetabularia development, genetics and cell biology, genomics of green plants from algae to angiosperms

Member since: ~1978

1. **Has being a member of ASPB helped you in your career? If so, how?**
   Being an ASPB member has been invaluable to me in three ways: It has trained me for the tasks of being an ethically responsible faculty member and scientist, it has provided me with human resources as I have adapted to changes in the funding climate, and it has provided me with an outlet for my passion for public outreach and education. The breadth of ASPB has kept me strong as a scientist and broadly informed enough to adapt to the sea changes in plant biology that have occurred over the past decades.

2. **Why has being a member of ASPB been important?**
   I simply cannot imagine having a career in plant biology without being an ASPB member. I have learned that if I volunteer to do a job, ASPB will actually *train* me to do it! My colleagues engaged in the same tasks offer experience, knowledge, and contacts and network with me to start the work we set out to do. Then, in the "get-it-done" mode, the excellent APSB headquarters staff help to implement all the good ideas coming from members. This is an incredible resource—my department should be so good! It is impossible for any group of humans to completely avoid cliques and politics, but ASPB has such a welcoming tradition that *any* member who offers to pitch in will eventually find a way to take advantage of this on-the-job training.

3. **Was anyone instrumental in getting you to join ASPB?**
   My Ph.D. adviser, Winslow R. Briggs, encouraged me to join in my first year as a graduate student at Stanford. The first paper I ever published was in *Plant Physiology*—a great start for my thesis!

4. **What would you tell nonmembers to encourage them to join?**
   The benefits to ASPB membership are many. I start with the tangible benefits like the journals; online membership access; the annual meeting, which keeps me abreast of plant physiology as a whole; education of members and the public; and funds for students and "good works." Next I mention the intangibles I cited above. I end with the fact that ASPB has done more for keeping government funding for plant biology strong than probably any other professional society. Not being a member puts you at a professional disadvantage and means that you are being represented on Capitol Hill without paying your taxes!

5. **Have you gotten a job using ASPB job postings or through networking at the annual meeting?**
   I am sure that my being part of ASPB has and will play a role in my marketability.

6. **Have you hired anyone as a result of a job posting at the annual meeting, on our online Job Bank, or in the newsletter?**
   I hired Kyle Serikawa from Patricia Zambryski's lab as a postdoctoral fellow. I recently had two jobs for research scientists posted on the ASPB web site and got lots of applicants from that advertising venue!

7. **Do you still read print journals? Where do you usually read them: work, home, library, in the car, on the bus?**
   I usually skim online, save interesting PDFs, and print out a few selected PDFs to read when and where I get a quiet moment.

8. **What do you think is "the next big thing" in plant biology?**
   In the broadest terms, the continued integration of different disciplines is the wave of now and the future. Technology bridges disciplines, public and private sectors, as well as scientist and nonscientist. NSF is driving this breakdown of barriers by the way it is judging proposals (e.g., you have to show broad impacts as well as good science now) and the way it is funding interdisciplinary, large-scale endeavors. My own funding is a good example: I am working on genomics with phylogenists and systematists to resolve fuzzy nodes in the Tree of Life and with bryologists, phycologists, and BAC-makers to provide genomic tools to reveal how plants evolved to land. Why is this trend important? Integration of knowledge has a chance of giving meaning to data we do not yet understand. I do not think we will understand the vast amount of data coming from the "omics" (metabol-, proteo-) without integrating those data with the physiology in model and non-model plant systems throughout the Tree of Life. By the same token, I do not think Congress will continue to fund science with tax-

payer dollars unless we teach the public what good science does for humanity.

9. **What person, living or dead, do you most admire?**
   I do not have a single person whom I admire; rather, I find qualities in every person that are admirable. These are persistence, honesty, kindness, passion for what you do, compassion for others, a sense of humor, courage in the face of adversity, balance in life, and tolerance of the foibles of others and oneself. Interestingly, in my first career, as a lay physical/occupational therapist, I discovered that many of these qualities are most developed in handicapped people.

10. **What are you reading these days?**
    During the day I read science, but I read voraciously before bed because I need to clear my mind of work to get to sleep! Books overflow from my nightstand, and I am usually reading four or five at a time. I like sci-fi, historical fiction (particularly seafaring tales), novels, philosophy, history of science, classics, cookbooks, books on where words and phrases come from, joke books, famous quotes.... "So many books, so little time."

11. **What are your hobbies?**
    I love to be outdoors; to garden; to preserve food by home canning, drying, etc; and to be with friends and family.

12. **What is your most treasured possession?**
    I do not value possessions much, just the people in my life and my relations to them, my health and the health of my loved ones, and, of course, life itself.

13. **What do you have left to learn?**
    Vis-à-vis concrete knowledge, the more I know, the more I realize how little I know and how much less I understand. Discouraging, but true! Vis-à-vis life, how to be a better person and how to grow old and die with grace. The latter has struck home as I care for and watch my parents and their generation age and die.

The Bioethics Imperative IX

"Mokita": The truth we all know and **agree** not to talk about. *Papua New Guinea.*

Scenario: Frank Lee, a new graduate student in the Gristmill lab, is applying for an NSF graduate fellowship that requires three letters of reference. He is unsure whom to ask for letters. He puts a note in his boss's mailbox requesting a letter because Dr. Gristmill, who is famous, will be out of town until a day prior to the deadline. He asks for a letter from a professor he has been working with as a teaching assistant for just two weeks by putting a note in her mailbox. He asks a lecturer he likes personally for his third letter. He procrastinates on his application and so does not have time to give it to anyone to read. On his return, Lee's professor is irritated with him for springing this on him at the "last minute." Later, feeling very good about his chances because he has an outstanding GPA, Frank is surprised when he does not receive the fellowship.

Requesting (and writing) letters of recommendation is an extremely important, ongoing part of many professions, including careers in science, from the time one is a student to the time one retires. Letters of reference for individuals differ from reviews of manuscripts or grant proposals because they evaluate *both* science and the person.

Among the many classic errors Frank made in the application process was not seeking the advice of his professor early on. If one already has a high stress level (writing a grant, having just moved, etc.— in short, all aspects of being a new graduate student), it is tough to ask what someone thinks of you and your work. However, by not asking or not asking properly, you lose the advice and experience of your mentor both on the process and on your science, and you may well degrade their confidence in you.

In approaching your mentor, you are asking for a favor, for help in completing the application, and for advice on how to do better science. Honor them with your trust, and you will begin to forge a strong intellectual partnership with them.

- Ask whether they know you well enough to write a letter. (Give them a chance to say "no.")
- Ask whether they can write a *good* letter. (Second chance to say "no." You do not want a poor letter anyway.)
- Tell them the deadline so they know that they have time to get the letter done properly.

Writing a letter of reference is time-consuming because it summarizes the interactions between the student and mentor, so you need to honor your mentors by giving them enough time to get the job done to their satisfaction.

Next: How to get the letter(s) you need and what a good letter contains…

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Deadlines for *ASPB News*

We invite you to submit articles and letters to the *ASPB News*. Deadlines for submission of copy follow:

Issue	Deadline
March/April 2003	February 5, 2003
May/June 2003	April 5, 2002
July/August 2003	June 5, 2003
September/October 2003	August 5, 2003
November/December 2003	October 5, 2003
January/February 2004	December 5, 2003

How Do You Keep from Getting Bored?

When I hear that question—How do you keep from getting bored?—I always ask, "You think I should retire from retirement?" To be honest I was never bored with plant physiology, but soon after I reached the age of 50 I realized that I wanted to do something totally different, so I retired. We owned an old farm in Nova Scotia, and I spent the first two or three years rebuilding the house, reviving the orchard, and setting out gardens (mostly vegetable)—practical plant physiology. For over half my life, I had been teaching students how plants work. Now I began to find out! I have always been deeply interested in the whole plant (and its relation to its ecosystem), rather than concentrating solely on the specific reaction mechanism or enzyme system under investigation. The real joy in research is finding out not only how the reaction works, but how it fits into the whole behavior of the plant and its relation to how the plant fits into its environment.

I agree absolutely with Ann Oaks (2002) that is it essential to the wholeness of biology for molecular biologists and ecologists to have a meeting place. In lecturing to students at the Nova Scotia Agricultural College, I found that meeting place: agriculture (and my garden!). Farmers have a wholesome regard for the whole plant. We plant physiologists could learn something from them.

In addition to the gardens (the fun is growing plants that aren't supposed to grow here) and the orchard (the cider is something special!), I managed to get somewhat reinvolved with science during retirement. I did a five-year term as I. W. Killam Research Professor at Dalhousie University, and set up an Institute of Biotechnology whose real objective was to get university research into industry and industrial money into universities (Bidwell, 1987). One of our successes was to develop methods for growing commercially valuable seaweeds (such as *Chondrus crispus*) in on-shore tanks—mainly by using plant physiology tricks like loading them with carbon on pH-demand (CO_2 from air doesn't dissolve into seawater nearly as fast as the plants can absorb it—see Bidwell et al., 1985). In the 1970s and early 1980s I also operated, with two other retired scientists (a physicist and a chemist), a consulting firm called Atlantic Research Associates. In those days there was no Internet or World Wide Web, but we could link our computers by modem with all the science libraries in North America and search everything that had been entered. This meant that we could answer important and interesting questions for industrial and government labs about what patents were out there, or how to do novel and useful things like, for example, making ice cream out of cow manure (no kidding!). Our basic rule was that we never did anything unless we really wanted to. Now that's quality retirement!

There are other ways of enjoying retirement that have little to do with one's pre-retirement career. Naturally, I managed to get involved in a lot of committee work—mainly in the church and as president of the local food cooperative. I suppose that my training in science might have been helpful in these ventures: I learned a lot more about marketing and the grocery business than I ever expected to, and I have no doubt that my experience in writing grant applications was useful when we undertook a major expansion of the co-op as well as in getting funding for various church activities. I have also found that a specific approach to health (my own as well as community health programs) has produced enormous dividends. But, let's face it: The real pleasures of retirement are totally unrelated to science. The joy of being surrounded by grandchildren; of looking in the garden for good things for breakfast, lunch, or dinner; the pleasure of making and drinking gallons of apple cider (kept fresh in the freezer until next harvest); of hiking and bicycling wherever in the world we want to explore; of fishing in the river that flows through the farm; of watching the stars in a sky unpolluted by city lights—all these are what make retirement the crowning joy of life. I worked hard as a scientist and teacher for 30 years. Now I enjoy keeping busy—I hope for another 30 years or more. Who would want to retire from retirement?

R.G.S. (Tony) Bidwell
Wallace, Nova Scotia, Canada
Professor Emeritus
Queen's University, Kingston, Ontario

References

Bidwell, R.G.S. (1987) The Atlantic Institute of Biotechnology: An experiment in applied science. *The Green Gene Gazette* **7:** 3–4.

Bidwell, R.G.S., McLachlan, J., and Lloyd, N.D.H. (1985) Tank cultivation of Irish moss, *Chondrus crispus Stackh. Botanica Marina* **28:** 87–97.

Oaks, A. (March/April 2002) Life in retirement. *ASPB News* **29(2):** 12.

Thank you to all the students and advisers who applied for the ASPB Summer Undergraduate Research Fellowships (SURF).

The closing date for applications is February 4, 2003. The names of students selected to receive this fellowship will be announced soon.

Visit the ASPB web site for further updates and SURF results.

Willows in Winter

Winter has always been my favorite season. In fact, it's fair to say that I am absolutely nuts about winter. Some of my best memories of childhood in Wisconsin are scenes of winter: waking up on a November morning to two feet of fresh snow; filling our large front yard with dozens of snow angels; building elaborate snowmen; tramping down a large snow maze in which we let loose the neighbor's half-dozen kittens; digging out hidden forts inside our large white pine trees completely blanketed in snow; bundling up in colorful mittens and scarves; ice skating and sledding in the park. It was even better when I moved to Minnesota! For one thing, winter was longer. The winter of 85/86 was the best: I think that there was snow on the ground from September to May. There was the annual winter carnival, with ice skating on the lakes and an ice sculpture contest. I even went ice fishing and loved huddling around on the ice, drinking cold beer and waiting for the little red flags to pop up so you could dash over and, with a little luck, pull up a nice 18-inch northern pike. Mainly, I spent every spare minute cross-country skiing. Perhaps my favorite memory from this

time is from the American Birkebeiner 50k cross-country race in northern Wisconsin in 1988. The bells were ringing in the little town of Hayward on a cloudless (if bitterly cold) morning, and the street was lined with hundreds of cheering spectators as some 5,000 of us skied down Main Street, out across the lake and into the woods en route to the finish. Glorious winter!

Now I enjoy winter in Colorado. Happily, our love of cross-country and back-country skiing allows us to avoid the crowds that clog the major highways into the mountains en route to the downhill ski areas. We usually drive north and west over the Cameron Pass and through the area known as North Park. It is a three-hour drive to our favorite ski area, but a more glorious drive on this planet you would be hard-pressed to find. North Park is a large high plateau ringed by snow-capped mountain ranges. Amidst this grandeur, it is somewhat surprising to realize that it is the presence of some rather unassuming leafless shrubs that gives this scene an extra special beauty in winter. Willows are plentiful along the banks of the many rivers and streams that meander across the plateau; their winter colors lend a final touch of magnificence to this wind-swept and desolate landscape. Our eyes are continually drawn to the many shades of red and orange and yellow, which take on an added brilliance against the pure white snow sparkling in the late afternoon sun. A pair of skis, a cup of cocoa, and winter willows—paradise enough! (With apologies to Omar Khayyam.)

Nan Eckardt
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Submit e-Letters to *Plant Physiology* and *The Plant Cell*

ASPB has added a new feature to *Plant Physiology* and *The Plant Cell* Online to make it easy for readers to comment on published papers. e-Letters is a monitored forum for letters to the editor about papers published in the two journals. A menu box at the beginning of each research article now includes a link to e-Letters. By clicking on this link, readers can easily e-mail a letter to the editor for possible publication online. All letters are monitored by the editorial office and are circulated to editorial board members for review.

Readers can follow the correspondence regarding any paper by clicking on a link on the opening page of the electronic journal. Letters are indexed by published article and can be viewed according to author, time submitted, and title.

The editors hope that this feature will encourage thoughtful and constructive dialogue on the scientific advances published in *The Plant Cell* and *Plant Physiology.* They want to hear from you!

www.plant.org

ASPB Coordinates USDA–CSREES Research Priorities Workshop for Scientists, Growers

Tom Sharkey, chair of the ASPB Committee on Public Affairs, gave ASPB's presentation at a stakeholders' workshop on research priorities in plant and pest biology for the Department of Agriculture Cooperative State Research, Education and Extension Service (CSREES) on November 14, 2002, at the Crystal Gateway Marriott in Virginia.

Sharkey's one-page summary and the summaries of other presenters have been placed on the ASPB web page at http://www.aspb.org/publicaffairs/stakeholders/. About 45 people participated primarily from science societies and crop producer groups. The Committee on Public Affairs and the Public Affairs Office coordinated the workshop for USDA–CSREES. Ed Kaleikau, Liang-Shiou Lin, and Anne Vidaver of the USDA National Research Initiative provided ASPB guidance in coordinating the workshop. A grant from USDA–CSREES to ASPB is reimbursing ASPB for related costs.

ASPB member R. James Cook, a former member of the Committee on Public Affairs, was the featured luncheon speaker. Cook spoke on meeting the challenge of 21st-century agriculture.

The Competitive Programs unit of CSREES is in the process of drafting its five-year plan in the following six priority areas on which stakeholders were asked to comment: Agricultural and Environmental Quality; Agricultural Security; Genomics and Food and Fiber Production; Obesity, Human Nutrition, and Food Science; Food Safety; and Rural and Community Development.

The November 14 workshop allowed for timely input by stakeholders to National Program Leader (NPL) working groups. Input from the workshop was also provided to Interagency Working Group on Plant Genomes (IWG) representatives Ed Kaleikau of USDA, Machi Dilworth of the National Science Foundation, and Sharlene Weatherwax of the Department of Energy. The IWG is developing five-year goals for the Plant Genome Research Program.

CSREES officials said they were pleased with the workshop and appreciated ASPB's contribution. ASPB is continuing to work with the agency concerning follow-up activities from the workshop, including printing of a report.

Tom Sharkey, chair of the ASPB Committee on Public Affairs

Machi Dilworth of the National Science Foundation, Ed Kaleikau of USDA, and Sharlene Weatherwax of the Department of Energy

Diane Bellis, United Soybean Board

Coliene Hefferan, USDA–CSREES Administrator

Ann Vidaver of the USDA National Research Initiative

Jim Cook, former Committee on Public Affairs member

ASPB, FDA, Food Coalition Help Turn Back Mandatory Labeling Initiative in Oregon

A state ballot initiative in Oregon to require mandatory labeling of genetically modified foods was rejected by voters November 5. ASPB and a coalition of life science and food companies provided information to Oregonians citing serious problems with this initiative, which was on the ballot as Measure 27.

ASPB president Dan Bush and Committee on Public Affairs chair Tom Sharkey wrote a letter to Oregon Governor John Kitzhaber explaining reasons for opposing Measure 27. ASPB circulated a news release on ASPB's position described in Bush and Sharkey's letter, which resulted in subsequent news coverage in the *Oregonian*, the Portland newspaper with the largest circulation in Oregon.

Life science companies and food producers mounted a well-funded campaign against Measure 27. The U.S. Food and Drug Administration sent a letter to Kitzhaber questioning whether Measure 27's labeling provisions would mislead consumers.

The Organic Consumers Association, Greenpeace, and Friends of the Earth were among the supporters of Measure 27. Friends of the Earth also enlisted some celebrity star power in the campaign to support Measure 27 with a radio ad provided by ex-Beatle Paul McCartney.

In an October 25 report entitled "Paul McCartney Chimes in for Food Labeling Idea," the O*regonian* noted that opponents of Measure 27 had successfully "picked up some notable allies," including ASPB and the FDA. ASPB was the most active science society in the public debate on Measure 27 in Oregon. The lead paragraph in a November 6 Reuters story noted that the election results reflect a victory for biotechnology researchers.

Former Committee on Public Affairs member Terri Lomax of Oregon State University worked this issue extensively with the local news media and the public. Although Lomax did not take an official position for or against Measure 27, she provided timely information to the media on some of the dramatic effects the measure could have on consumers and the food industry in Oregon. Lomax provided valuable information to ASPB on local factors concerning Measure 27.

It was a hard day's night for Paul McCartney and mandatory food labeling interests.

In addition to the letter Bush and Sharkey sent to Governor Kitzhaber, Sharkey sent letters to the editors of newspapers in Oregon explaining science community concerns with Measure 27. Following is a letter from Sharkey published November 1 by *The Register-Guard* in Eugene:

Labels Would Mislead

The October 19 *Register-Guard* article, "Labeling Effects Debated," suggested that an important reason to oppose labeling was cost.

Increased food costs to consumers resulting from Measure 27 are a valid concern. In addition, the American Society of Plant Biologists, representing 6,000 plant biologists, opposes process-based labeling as proposed in Measure 27 because it would mislead consumers. Measure 27 requires some production techniques to be labeled but not others.

Plant scientists have long worked toward improving plants for use as crops. We have begun to see the benefits of genetic modifications. The new crops reduced pesticide usage by 45 million pounds and increased farmer profits by over $1.4 billion, according to the National Center for Food and Agricultural Policy. Biotech crops make farming safer and more profitable.

As plant scientists, we understand that the risks of biotech crops are smaller than the risks of the technologies they displace. If you label only the biotechnology process and not the processes it replaces, people will naturally choose not to accept the new technology. If you present biotechnology balanced against the reduction of risk in current technologies, most people will choose the new technology (and reduction of pesticides by millions of pounds), just as so many farmers have.

Foods enhanced by genetic manipulation are as natural as the foods we have been consuming. It would be wrong to imply otherwise by requiring process-based labels on foods produced this way. Moreover, it would be misleading to tell just half of the story on the label.

http://www.registerguard.com/news/2002/11/01/ed.letters.1101.html

Congress Approves Doubling Authorization for NSF, Increased Plant Genome Research

The National Science Foundation Authorization Act of 2002 (H.R. 4664) passed by the House of Representatives and Senate in November would put NSF on track to double its level of funding over five years. This budget authorization is a major enabling step for increased funding for NSF. The doubling track and other funding-related items in H.R. 4664 would also need support in the appropriations process in Congress.

The bill includes language from H.R. 2051 and calls for establishment of plant genome research centers and for research partnerships focusing on basic plant genome research and research on the application of biotechnology to crops in the developing world.

Representatives Nick Smith (R-MI) and Eddie Bernice Johnson (D-TX), chair and ranking member of the House Science Committee's Research Subcommittee, respectively, sponsored H.R. 2051 and took testimony from several ASPB members at Research Subcommittee hearings related to plant genome research and research on the application of biotechnology to crops. Daphne Preuss, Vicki Chandler, Charles Arntzen, Ken Keegstra, Jim Cook, Mike Thomashow, and John Ryals are among the ASPB members who testified before Smith and Johnson and their subcommittee in recent years.

Senator Christopher (Kit) Bond (R-MO) continues to lead support for plant genome research in the Senate. Science Committee staff working with ASPB staff said that the plant research provisions in the bill authorize new money for NSF.

The following is language concerning plant genome research from H.R. 4664:

3. PLANT GENOME RESEARCH

A. A plant genome research program to support competitive, merit-reviewed proposals—

i. that advance the understanding of the structure, organization, and function of plant genomes; and

ii. that accelerate the use of new knowledge and innovative technologies toward a more complete understanding of basic biological processes in plants, especially in economically important plants such as corn and soybeans.

B. Regional plant genome and gene expression research centers to conduct research and dissemination activities that may include—

i. basic plant genomics research and genomics applications, including those related to cultivation of crops in extreme environments and to cultivation of crops with reduced reliance on fertilizer, herbicides, and pesticides;

ii. basic research that will contribute to the development or use of innovative plant-derived products;

iii. basic research on alternative uses for plants and plant materials, including the use of plants as renewable feedstock for alternative energy production and nonpetroleum-based industrial chemicals and precursors; and

iv. basic research and dissemination of information on the ecological and other consequences of genetically engineered plants.

Competitive, merit-based awards for centers under this subparagraph shall be to consortia of institutions of higher education or nonprofit organizations. The Director shall, to the extent practicable, ensure that research centers established under this subparagraph collectively examine as many different agricultural environments as possible, enhance the excellence of existing Foundation programs, and focus on plants of economic importance.

C. Research partnerships to focus on—

i. basic genomic research on crops grown in the developing world;

ii. basic plant genome research that will advance and expedite the development of improved cultivars, including those that are pest-resistant, produce increased yield, reduce the need for fertilizers, herbicides, or pesticides, or have increased tolerance to stress;

iii. basic research that could lead to the development of technologies to produce pharmaceutical compounds such as vaccines and medications in plants that can be grown in the developing world; and

iv. research on the impact of plant biotechnology on the social, political, economic, health, and environmental conditions in countries in the developing world.

Competitive, merit-based awards for partnerships under this subparagraph shall be to institutions of higher education, nonprofit organizations, or consortia of such entities that enter into a partnership that shall include one or more research institutions in one or more developing nations, and that may also include for-profit companies involved in plant biotechnology. The Director, by means of outreach, shall encourage inclusion of historically Black colleges and universities, Hispanic-serving institutions, tribally controlled colleges and universities, Alaska Native–serving institutions, and Native Hawaiian–serving institutions in consortia that enter into such partnerships.

Preuss Addresses United Nations on Modified Foods for the Developing World

On November 6, ASPB Committee on Public Affairs member Daphne Preuss of the University of Chicago presented a talk to the United Nations on genetically modified foods for developing countries.

Photo by Tim Ryan

Daphne Preuss

Her talk was part of a seminar series hosted by UN Secretary-General Kofi Annan and organized by Bruce Alberts, president of the National Academy of Sciences. Jennifer Thomson of South Africa was the other scientist speaking at this Secretary-General's Lecture Series program. Following is Daphne's presentation to the United Nations:

Over the past decade, we have witnessed the broad introduction of a new type of agricultural technology—the development of food varieties often described as "genetically modified." Today I will describe the science behind this technology, the potential benefits and risks, and the challenges for policymakers who wish to ensure developing countries have access to the technology.

My research at the University of Chicago focuses on understanding inheritance in plants. We work on pollination and on DNA transmission, all in a rapidly growing weed that is useful for genetic studies. Some of our discoveries were licensed last year to a small biotechnology company that currently has nine employees; I serve as an adviser to this company.

The recently released World Health Organization report shows that, worldwide, malnutrition is the leading cause of death. Currently, over 170 million children are underweight (27 percent of those under age 5), and in developing countries, 3 million children die each year from malnutrition. Other food-related disorders also topped the list; the prevalence of obesity as a leading cause of death accentuates the disparities in food distribution that we face today. Worldwide, food production must increase by as much as 25 percent over the next decade to keep pace with population growth; in developing countries, larger increases will be required to avoid added reliance on imports.

Over the past decades, vast tracts of uncultivated land have been converted into production; even so, less than 11 percent of the world's surface is well suited to agriculture. As the population increases, there will not be enough land available to meet food requirements; finding ways to enable plants to grow on compromised soils is the most effective means available for meeting these growing demands.

All organisms have tremendous genetic diversity within their populations; humans learned long ago to use selective breeding to capture this diversity and to enhance desirable traits. We're all familiar with the extraordinary changes that took place in the domestication of animals; perhaps less familiar is the similar selection process that led to the domestication of all of our major crops. Just 10,000 years ago, the plant known as maize looked very different; called "teosinte," it produced only a very few seeds, each encased in a tough shell and scattered onto the soil. Changes in only five genes, discovered by people living in Central and South America, led to the development of maize as we now know it.

Similar changes occurred in all our major food crops. Selective breeding identified a mixture of three grass genomes, leading to wheat; breeding also reduced the toxicity of natural potatoes. These changes were slow initially, but with the advent of modern genetics 100 years ago, their pace accelerated. Considered merely an extension of "conventional" breeding, crops were altered by making random mutations, creating hybrids, culturing tissues, and fusing embryos. In the past decade, a new technology—molecular biology—has been applied, sparking concerns where few had been previously raised.

One concern is that conventional methods primarily combine genes from plants, typically of the same species, whereas recombinant DNA methods can employ a gene derived from any organism. While this may sound particularly unnatural, the results of the genome sequencing projects have shown us that all organisms have many genes in common—in fact, approximately half of the genes in a plant genome are also found in the human genome. It is not at all clear if there is an added risk associated with introducing a gene from a non-plant species—after all, many plants we eat were once toxic and half of all natural chemicals are carcinogens; consequently, genes derived from a plant are not always harmless.

Even with the capability to move genes between species, many of the changes made by genetic engineering are much more subtle, as was demonstrated in the discovery of genes that allow plants to grow on salty soil. Salt contamination eliminates large quantities of land from production, yet traditional breeding has made little progress in increasing the tolerance of plants to salt. Increasing the levels of a naturally occurring salt "pump" within plant cells allows them to grow in lethal salt concentrations. In other cases of genetic engineering, it is desirable to decrease the levels of a natural gene, removing a product that is ordinarily in the plant. Such changes would appear to pose little concern from a safety standpoint.

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It is also useful to enable a plant to perform a chemical step that may have been eliminated by the centuries of selective breeding. For example, some plants can convert vegetable oil to castor oil by the modification of a particular carbon, yet many of our crops have lost this ability. Moving the relevant gene into a target plant makes it possible to perform a precise chemical reaction. Using plants as chemical factories is a very promising application, potentially increasing supplies with minimal creation of toxic pollutants. There are many other applications of GM technologies; these examples illustrate the enormous potential of this technology for the production of a wide range of beneficial products.

As with any technology, there are inherent risks to developing GM food. Genes that are helpful or harmful could be added, and tests need to be in place to determine the consequences. We must ask if the gene harms humans, animals, or insects and if the gene is harmful to the environment. While fairly simple methods can be used to quantify most of these risks, the question of allergenicity is more difficult, given the relatively low probability of allergic responses in a population. In all cases, these risks are not novel; they are often higher when foods are developed using techniques that fall under the scope of conventional breeding. Such breeding techniques randomly scramble two genomes, mixing at least 25,000 genes. In many cases, one or both of the genomes has been treated to generate mutations, and in subsequent generations, the desirable change is followed, while the presence of other changes is not tracked. The hybridization of two species, a process considered "natural" by many, is fraught with even more uncertainty. In contrast, the addition of a gene with GM technology is less dramatic. More importantly, it is possible to have defined knowledge of the alteration that was made. Consequently, because it is possible to perform defined tests, GM foods are likely to be even safer than conventional varieties.

When faced with a new development, how do we best consider the risks? One method is to compare the new technology with current practices. For example, here in the United States, the introduction of the biological pesticide "Bt" into cotton significantly reduced chemical pesticide spraying. These chemicals are harmful to animals and humans, while the biological pesticide is far more specific. Similar comparisons should be made when new GM foods are introduced—we need to take into account the current practices and their associated risks.

As GM food technology has developed, it has come under fire from several quarters. The concerns raised have prompted the development of new products that alleviate many of those concerns. The enormous flexibility of GM technology and the fairly rapid time to move new developments to the marketplace make this technology ideal for responding to demands and concerns expressed by consumers. As this technology goes forward, it is important to balance the concerns of many parties and to develop the technology in a manner that supports a sustainable environment. Attention to regulatory burdens and intellectual property laws is needed in order to ensure that developing countries have ready access to food. At the same time, it is important for industrialized countries to develop incentives that ensure advances that will increase food availability.

You can see and hear Daphne's presentation by downloading it at http://www.un.org/webcast, which is also linked from the ASPB home page at http://www.aspb.org.

U.S. May Sue European Union at WTO over Modified Foods Moratorium

U.S. Trade Representative Robert Zoellick is reported to be favoring filing a case at the World Trade Organization (WTO) against the European Union's four-year moratorium on approving new U.S. biotech foods. According to an article in the December 2 *Wall Street Journal,* U.S. trade officials are growing impatient with an EU ban that they see as purely political and based on no scientific finding of risk. Trade officials would like to craft a recommendation for the White House on a WTO action against the EU by early next year, according to the article.

"Europe is ground zero, but it is not at all the whole of our concern. If we allow Europe to flout science and the international trading system, nothing will prevent others from doing the same," a U.S. trade official commented in the article.

Zoellick has been seeking allies on modified food in his travels to Kenya, South Africa, and Botswana this year and also through his contacts with officials across South America.

ASPB Committee on Public Affairs members have been working with representatives of other nations concerning modified foods. Daphne Preuss spoke to the United Nations on genetically modified crops for developing countries on November 6 (see story on page 17). Jim Siedow met with government officials, media, and university-based scientists in Poland concerning GMOs in June (see the July/August 2002 *ASPB News*, page 16).

The Science of Working with the News Media

The prospect of talking with journalists can be somewhat daunting for scientists, just as it is for many people in all other walks of life. However, scientists and reporters have more in common than some people may realize.

As Terri Lomax explained at an ASPB media workshop sponsored by the Committee on Public Affairs last summer in Denver, traits often found in both scientists and journalists include free and independent thinking, competitive natures, and curiosity as well as higher levels of education.

Botany and plant pathology professor at Oregon State University, Lomax is now directing a public education program on biotechnology with the support of the OSU College of Agricultural Sciences. Lomax notes that working with the media is key to communicating with the public and believes that some advance preparation can help the media contact go more smoothly.

She said that in preparing for an interview, a scientist should learn more about the reporter, the publication, and the readership. A scientist needs to have a goal in mind for the interview and deliver a focused message. Advance practice in answering expected potential questions can contribute to more accurate and confident answers during the actual interview.

Denver Post science writer Diedtra Henderson

If the reporter attempts to divert a scientist from the point or poses a hypothetical question, it's important for the scientist to stay on message and politely transition back to the relevant points the scientist wants to make. "As Secretary of State Colin Powell said, 'Remember, they [reporters] get to ask the questions, but you get to give the answers,' " Lomax remarked.

Lomax worked tirelessly throughout the summer and early fall to educate the media and the public about the effects that Oregon ballot issue Measure 27 could have on consumers and producers. Measure 27 would have required mandatory labeling of genetically modified foods in Oregon. (A story on the outcome of the ballot measure can be found in this issue of the *ASPB News* on page 15.)

Peggy Lemaux, then chair of the ASPB Committee on Public Affairs, coordinated the media workshop. Lemaux is Cooperative Extension Specialist at the University of California at Berkeley. She promotes public understanding of biotechnology through an active outreach program.

Lemaux said responding to calls from journalists merits top priority. "I will drop everything to talk to the press," Lemaux said. She noted that too often, the media use misleading terminology such as "Frankenfood" and "killer corn." Scientists need to use more accurate terminology in discussing genetically modified foods and should not repeat misleading terms if they are used by a reporter in a question.

Denver Post science writer Diedtra Henderson told ASPB members at the workshop that they need to convey their key points to the journalist. Scientists should be able to answer questions on their research such as, "What does it matter?" Scientists need to convey to the reporter what the relevance of their research is to the public. Henderson implied that this should not be difficult to do, because people have a lifelong interest in science.

In talking to a journalist, scientists should speak as if they are speaking to a friend, Henderson advised. However, it is important to know that information from the scientist is generally not considered off the record if the off-the-record request is made subsequent to the scientist's actual comment. Off-the-record comment agreements between scientists and journalists need to be agreed to by both parties in advance of the comment being made by the scientist. Some media relations advisers also warn that if you don't want to see a comment to a reporter in print, it is best to simply not make the comment.

Alan McHughen, biotechnology specialist/geneticist, University of California, Riverside, related some of his experiences in working with the media. Author of *Pandora's Picnic Basket: The Potential and Hazards of Genetically Modified Foods,* McHughen interacts frequently with the media.

McHughen said a survey seeking public views on the credibility of different sources found that Americans have considerable respect for scientists and family physicians. "However, don't assume that you'll always have this. Don't be arrogant," he advised.

Writing letters to the editor to cite a need for corrections in a science story is one of the ways that McHughen has found effective for getting to know journalists. He said that although his letter might not get published, it is likely the editor will have the reporter call him to clarify any facts in dispute noted in the letter. At that point, a contact is made and McHughen can be identified by the writer as a valuable source in a particular subject area, such as genetic modification of foods.

When writing an op-ed piece for a newspaper, the scientist has a larger word count to work with than for a letter to the editor. You can "let yourself go a little bit" in delivering your message, McHughen noted.

For advice from a newspaper editorial page editor to ASPB members on how to get letters to the editor and op-eds published, visit the ASPB Public Affairs web site at http://www.aspb.org/publicaffairs/editorial/editor.cfm.

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Web Resources for Teaching Agriculture, Biotechnology, and Genetic Resources

Throughout ASPB's history, our members have been at the cutting edge of agricultural research. The implicit goal of much of this research has been to eradicate hunger and malnutrition in the world. Agricultural research was at the root of the spectacular gains in productivity and food stockpiles in the latter half of the 1900s. Since the early 1990s, however, the rise in productivity has shown signs of stagnation or reversal. There is broad consensus that a new, multidimensional approach is required to stem this trend, and one of the required dimensions will be advances in agricultural research. Many scientists argue that genetic modification will be key to these advances. Our abilities to identify genes for valuable traits and manipulate them have increased exponentially since the discovery of the structure of DNA 50 years ago.

The phenomenal technological developments have raised difficult and controversial issues, many of them outside the realm of science. Although we may hold personal views on these issues, it behooves the educators among us to foster lifelong critical thinking in our students by presenting them with the skills to assess arguments from both sides. However, as scientists, we are often reluctant to engage students in discussions of ethical, legal, cultural, or humanitarian implications of our work. By default, these discussions may be left to professors in the social sciences and humanities who may not understand the scientific arguments for or against the use of these technologies and who may value balance less than we do. The web offers an almost limitless source of information for students and educators wishing to explore these topics. However, a web search brings up sites that present material ranging from credible scientific papers to propaganda. Students find it difficult to sift through the volumes of material and distinguish the quality of web sources. I have found the following web sites useful in my classes:

Two good web sites for issues related to genetic modification, malnutrition, and hunger are gateways (web clearinghouses for submissions published with some degree of editorial oversight) dealing with development issues: the Eldis site (http://www.eldis.org) and the development gateway (http://www.developmentgateway.org). The resources listed under the topic area "food security" provide excellent fodder for critical thinking exercises, case histories, and the like. For example, the "food security" topic area on the Eldis web site currently features "GM food aid and the crisis in Southern Africa." The feature includes a short synopsis of the debate written by Eldis staff and links to many sites under the topics "Short introductory briefings on GM in developing countries and food aid," "Papers informing and contributing to the debate over GM food aid," and "Broader issues and the background to agricultural biotechnology in developing countries." These gateways provide links to full-text articles ranging from editorials and newspaper articles to research papers. Users can not only access these articles but also submit material of their own.

Although genetic modification is a highly controversial and visible issue, the status of the world's raw material for genetic manipulation is quite dire. Much international activity is now focused on preserving the genetic resources that remain and on establishing an international legal framework for their ownership and use. The International Treaty on Plant Genetic Resources for Food and Agriculture was adopted by consensus of the member states of the UN Food and Agriculture Organization on November 3, 2001. It represents a significant effort to open up access to plant genetic resources for food and agriculture and ensure that benefits are shared equitably. The treaty includes most of the major crops on which humanity depends for its food supply. In addition to adopting the treaty, there was broad recognition among the member states that the status of the world's ex situ collections of plant material appears quite grim, largely because of the lack of long-term stable funding. The Global Conservation Trust was established to raise a minimum of $260 million from corporations, trusts, foundations, and governments to provide permanent financial backing for the world's crop diversity collections. This fundraising activity has been accompanied by an educational initiative. The Global Conservation Trust hosts an excellent web site (http://www. startwithaseed.org) where college undergraduate or high school students can learn about the importance of preserving agricultural genetic diversity and specific stories of how seed banks have benefited food security directly (by providing seed to famine-stricken populations) and indirectly (by providing seed for research). For a more in-depth look at the activities of the major international seed banks (now called future harvest centers), have your students visit the web site of the future harvest centers (http://www.futureharvest.org).

In addition to these sites, the CGIAR (Consultative Group on International Agricultural Research), FAO (Food and Agriculture Organization of the UN), and IPGRI (International Plant Genetic Resources Institute) maintain web sites (http://www.cgiar.org, http://www.fao.org, and http://www.ipgri.org) full of articles on the state of world agriculture and the place of genetic resources and biotechnology within it. The FAO site has a large collection of audio files and photographs for free download.

New Staff

Lisa Pergolizzi

Lisa Pergolizzi joined the ASPB staff in November as the production manager for *Plant Physiology*. In this role, Lisa coordinates the production of the journal from manuscript acceptance to publication online and in print.

In July, Lisa relocated from New York, where she worked for four years at Gruner + Jahr in print production. Publications she worked on include *Family Circle*, *Rosie*, *Parents*, *Child*, *YM*, *Fitness*, *Inc*, and *Fast Company*. Lisa was married in August 2002.

A Rochester, New York, native, Lisa studied photojournalism at Boston University. She enjoys volunteer work and currently donates her time tutoring middle and high school students in math.

Diane McCauley

Diane McCauley joined the ASPB staff in November as the new publications assistant. She will be coordinating the production of the *ASPB News* and providing administrative support for the Publications Department. Originally from Toronto, Diane attended the Ontario College of Art before moving to Maryland 20 years ago. Since then, she has always worked in the graphics field, primarily for in-house art departments of local printing companies and small corporations. She gained additional experience as a freelancer for many years.

Trained in fine art, Diane temporarily put painting and drawing on hold while working full-time and raising two sons. Now she is looking forward to returning to what inspires her most. Diane is enjoying her work at ASPB. "My co-workers are a wonderful group of people," she says, "and the Gude Mansion is such a beautiful building."

Farewell

Lauren Ransome

Lauren Ransome ably served *Plant Physiology* for more than seven years. Her roles with the journal changed, first serving as production editor, then production coordinator, and finally as production manager. As the production manager for the journal, she coordinated all aspects of the production of the print and online journals, handled the journal's advertising, and worked closely with the managing editor and the editor-in-chief to bring *Plant Physiology* off press each month. She left the Society last month to assume the position of peer review manager at *The Journal of Immunology*, where she supervises an editorial staff of nine. She is replaced as production manager by Lisa Pergolizzi.

Sylvia Braxton Lee

Sylvia Braxton Lee said her formal farewell to ASPB in late September. Sylvia had ably served the Society for more than 10 years, first as a manuscript coordinator for *Plant Physiology* and later as the Publications Department's first publications assistant. In that latter role, she composed pages and coordinated the production of the *ASPB News*, maintained the Job Bank, and handled newsletter advertising. Sylvia decided this past summer that she wanted to stay home with her first child, Julian David Lee, born March 12, 2002. She is replaced by Diane McCauley.

ASPB's International Affairs Committee invites you to visit their web page at **http://www.aspb.org/committees_societies/international.cfm** for information and to see if you qualify for any need-based support:

- Need-Based Policy for Journal Subscriptions and the Textbook
- Policy for Support of Meetings, Workshops & Courses in Developing Countries

E. Roy Waygood

Roy Waygood in June 1978 at a meeting of the Canadian Society of Plant Physiologists

Long-time ASPB member E. Roy Waygood died in Vancouver, British Columbia, on April 8, 2001.

Roy Waygood was born in 1918 in Bramhall, Cheshire, England. He immigrated to Canada and obtained his B.S.A. from the Ontario Agricultural College in 1941. He served as a flight lieutenant in the RCAF during World War II, flying Mosquito planes from Canada to England and on to Africa for the RAF Transport Command. After the war, he completed his M.S.A. and his doctoral studies on respiratory enzymes in wheat at the University of Toronto in 1949 under the direction of Professor George H. Duff.

It was Dr. Duff who initiated the first of nine Annual Research Conferences on Plant Physiology that resulted in the founding of the Canadian Society of Plant Physiologists/ La Société Canadienne Physiologie Végétale in 1958. The first conference, held at the University of Toronto, was centered on photosynthesis and respiration. Roy contributed two papers—"Properties of Ascorbic Acid Oxidase" and "Enzymes in Photosynthesis"—that were typical of the subjects that occupied his research interests during the rest of his career.

Roy joined the Department of Botany at McGill University in 1949. In 1954, he and Marcel Cailloux co-hosted the 5th Annual Research Conference on Plant Physiology, jointly sponsored by McGill University and Université de Montréal. At the founding meeting of the CSPP/ SCPV in 1958, Roy was elected as the society's vice president. In the following year, he was elected as the society's second president.

In 1954, he was appointed professor and head of the Department of Botany at the University of Manitoba. He quickly established an international reputation for his research on plant enzymes. He pioneered investigations of the intracellular location, purification, and properties of carbonic anhydrase and other carboxylases in leaves. With his students, postdoctoral fellows, and colleagues, he carried out comprehensive studies on the mechanism of indoleacetic acid oxidation, on the biosynthesis of purine, pyrimidine and nicotinamide nucleotides and porphyrins and on phosphoenolpyruvate carboxylase and other enzymes involved in carbon dioxide fixation in higher plants and unicellular green algae. Several of his students have gone on to establish distinguished careers in plant biochemistry.

During his career, Roy authored or co-authored 88 publications. Among the honors and awards that he received are fellow of the Chemical Institute of Canada in 1957, Canada Centennial Medal in 1967, and fellow of the Royal Society of Canada in 1971.

Roy learned the joys of "hobby farming" at his home on the outskirts of Winnipeg, where there were horses to ride and hay fields to manage. Many of his students fondly remember "putting up the hay" in early July of each year! Many also have fond memories of his wife, Adoree, and daughter, Pamela, who survive him, and the wonderful parties that the Waygoods gave for them at "the hobby farm."

Roy relinquished the position of department head in 1975. Upon his retirement in 1979, he moved first to Chilliwack, then to White Rock and New Westminster before settling in Vancouver. There, he was reliably reported to have abandoned horses and managing hay fields in favor of long hours at the computer!

Roy Waygood should be remembered as an inspiration to the generation of plant physiology and biochemistry students that he trained and directed over a period spanning more than 30 years.

Paul R. Gorham
Professor Emeritus of Botany
University of Alberta

Evelyn A. Havir

Evelyn A. Havir, a longtime colleague in the Department of Biochemistry and Genetics at The Connecticut Agricultural Experiment Station, New Haven, and a scientist with a zest for life, died suddenly of a stroke on September 23, 2002, at the age of 69.

Evelyn graduated in 1955 from Beaver College near her family's home in suburban Philadelphia with a degree in chemistry and received a Ph.D. working on photosynthetic metabolism with Martin Gibbs at Cornell University in 1962. She then did research on enzymes related to arginine metabolism as a postdoctoral fellow with Sarah Ratner at the Public Health Research Institute of the City of New York.

In 1964, Evelyn came to the experiment station as a postdoctoral fellow working with Kenneth R. Hanson on purification and properties of L-phenylalanine ammonia-lyase, the enzyme that functions as a gateway to phenolic metabolism. Her contributions were recognized with an invitation to become a member of the department, where she rose to a rank equivalent to full professor. She later focused on characterization of catalase isoforms

and collaborated with Richard B. Peterson on purification of violaxanthin deepoxidase and on characterization of Arabidopsis mutants with defects in non-photochemical quenching. Although she formally retired in November 2001, she continued to work regularly in the laboratory alongside Carol Clark, her technical assistant, for many years.

Her sheer enjoyment of the day-to-day conduct of science is what we remember most. As Kenneth Hanson recalls, "Her desk was always piled with copies of *Science*. She not only enjoyed her work, but she believed biochemistry was vital for the future of agriculture. She loved working out new techniques with new apparatus. She loved designing experiments; she would slog away until the experiment worked, but then she would agonize trying to decide whether the results in fact proved her point until her friends had to rescue her from too much self-criticism."

Outside of work, her passion turned to music, travel, and gardening. She often attended the opera in New York and concerts of the Yale String Quartet Series. She had many travel adventures with Art Rickel, her devoted husband, pursuing their common interest in bird watching, botany, and horticulture. Her home garden was so extensive that no lawn remained, and weeds had little chance to compete.

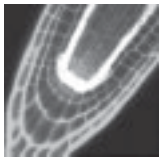
Evelyn will be missed as a distinguished scientist, an ideal collaborator, and a wonderful friend.

Israel Zelitch
Richard B. Peterson
The Connecticut Agricultural Experiment Station

Important Dates in 2003

February 14	Operations Subcommittee Meeting Mid-Atlantic Section Meeting
February 15	Executive Committee Meeting
February 16	Membership Committee Meeting Education Committee Meeting
February 28	Abstract submission deadline for Plant Biology 2003
March 3	Award and Officer Nominations Close
March 7–10	Program Committee Meeting/Hawaii
March 14	Application Deadline—ASPB Travel Award Program for Plant Biology 2003
March 15–17	Southern Section/ASPB meeting in Denton, Texas
March 21–22	Midwest Section/ASPB meeting at Iowa State University, Ames
April 4–5	Education Foundation Meeting
April 25	Mid-Atlantic Section/ASPB Meeting in Washington, DC
May 15	Plant Biology 2003—Early bird registration cutoff
June 10	Notification of Elected/Award recipients
June 20	Plant Biology 2003—Housing registration cutoff
July 25 and 29	Executive Committee Meetings/Hawaii
July 25–30	Plant Biology 2003—Honolulu, Hawaii
October 22–26	Plant Genetics 2003—Snowbird, Utah

The Arabidopsis Book



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

TAB offers a new model for scientific publishing. Each of its 100+ chapters will review in detail an important aspect of the plant *Arabidopsis thaliana*, and the content will continually evolve as new information becomes available, making *TAB* the most comprehensive and current work on Arabidopsis.

ASPB is providing funds for the mounting and maintenance of *The Arabidopsis Book* on the Internet as a public service. Please visit *TAB* at www.aspb.org/publications/arabidopsis for chapters currently available in PDF. Eventually all chapters and updates will be hosted in partnership with BioOne (www.bioone.org) in both HTML and PDF formats.

ASPB Headquarters

Telephone Extensions and E-Mail Directory

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

● Our office telephone number is 301-251-0560

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Awards	●															
Biochemistry & Molecular Biology of Plants									●							

ASPB News

American Society of Plant Biologists
15501 Monona Drive
Rockville, MD 20855-2768 USA

ASPB News (ISSN 1535-5489) is published bimonthly by the American Society of Plant Biologists, 15501 Monona Drive, Rockville, MD 20855-2768 USA, telephone 301-251-0560, fax 301-279-2996. Members' dues include a subscription price of $2 per year to *ASPB News*. Subscription price to nonmembers is $30 per year. Periodicals postage paid at Rockville, MD, and at additional mailing offices. Postmaster: Please send address changes to *ASPB News*, 15501 Monona Drive, Rockville, MD 20855-2768 USA.