

ASPB News



THE NEWSLETTER OF THE AMERICAN SOCIETY OF PLANT BIOLOGISTS

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March/April 2006

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President's Letter

Voting: A Good and Important Thing to Do!

You receive an e-mail and see mention in the *ASPB News* that elections for ASPB leadership positions are approaching and that you are encouraged to vote. You make a mental note...and then move on to something more pressing. Some ASPB members get back to the issue and cast their ballot. But in a large majority of the cases, no vote is cast. The reasons are many and range from individuals forgetting about it, to thinking that their input is not needed or that their participation won't make a difference. Others, often ASPB members nearer the beginning of their careers, might think that they don't really know enough to express an opinion about who should hold leadership positions in the Society.

Well, as you have by this point figured out and are bracing yourself to read, I am writing this month to encourage the majority of you to change your perspective about voting in ASPB elections. A sign of a vibrant society is that the membership will take the time and effort necessary to participate in the business of the society. And in the case of voting, let's be honest—we are talking about a rather minimal amount of time and effort. In cases where you know the candidate, voting is very simple; just click the



Mike Thomashow

appropriate button on the website (www.aspb.org/voting) or check the appropriate box on the paper ballot (but don't forget to mail it in!). In those instances in which you don't know the individuals running for a given position, a short biographical sketch is available online (www.aspb.org/voting); you can read it to get acquainted with the candidate and his or her contributions to date and ideas for

the future. Indeed, taking a few minutes to read these biographical sketches will provide you with useful knowledge about fellow ASPB members who are willing to take time out of their already busy professional lives to work on your behalf. With the risk of sounding a bit preachy, I'd suggest that these individuals deserve a couple of minutes of our attention, given their obvious dedication to our professional Society.

So, there you have it. My simple message is to ask you to please take a few minutes out of your already overloaded schedules to participate in fundamental business of our Society: choosing the individuals who will lead us into the future. Voting is, indeed, a good and important thing to do!



Join us in Boston!

Plant Biology 2006

Boston, Massachusetts

August 5–9, 2006

PRE-REGISTRATION ENDS JUNE 15

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

ASPB Officers & Staff

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ASPB News: June 5, 2006

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The View from the Gude Mansion...Déjà vu All Over Again

At about this time last year, I wrote about an intense week of ASPB committee meetings that took place in late February and early March at the ASPB headquarters in the Gude mansion (see <http://www.aspb.org/newsletter/marapr05/02view.cfm>). Well, guess what? The Society's leadership, committees, and staff just did it again! From where I'm sitting, this kind of activity – busy committees doing the hard work of the Society – is pretty much business as usual. However, for anyone who is not (or has not been) engaged with a committee or its areas of influence and interest (or who is not an avid reader of the *ASPB News*), I expect that the work that these always dedicated and occasionally passionate volunteers do for the Society – and therefore for you as members of ASPB – may fly somewhat below the radar screen. Hopefully, this brief synopsis of their work over the past couple of months will go some way toward raising the profile of the committees' work – and perhaps even encourage some of you to seek to get more deeply involved than you have been able to do to date.

We – committee members, ASPB president Michael Thomashow, past-president Roger Hangarter, staff liaisons, and I – began with something of a warm up in mid-January, with back-to-back meetings of the Publications and Women in Plant Biology committees. The bulk of the Publications Committee's marathon meeting (it went over 11 hours!) was taken up with a vital discussion of the opportunities and challenges presented to ASPB and its journals by the rapidly evolving landscape of scholarly publishing, including various approaches toward Open Access. In addition to these weighty conversations, the committee voted to recommend modifications to *Plant Physiology's* policies and charges regarding color figures that had been proposed by Editor-in-Chief Don Ort, changes that were subsequently approved by the Society's Executive Committee (Excom) and that will take effect in 2007. Finally, the



Crispin Taylor

Publications Committee moved forward (and Excom also passed) a request for funds to continue for another three years ASPB's partnership with the American Association for the Advancement of Science (AAAS) and its Mass Media Science and Engineering Fellowship Program (<http://www.aaas.org/programs/education/MassMedia/index.shtml>). Through this program, ASPB members who are aspiring science communicators participate in intense 10-week fellowships with mass media outlets in the United States.

The following day, members of the Women in Plant Biology Committee spent considerable time and energy reviewing the generally very positive feedback from events the committee convened at last year's annual meeting in Seattle – the luncheon talk given by NSF program director Judy Verbeke, for example, and the ever-popular career workshops. The committee also worked on the wording for an upcoming brochure highlighting its activities before turning its attentions to this coming year's events at Plant Biology 2006 in Boston. This meeting will see a reprise of the popular luncheon and career workshops. As was the case in Seattle, one of the latter will focus on academic careers, and the other will focus on – well, everything else!

After a month-long pause, the committee meeting roundrobin resumed with a subcommittee of the ASPB Minority Affairs Committee (MAC). The group met on Thursday, February 23, to finalize the details of a comprehensive proposal that is focused on training and development of faculty and students from underrepresented groups, many of whom study and work at smaller colleges and universities that have higher minority enrollments and that are historically less likely to be represented at ASPB. The proposed outcomes would include an increase in the visibility of plant sciences at these minority serving institutions (MSIs)

and a concomitant increase in the participation of individuals from underrepresented minorities as members and as contributors to the Society's scholarly activities (i.e., as presenters at annual meetings and as authors in both journals). The proposal, which builds off and significantly extends MAC-organized activities already funded by the Society, will be submitted for consideration by the federal government later this spring.

The full committee met the following day, Friday, joined again by presidents Hangarter and Thomashow. Like the Women in Plant Biology Committee, MAC ran through the activities in which the committee had engaged since the beginning of the Seattle meeting, which, in addition to MAC-supported programs at Plant Biology 2005, included participation at the annual meeting of the Society for the Advancement of Chicanos and Native Americans in Science (better known as SACNAS; see <http://www.sacnas.org/>) and the Annual Biomedical Research Conference for Minorities in Science (ABRCMS; <http://www.abrcms.org/>). The committee then turned to the upcoming Boston meeting and the business of selecting a speaker for the MAC-sponsored luncheon. Also on the agenda was discussion of the MAC Symposium – Medicinal Plants and Ethnobotany – which will be held on Monday afternoon, August 7th (check out the full preliminary program for PB2006 at <http://www.aspb.org/meetings/pb-2006/schedule.cfm>) and the MAC Recognition Travel Awards (more to follow in a subsequent issue of the *ASPB News*).

MAC members mingled with arriving Excom members and ASPB staff over dinner Friday evening. And early Saturday morning, staff ferried Excom from the hotel to ASPB HQ for the weekend's main event – the Excom meeting. Filling an entire day to execute the serious business of the Society, Excom moved on the abovementioned “action items” coming out of the Publications Committee and also spent time deliberating next steps in developing the Society's strategic plan, as well as new publishing

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Plant Biology 2006 Around Town

Boston is well known for its lively restaurants, and during our pre-meeting planning visit we sampled just a few of them. There are so many places to eat and enjoy in Boston that we'd like to provide Plant Biology 2006 attendees with a mouth-watering preview!

Our first stop was Les Zygomates Wine Bar & Bistro (www.winebar.com). At this casual French bistro, you can experience delectable French food paired with flavorful wines and enjoy live jazz on the weekends. We were told not to miss jazz artist Ronnie Ron on Friday nights. We weren't able to enjoy the food on our quick drop-in but were so taken by the atmosphere that we made dinner reservations for the rest of our colleagues joining us later in the day. That evening we could either choose from a set menu that included dessert (crème brûlée) or select individual dishes from escargot to wild mushroom risotto. We were stuffed!

Our second stop was the Quincy Market Colonnade. Within walking distance of the New England Aquarium and the Museum of Science, this walkway within Faneuil Hall Marketplace (www.faneuil-hallmarketplace.com) is a visitor's haven for good food, pubs, and shopping. We enjoyed a quick cup of yummy chowder and admired the selection of pastries and gelato. There are market carts full of trinkets and a comedy club inside the hall, and a replica of the famous Cheers pub as well (www.cheersboston.com); the original sits on Beacon Hill, where we've heard you can't miss spotting a Norm Burger.

We walked through the New England Aquarium (www.neaq.org) and were charmed by the penguins in the large exhibit right inside the door. In the middle is the Giant Ocean Tank built in the 1970s. It was the largest saltwater circular tank in the world at the time. The aquarium also features an IMAX theatre and gift shop that we had to see.

On our way to the next location, we had a drive-by celebrity sighting! Danny Aiello was sitting outside Sculler's Jazz Club (www.scullersjazz.com), surrounded by a camera crew. It was an appropriate backdrop for our stop to Dolce Vita Ristorante (www.dolcevitaristorante.com). Inside, leaning against the bar, were two older Italian gentlemen greeting and talking with everyone who walked through the door. We filled up on an antipasto platter of vegetables, including stuffed eggplant and pomodoro e mozzarella. One dish that is telling for the quality of an Italian restaurant is its calamari. Let's just say the calamari at Dolce Vita melts in your mouth! It was a complete Italian experience.

The next venue provided quite a different flavor. Mantra (www.mantrarestaurant.com) is an elegant restaurant fusing French and Indian tastes. A contemporary décor serves as the setting for their unique dishes. We savored tuna tartare, veal tenderloin, and goat cheese and potato tikki. Contemporary sofas, tall partitioning curtains, and a lighted bar made this a comfortable place for sharing time with colleagues.

Throughout the rest of our visit we took advantage of even more places to eat

(and shop!) while walking through the convention center. The Hynes Convention Center, which will house Plant Biology 2006, is next to the Prudential Center (www.prudentialcenter.com)—a place full of shops and a food court. The Cheesecake Factory, California Pizza Kitchen, Legal Sea Foods, and many other eateries are inside. The large food court has something for anyone looking for a quick bite. We took one last advantage of a bowl of "chowda" at the Boston Chowda Company. There is even a Shaw's Supermarket across the street!

Needless to say, finding great places to eat and things to do in Boston will be a piece of cake.

Cheers!

Rosenberg and Sahli

PB06 Meeting Team



Boston
Massachusetts
Hynes Convention Center
August 5–9, 2006



Pubs director Nancy Winchester ventured down to the U.S. Botanic Gardens one weekend in mid-January to listen in to what folks were saying about *sLowlife* and to try to nab a few good quotes. (Recall from earlier *ASPB News* articles that *sLowlife* is the brainchild of ASPB Immediate Past President Roger Hangarter and his colleague Dennis DeHart that shows us through time-lapse photography just what an active life plants really do live.)

Here's what Nancy asked and what she heard:

How would you rate *sLowlife*?

"A '10'!"

What did you learn?

"Plants are living organisms that move and respond in ways you'd expect a living thing to move and respond but don't actually realize until time is compressed. There's a lot more going on than we realize in terms of plant dynamics."

What's your favorite feature?

"The time-lapse photography is incredible."

What's your least favorite feature?

"My nose. Ha ha."

What did you especially like about *sLowlife*?

- "It appeals to the artistic set...a predominance of evidence relative to text."
- "Dynamic, not static. Humorous and fun."
- "Hard to think of ways to improve it.... I might have enjoyed a little more 'optional' scientific detail because I already have a basic understanding of concepts like photosynthesis."

- "I really liked the tulip videos [where Roger compressed 5 days in the life of cut tulips into 12 seconds], but they made me kind of sad. The flowers are totally cut off and detached from their roots...they're confused...trying to do what they'd normally do."
- "Excellent. The 'stills' are so different compared to the [time-lapse photography showing] 'movement.' The exhibit keeps you stimulated and contemplative...just enough text to read—I could skim and get the information."



Above: The Darwin experiment uses a mark made by an observer on a piece of Plexiglas, a leaf-tip, and a red dot on the wall behind the plant to demonstrate the movement of plants.

Above: *sLowlife* shows us through time-lapse photography what an active life plants really live.

What else?

"Hey, Dad, we saw that in school!"

Regarding the variable time compression of six weeks of growth of *Arabidopsis thaliana*:

Visitor A:

"Cool! Look at how much it moves!"

Visitor B:

"Is it a ficus?"

Visitor A:

"No, it's Arab... Arabi..." [walk away]

Two physicists saw the "ASPB" on Nancy's name badge and tracked her down. They gave rave reviews to the entire exhibit, but as educators they were especially drawn to the "Darwin experiment." [Note: The experiment involves the observer making a mark with a pen on a transparent Plexiglas sheet between the observer and the plant so that the eye of the observer, the dot on the Plexiglas, the tip of the leaf, and a red dot on the wall behind the plant all lie along the same straight line. It works! Yours truly made her mark, moved on, and came back one hour later to find that all the points along that line did indeed stay the same—except for the tip of the leaf, which moved considerably during the hour she was gone.] Their comments: "You exhibited science and did a good job of presenting information and the evidence

underneath the information. For example, the 'Darwin experiment'...the key to this experiment is the uniqueness of an observer's initial reference point of a plant's leaf tip and how over time the leaf moves beyond that initial reference point in response to light stimulus. You get direct evidence that the plant is moving. You do not have to depend on time-lapse photography to show you; you are making the measurement yourself. This experiment—and the whole exhibit—'shows' versus 'teaches'... and that is such a good way to educate!"



Left: "Hey, Dad, we saw that in school!" A family at the Darwin experiment.

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models and the Society's approach toward them. At the Program Committee's behest, Excom also discussed the parameters the Society might best use to evaluate proposals for "specialty" meetings and also the pros and cons of identifying city venues and dates for ASPB annual meetings some years into the future. The Excom meeting filled the day completely, and committee members repaired directly to a nearby Italian restaurant for a well-earned (and evidently very well liked!) family-style dinner.

Taking advantage of the presence of its ad hoc section representative members, who sit on Excom, the newly reconstituted Membership Committee met on Sunday. In addition to the section reps, the chairs of both the MAC and the International Affairs committees participated at MemCom's invitation, along with appointed committee members, including the graduate student member, Colleen Doherty, and chair Mel Oliver. MemCom's agenda was ambitious and far reach-

ing, including (among many other things) the "Get Six in '06" member recruitment campaign, more effective outreach with and through the ASPB sections, further improving networking opportunities at the annual meeting in Boston, a drive to increase the visibility and impact of ASPB among plant biol-

ogy graduate students, and the appropriate range and scope of member benefits that ASPB negotiates with third-party vendors.

Like WIPB, MemCom managed to wrap up its business early on Sunday afternoon, and those of us who had been participating since the get-go – including the presidents – took the opportunity to grab a little downtime. On Monday, though, the Public Affairs Committee – including for the first time ever a graduate student participant, Jeff Gordon of Cornell University – convened for its meeting, prior to spending a day in congressional visits on Tuesday. In addition to preparing for Tuesday's Capitol Hill visits, the Public Affairs Committee spent Monday discussing President Bush's recently announced American Competitiveness Initiative and what it might mean for plant biology (and plant biologists) in the United States. The committee also worked through the proposed 2007 budgets for the Department of Energy, the Department of

More information about committee-originated activities and a listing of current committee members is available at <http://www.aspb.org/committees>

Agriculture, and the National Science Foundation – all agencies that support basic plant biology research; identified a number of ways in which the Public Affairs website should be improved; and assessed a number of opportunities through which the Society might help produce short radio (or even TV) news

spots designed to promote plant biology to the public at large.

Finally, the ASPB Education Committee stole a bit of a march on many of the Society's other committees – at the same time as neatly avoiding the possibility of interference by Mother Nature – by holding its mid-winter meeting by conference call in early January. Committee chair Mary Williams (who also participated in February's Excom meeting) and committee members, along with Mike Thomashow, discussed possible joint educational outreach opportunities with the Botanical Society of America, an upcoming NSF-funded (and ASPB-hosted) workshop on "broader impacts," a planned workshop with Boston-area schoolteachers in advance of the Society's 2006 annual meeting, and the committee's (and staff's) involvement in outreach to school science teachers via their own professional conferences.

Clearly, ASPB members can rest assured that their elected leaders are working hard on their behalf, as this description of our winter meetings marathon attests! Now, the committees and staff will turn to the work defined and discussed at these meetings, and will meet again in the summer in Boston to both look back over their recent achievements and forward to plan next steps – for them, and for the Society.

'Til next time...

Crispin Taylor
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Breaking into Publishing

Women in Plant Biology committee member John Kiss asked me to write a few words about issues that have come up in my career, and I thought I would start with how I moved from plant science research into plant science publishing.

First in the Country

My first job after getting an agricultural science degree was for the Department of Agriculture as a *cereal chemist* on the pulse breeding program in a country town outside Melbourne, Australia. Most of the locals seemed surprised to see a single female arrive from the city, and subsequently peered through their curtains to work out what I was about. I was surprised to learn in my last week there that I had found time for “romantic liaisons” with at least four men in town, including the owner of the local bar; the cleaning man; and a man I’d never even met! I learned that a young, single woman must keep her head down.

And Back to the City

Next I took up a short-term data-entry position at the Department of Agriculture back in the city. “Short-term” turned into two years. I became the *chemical information officer* for the Chemical Standards Branch and found that I was happier in a city-based position (although my love for agriculture and helping farmers has never faded). I faced a dilemma: Could I have a career helping farmers, improving crops, and producing more food for the world without having to live in the country?

My First Step into the Media

When I took a job as a *media researcher* for an agricultural information company, I realized that the answer to that question was yes! I arranged interviews with leading plant scientists for a monthly audiocassette on new crop varieties, long-term weather forecasts, and market conditions. After two years I knew that I wanted to be on the other end of the microphone so I applied to graduate school.

Back to School for My PhD

My PhD topic was “Transferring *Ascochyta* Blight Resistance from *Lathyrus* spp. into

Field Pea Via Protoplast Fusion,” and the work was carried out at the University of Melbourne and at CSIRO Plant Industry in Canberra. I always knew that I enjoyed presenting my research results more than being in the lab. I was often pushed forward as a spokesperson—being a scholar-in-residence at a girls’ high school, sitting on the faculty board, or representing Australia as the science delegate to the Asia–Pacific Youth Forum in Japan. I had to finish my PhD and then find a way to work in science communication! Just as I was finishing up my experiments, a casual job came up as a freelance copyeditor on the *Australian Journal of Plant Physiology*. The more I edited, the more I realized that this job ticked every box of my dream job description!

Moving Up the Ladder

After two months the managing editor decided that it was time to resign and advertised for a full-time *assistant editor*. I knew that I would be *absolutely mortified* if I didn’t get the job—my dream job—so spent plenty of time preparing for the interview. I spoke with the assistant editors of the other journals about their interviews, made an appointment with a cousin who worked in recruitment to drill me with some interview questions, and spent a few hours trawling its website to learn everything I could about the journal.

A Really Tough Decision

Luckily I was offered the position and asked when I could start! I was *still* finishing off my PhD experiments (know the feeling?), so had a meeting with my supervisor to see how much more time would be needed. We agreed that three weeks of hard work should give us the results we needed. That meant, however, that I would have to spend my evenings and weekends writing my thesis. A tough decision—basically no social life until it was done! But I knew that this was my dream job, in an office I already knew, with colleagues I liked, 10 minutes’ walk from home, on one of the few plant science journals in Australia, and the opportunity might never come again.

My Double Life

I spent the next six months working all day on the journal, then going over to the university after work to write for a few hours before going home for a late dinner. Saturdays were spent at the university, and I treated that time like a job, working 9–5 and only taking enough of a lunch break to eat a sandwich. I turned down plenty of invitations to go to the beach for the weekend! But when I finally handed in my thesis, I got my evenings and weekends back. I waited for my examiners’ reports, attended to the minor revisions, and was proud to graduate in December 2001.

The Ladder Goes Up

After two years as an assistant editor I was promoted to *managing editor*. Around this time we also updated the name of the journal to *Functional Plant Biology*. I still think that I have the best job in the world, *for me*, because it feels like a 100 percent match of tasks with personality traits. I love traveling to conferences to meet authors and reviewers. I love my days in the office helping my authors get their results published. I believe that I am still fulfilling my earlier ambition of *helping farmers, improving crops, and producing more food for the world* in this role.

When I had identified my dream job, it was a matter of overcoming obstacles (such as an unwritten thesis) to get it. I urge all of you who are interested in a career in scientific publishing to contact the publishers you like. I often receive e-mails or phone calls from people with an interest in this work who want to find a way to break into publishing. At least three of these cold-callers have found work in my office, and one even filled in for a year as a production editor. My current production editor applied for the job twice in three years before she was successful. These examples all demonstrate the value of perseverance! Good luck. 

Jennifer Henry

Managing Editor, *Functional Plant Biology*
jennifer.henry@csiro.au



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



Name: Ryan Whitford
Title: Postdoctoral Fellow
Place of Work or School: Vlaams Instituut voor Biotechnologie/Ghent University, Belgium
Research Area: Plant development and small peptide signaling
Member since: 2004

1. Why has being a member of ASPB been important?

It gives me the sense of being part of a unique worldwide community, which allows me to meet other people in my field and provides resources that I can use throughout my career development. Resources like *The Plant Cell* and *Plant Physiology* are instrumental in my research almost every working day, enabling me to work more efficiently and effectively. The *ASPB News* also helps me keep abreast of the “big picture” within this dynamic field!

2. Was someone instrumental in getting you to join ASPB?

No, not specifically, although I had talked with a few colleagues who were members and who suggested that I join.

3. What would you tell colleagues to encourage them to join?

I would tell them that the resources supplied through ASPB are extremely useful. Of particular value is the access through ASPB to *The Plant Cell* and *Plant Physiology*.

4. Have you enhanced your career using ASPB job postings or through networking at an ASPB function?

I have attended ASPB meetings where I was able to network with many people in my field, and that has enabled me to get in contact with important researchers in my specific area of research.

5. Have you had any success at finding candidates as a result of a job posting at the Plant Biology meeting or on our online Job Bank?

No, not yet.

6. Do you read print journals? If so, where do you usually read them?

Yes, I read the print and online journals on a regular basis and particularly enjoy reading them in my spare time.

7. What do you think is the next “big thing” in plant biology?

Now that is a difficult question! If I knew the answer to that, I wouldn’t be doing science. The unknown is what I like to pursue.

8. What person, living or deceased, do you most admire?

There are many people who have done amazing things, whose brains I would like to pick. Several people’s names that jump to mind include Leonardo Pisano (better know as Fibonacci), and Benoit Mandelbrot, both of whom are famous mathematicians. The applicability of their work to biology is incredible.

9. What are you reading these days?

Work-related reading includes anything having to do with hormone signaling, given that my specific research focuses on peptide signaling. Outside the work-related literature, I enjoy reading about current affairs and politics.

10. What are your hobbies?

Although I don’t have too much time these days to pursue them, my hobbies include snowboarding, surfing, and windsurfing. I also enjoy drinking a nice red wine.

11. What is your most treasured possession?

My passports (Irish and Australian) because they allow me to travel to and work in fantastic places.

12. What do you still have left to learn?

I have many things to learn, particularly with regard to my research. The more I learn, the more I realize how little we, as scientists, actually know. This is what keeps me interested in my work, and I feel very fortunate to have this experience. 



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



Name: Christy Fleet

Title: Mellon Lecturing Fellow (teaching postdoc)

Place of Work or School: Duke University/ University Writing Program

Research Area: Transcriptional regulation, plant growth hormone biosynthesis, science education

Member since: 1999

1. Why has being a member of ASPB been important?

Being involved with ASPB helps me keep up with a broad range of developments in plant biology. Attending ASPB meetings gives me a chance to talk with colleagues who have shared research interests. Additionally, because teaching is a significant part of my job, I find the Education Forum of ASPB to be a helpful way to get new ideas for teaching resources.

2. Was someone instrumental in getting you to join ASPB?

My graduate adviser, Dr. Tai-ping Sun.

3. What would you tell colleagues to encourage them to join?

ASPB provides good resources for keeping up with developments in plant biology, science-related policy issues, and education.

4. Have you enhanced your career using ASPB job postings or through networking at an ASPB function?

Not directly, but attending the career workshops at ASPB meetings helped me be more informed about the job market. Additionally, browsing the ASPB job listings as a graduate student helped me begin to get a sense of the job market and think about how to prepare for future positions.

5. Have you had any success at finding candidates as a result of a job posting at the Plant Biology meeting or on our online Job Bank?

No.

6. Do you read print journals? If so, where do you usually read them?

I do most of my browsing online, but I still print out key articles so that I can consider them more carefully.

7. What do you think is the next “big thing” in plant biology?

It’s hard to know what *the* next big thing will be, but one thing that strikes me as interesting these days is further integration of biological disciplines. We are learning so much through the “omics” that I think we are in a better position to see useful connections across fields—from plants to animals, or from molecular to organismal and evolutionary studies.

8. What person, living or deceased, do you most admire?

Perhaps there’s no one person, but I tend to admire those who are willing to live by their values and try to make the world a better place, even in small ways.

9. What are you reading these days?

Mostly student papers! As time permits, I’m also reading some commentaries on bioethics. The last good fiction I read was *My Sister’s Keeper* by Jodi Picoult.

10. What are your hobbies?

Long-distance running, tae-kwon-do, and gardening.

11. What is your most treasured possession?

As trite as it may sound, I would say that the knowledge and experiences I’ve had matter more to me than any tangible possession.

12. What do you still have left to learn?

Everything. The more I learn, the more I realize how much more there is to understand about those things I thought I knew.

Call for Proposals: JUNE 9, 2006, DEADLINE

ASPB Education Foundation—Grant Awards Program

In this call for proposals, the ASPB Education Foundation seeks projects that address the aims of the Foundation (see sidebar) and at the same time catalyze new opportunities for ASPB members to educate the public about the importance of plant biology.

Proposals must be submitted to the Foundation by **June 9, 2006**, and should be sent by e-mail to Elizabeth Daerr, Education Foundation assistant, at elizabeth@aspb.org. No forms are needed, but full name and ASPB member number should be in the body of the submitted e-mail. Attached documents should be in Word (.doc extension) or saved as a PDF file.

Each grant proposal should include

1. A one-page cover with the title of the project, the names of the member project manager and others who are submitting the project, and the member's ASPB number and contact information, including address, phone, e-mail, and fax.
2. A project description that is no more than five pages in length, double-spaced.
3. An itemized budget of up to \$30,000 with justification for each item.

Guidelines for the 2006 program:

1. The project manager must be a current member of ASPB.
2. Proposals that leverage funds from the Foundation with support from other sources are encouraged, particularly with regard to larger grant requests.

3. No indirect costs (overhead) will be covered by the Foundation for project awards.
4. No language translations.
5. No direct publishing.
6. No support of other foundations.
7. No support to projects that would more appropriately receive their money from another source, especially when that project serves a limited audience (i.e., one campus).
8. The Foundation seeks projects with wide dissemination.
9. ASPB expects to have the right to the use of projects developed with grant funding.
10. Proposals are encouraged from members from both within and outside the United States, and projects may serve communities from any country.
11. Projects may run beyond one year, but grant funding will be made in one payment only, issued between September 1 and December 1, 2006, not to exceed \$30,000.
12. All recipients agree to advise future applicants who seek their consultation on developing winning proposals.

Proposals will be reviewed, and awardees will be notified by e-mail and announced during Plant Biology 2006, which will be held in Boston August 5–9.

Refer to the ASPB website for details and to view the recipients of the 2004 and 2005 awards: <http://www.aspb.org/education/foundation/gap.cfm>.

ASPB's Education Foundation seeks proposals from ASPB members to support education and outreach activities that advance knowledge of and appreciation for basic concepts and contributions of plant biology.

In support of the mission of ASPB, the ASPB Education Foundation was established in 1995 to provide information and education to increase the public's knowledge about the role of plants in all areas of life.

The Foundation reaches its goals through programs that

- promote a broad understanding of the importance of plant science in providing an ongoing supply of affordable, high-quality food, fiber, and renewable resources
- provide education on the importance of plants to agriculture, medicine, the environment, and more
- make available accurate information on the latest developments in genetic modification of crops and plant biotechnology
- contribute to the knowledge of plant biology among K–12 schoolchildren through developing educational materials and assisting teacher development
- encourage young scientists to pursue careers in the growing field of plant biology
- increase plant science activities in science museums and discovery centers by developing programs, exhibits, background information, and links to scientists.



President's State of the Union Address Calls for Research Leading to Biofuels

Acknowledges Nation Might as Well Face It—We're Addicted to Oil

President George Bush called for breaking the nation's "addiction" to oil in his State of the Union Address. He pointed to new opportunities offered in research that would produce ethanol not just from corn kernels, but also from plant cellulose. What follows here is the portion of the president's address related to energy:

"Keeping America competitive requires affordable energy. And here we have a serious problem: America is addicted to oil, which is often imported from unstable parts of the world.

"The best way to break this addiction is through technology. Since 2001, we have spent nearly 10 billion dollars to develop cleaner, cheaper, more reliable alternative energy sources—and we are on the threshold of incredible advances. So tonight, I announce the Advanced Energy Initiative—a 22 percent increase in clean-energy research at the Department of Energy, to push for breakthroughs in two vital areas.

"To change how we power our homes and offices, we will invest more in zero-emission coal-fired plants; revolutionary solar and wind technologies; and clean, safe nuclear energy.

"We must also change how we power our automobiles. We will increase our research in

better batteries for hybrid and electric cars, and in pollution-free cars that run on hydrogen. We will also fund additional research in cutting-edge methods of producing ethanol, not just from corn but from wood chips, and stalks, or switch grass. Our goal is to make this new kind of ethanol practical and competitive within six years.

"Breakthroughs on this and other new technologies will help us reach another great goal: to replace more than 75 percent of our oil imports from the Middle East by 2025.

"By applying the talent and technology of America, this country can dramatically improve our environment—move beyond a petroleum-based economy—and make our dependence on Middle Eastern oil a thing of the past."

Mention of this specific area of research—the need for plant-related energy research—by the president in his major address of the year increases public understanding and interest in this area of research. Bush called for research in this area in the FY2007 budget, which was released less than a week after his address.

During the past year ASPB members and staff have been in touch with officials in the White House, DOE, USDA, NSF, and congressional offices, sending letters and dis-

cussing in meetings the importance of basic plant and microbial research related to energy. Contributing to these discussions was the April 2005 release by DOE and USDA of the report "Biomass as Feedstock for a Bioenergy and Bioproducts Industry: The Technical Feasibility of a Billion-Ton Annual Supply." The report showed how further advances in research could lead to replacing one-third of the imported gasoline used by America's motorists with home-grown biofuels.

ASPB's Committee on Public Affairs member **Roger Innes** called for basic research on plants to increase biofuels production in a presentation to the USDA-CSREES Stakeholders' Workshop on Plants and Pest Biology in November 2005, an effort coordinated by ASPB. In addition to cellulose-based ethanol, and other alternative fuels, Roger mentioned opportunities in research on switch grass. He said that attendees would likely be hearing more on switch grass in the future, but no one could have predicted the topic would find its way into the State of the Union Address. *The Washington Post*, National Public Radio, and a number of other news outlets subsequently ran stories on the president's biofuels research comments. 

New for Plant Biology 2006

See us at the Hynes Convention Center, August 5–9, 2006!

- Registration opens Friday, August 4, 2006, at 6 p.m.
- Special travel deals with Continental Airlines and American Airlines
 - Optional tours of historic Boston
- Register by April 15th to take advantage of early bird fees!

Check it out at www.aspb.org/meeting/pb-2006

President Bush Expresses His Excitement About Research Leading to Plant-Based Fuels

After the State of the Union Address in which he called for research on plant-based fuels (see the story on page 12), President George Bush continued to address the promise of research in this area in public statements on two successive days.

Following are (edited) remarks on energy research related to plant-based fuels made by the president during a February 2 visit to 3M Corporate Headquarters in Maplewood, Minnesota:

Automobiles—if we want to get rid of dependence on oil, we've got to do something with automobiles. That's the place where we use a lot of oil. We've got to change how we drive. We've got to change how cars are powered. This administration has done some things on CAFE standards, but that recognizes that we're still dependent on oil to manufacture our fuel. What I'm interested in doing is providing alternative choices for the consumers, like ethanol, or plug-in hybrid vehicles. We're close to some breakthroughs on battery technologies, that I'm sure some of you know about, to make these hybrid automobiles even better and more cost-effective for the American consumer.

I'm excited about ethanol. We've been making ethanol out of corn, mainly. But now we've got a chance, with breakthroughs in research and development and new technologies, to make ethanol out of switch grass or wood products or weeds. And we're close. As I said the other night in the State of the Union, within six years this kind of fuel ought to be competitive with gasoline.

Now, people say, that's fine, how about the automobiles? Well, I had an interesting experience. I went down to Brazil and saw President Lula. I don't know if you know this, but the vast majority of fuel used by the cars in Brazil is made from sugar. And guess who makes the cars that run on sugar? General Motors. So the technology is available for



President Bush at 3M headquarters in Minnesota, February 2, calls for additional research funding that will lead to more cost-competitive plant-based fuels. White House photo by Eric Draper

flex-fuel automobiles. As a matter of fact, I am told there's over 4 million flex-fuel automobiles operating in the United States today. And so the hope is, and the belief is, that we will have a breakthrough in these cellulosic technologies. The car industry already has the capacity to manufacture automobiles that can burn that stuff.

People may say that if you can get the technology and you've already got the cars, why will it take until 2025 to reduce—significantly reduce—dependence on the Middle Eastern oil? The answer is, we've got a lot of automobiles, and it takes a while for the fleet to turn over. Things just don't happen instantly when it comes to an automobile fleet.

So—what I'm telling the American people is, research is going to lead to an important breakthrough here, when it comes to our energy. I'm confident that we'll be able to say to the American people when this research is complete that the United States is on its way to no dependence on oil from the Middle East.

This is by far the most engaged and supportive we've seen any president in memory

(likely in all history) in speaking on the need for research to produce discoveries in plant-based fuels.

Bush's remarks also prompted subsequent media coverage on the subject and a broader public understanding of the extraordinary potential for research leading to plant-based fuels.

ASPB has conducted a campaign for the past year in meetings with the White House, Department of Energy, Department of Agriculture, National Science Foundation, congressional offices, and others on the opportunities offered in basic plant biology and microbiology to produce plant-based fuels. ASPB cited the benefits for the national economy, balance of trade, America's agriculture sector, and national security.

Former Central Intelligence Agency director Jim Woolsey has also been advocating a move to plant-based alternative fuels as a matter of national security. Woolsey cited the perils of increasing dependence on oil imported from certain nations unfriendly to the United States. 

DOE 2007 Budget Requests \$35.7 Million for Energy Biosciences

The Department of Energy's Office of Basic Energy Sciences' Energy Biosciences budget is increased to \$35,789,000 in the president's FY2007 budget request.

The budget request for Energy Biosciences is contained under "Molecular Mechanisms of Natural Solar Energy Conversion" and "Metabolic Regulation of Energy Production," the same names used last year for the two parts of the Energy Biosciences program.

A reading of the FY2007 budget request for Energy Biosciences appears to indicate that the program will continue as a basic biology program while also having recommended interface with the physical sciences. Funds for research related to the hydrogen economy, biophysical characterization of biomolecular complexes, chemical imaging,

emergent behavior, and solar energy conversion are listed as supported by additional funds under the explanation of funding changes. ASPB will interact with the new program manager who conducts the Energy Biosciences program.

This was the last budget request for Energy Biosciences prepared by **Walt Stevens**, who retired in early February as director of the Division of Chemical Sciences, Geosciences and Energy Biosciences. **Mike Kahn** is on detail through June to run the program. He is working with ASPB Past President **Roger Hangarter**, who has volunteered to run panels considering the 2006 grant applications to the Energy Biosciences program.

Walt Stevens's success in finding Mike Kahn, Kahn's willingness to serve as a

designee, the hiring last year of an administrative assistant for Energy Biosciences, Roger Hangarter's assistance with the upcoming panel, and many other factors have helped make it possible to select and fund 2006 Energy Biosciences grant awards after major staff changes last year.

Patricia Dehmer, who heads the Office of Basic Energy Sciences, has offered important support for continued staffing of the Energy Biosciences program. A permanent program manager, who is believed to have a background in plant biology, has been chosen and will start in March. His name is not being released at this time, pending his arrival.

Thanks to all who worked in support of the program this past year. 

President Requests \$6 Billion for NSF, \$608 Million for NSF-BIO

The FY2007 budget request for the National Science Foundation seeks an increase of \$439 million, or 7.9 percent, to \$6 billion. The increase reflects a 10-year doubling effort for NSF and other agencies as part of the American Competitiveness Initiative that President Bush announced in the State of the Union address.

For the NSF Directorate for Biological Sciences (BIO), an increase of \$31 million, or 5.4 percent, to \$608 million is requested. An increase of \$2.5 million, or 2.5 percent, is requested for the Plant Genome Research Program.

Within the BIO directorate, the overall increase in the budget request is 5.4 percent. The largest increase within BIO is requested for Emerging Frontiers at 22.7 percent, although the increase is 13.7 percent when

taking into account shifting of centers between divisions. The increase for Molecular and Cellular Biosciences is 2.7 percent. Integrative Organismal Biology is up 0.3 percent, although the increase is 4.3 percent when taking into account shifting of centers between divisions. Biological Infrastructure is up 5 percent. Environmental Biology is up 2.7 percent (however, the increase is 6.1 percent when accounting for shifting of centers between divisions). The Plant Genome Research Program is up 2.5 percent in the request.

We have requested more information to determine funding levels for the 2010 Project.

"This is a great day for NSF, and that means a great day for the nation," said NSF Director **Arden Bement** at the budget roll-out February 6. "America's leadership

depends more and more on the quality of our new ideas—the vitality of our science and engineering workforce—and the innovative use of new knowledge generated through research and education. With today's intense global competition for ideas and talent, for comparative advantage, and market opportunities worldwide, we must keep the momentum of leadership moving forward. The president's budget submission for NSF aims to do just that, and I am delighted to bring you the good news."

The overall Research and Related Activities account is up 7.7 percent. Education and Human Resources is up 2.5 percent. Major Research Equipment and Facilities Construction is up 26 percent. Salaries and expenses are up 14.2 percent. 

2007 Budget Seeks Boost for NRI, Increased Competition in Formula Funds, ARS Reduction

The FY2007 budget request for the U.S. Department of Agriculture seeks an increase of \$66 million (to \$247 million) for the National Research Initiative Competitive Grants Program (NRI). A portion of this increase would come from the transfer of selected integrated research activities into the NRI. Congress rejected the proposed transfer in 2006.

In the FY2007 budget request, formula grants would receive funding approximately level with that of the current year. The exception is for animal health, which would fall to zero from the current \$5 million. Hatch formula grants would be modified by expanding the multistate research programs to approximately 55.6 percent from the current base of about 25 percent. A portion of these funds, about 35 percent, would be redirected into nationally competitively awarded multistate, multi-institutional projects in the first year. Remaining multistate funds would be phased into competitive grants over a four-year period.

The request would also modify the McIntire-Stennis formula program by creating a multistate research program supported by about 59 percent of total funding. All McIntire-Stennis multistate funds would be distributed through competitive grants in 2007.

The president's FY2007 budget request for the Agricultural Research Service (ARS) is slightly more than \$1 billion, a net decrease of \$122,615,000, or about 11 percent from FY2006.

The FY2007 budget request for ARS includes (1) proposed funding increases for new and expanded research initiatives, \$57.7 million; (2) proposed program redirections from ongoing base resources to enhance priority research objectives, \$49.1

million; (3) pay cost request, \$15.4 million; (4) reprogramming recommendations to transfer resources from existing locations in support of priority research needs, \$3.1 million; and (5) similar to prior years, proposed project terminations, \$195.7 million.

Of the increase and redirection proposals for new and enhanced research (items 1 and 2 above), \$48.2 million is in support of the federal government's initiative to strengthen the nation's homeland security, according to ARS administrator **Ed Knippling**. Homeland security research is in the areas of food safety and emerging and exotic diseases of animals and crops and for the National Plant Disease Recovery System. ARS is also proposing new and expanded initiatives including bovine spongiform encephalopathy, invasive species of animals and plants, nutrition and obesity, research on genetics and genomics, bio-based products and bioenergy, air and water quality, and climate change. The agency is also requesting increases for the National Agricultural Library and information technology.

Revisions to the budget request are expected in Congress, where the ARS budget has been increased above the request level in recent years. 

Future ASPB Annual Meeting Sites

2006: Boston, Massachusetts

August 5-9

Hynes Convention Center

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



Photo Credit: Greater Boston Convention & Visitors Bureau

2007: Chicago, Illinois

July 7-11

Hilton Chicago

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

Plant Biology 2008

to be determined

Plant Biology 2009

Honolulu, Hawaii

July 18-22

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

USDA, DOE Coordinate Research on Microbial and Plant Genomics, Including Soybean

The U.S. Department of Agriculture (USDA) and Department of Energy (DOE) announced in January that they will share resources and coordinate the study of plant and microbial genomics. The Department of Energy will sequence the soybean genome as the first project resulting from the agreement.

“This agreement demonstrates a joint commitment to support high-quality genomics research and integrated projects to meet the nation’s agriculture and energy challenges,” said **Dr. Colien Hefferan**, administrator of USDA’s Cooperative State Research, Extension and Economics Service (CSREES), who signed the agreement for USDA.

“Both agencies will leverage their expertise and synergize activities involving agricultural- and energy-related plants and microbes,” said **Dr. Ari Patrinos**, DOE’s associate director of science for Biological and Environmental Research (BER). “We will enhance coordination of proposed sequencing projects through the Biological and Environmental Research Microbial Sequencing Program or the Joint Genome Institute’s Community Sequencing Program.”

USDA and DOE will establish a framework to cooperate and coordinate agency-relevant plant and microbial genome sequencing and bioinformatics that can serve the needs of the broader scientific community and solve problems that are important to each agency’s mission. This agreement could help speed the deployment of emerging technologies, such as improved methods of gene identification and sequence assembly.

The DOE Joint Genome Institute (DOE JGI) will sequence the genome (decode the DNA) of the soybean, *Glycine max*, the world’s most valuable legume crop. Soybean is of particular interest to DOE because it is the principal source of biodiesel, a renewable, alternative fuel. Biodiesel has the highest energy content of any alternative fuel, and

is significantly more environmentally friendly than comparable petroleum-based fuels because it degrades rapidly in the environment. It also burns more cleanly than conventional fuels, releasing only half the amount of pollutants and reducing the production of carcinogenic compounds by more than 80 percent.

More than 3.1 billion bushels of soybeans were grown in the United States on nearly 75 million acres in 2004, with an estimated annual value exceeding \$17 billion—second only to corn and approximately twice the value of wheat. The soybean genome is about 1.1 billion base pairs in size—less than half the size of the maize or human genomes.

“The soybean represents an excellent example of how DOE JGI is playing a key role in ‘translational genomics,’ that is, applying the tools of DNA sequencing and molecular biology to contribute to developing new avenues for clean energy generation and for crop improvement,” said DOE JGI director **Dr. Eddy Rubin**. “Effective application of translational genomics to soybean requires detailed knowledge of the plant’s genetic code. With this starting material in hand, researchers in academia, industry, and agriculture will be better positioned to optimize soybean for the broadest range of uses.”

ASPB has been working with DOE and USDA officials in support of increased basic plant and microbial research to help address the nation’s urgent need for domestically grown biofuels. **Sharlene Weatherwax** and



Mature soybeans. Photo credit: USDA-ARS, photo by Scott Bauer

Ari Patrinos with DOE-BER, and **Ed Kaleikau**, **Anna Palmisano**, and Colien Hefferan of USDA-CSREES conducted successful efforts in this new plant and microbial research initiative. (Patrinos has since retired from DOE to work with **Craig Venter**.)

The DOE Joint Genome Institute, supported by the DOE Office of Science, unites the expertise of five national laboratories (Lawrence Berkeley, Lawrence Livermore,

Los Alamos, Oak Ridge, and Pacific Northwest), along with that of the Stanford Human Genome Center, to advance genomics in support of the DOE mission related to clean energy generation and environmental characterization and clean-up. JGI’s Walnut Creek, California, Production Genomics Facility provides integrated high-throughput sequencing and computational analysis that enable systems-based scientific approaches to these challenges.

CSREES advances knowledge for agriculture, the environment, human health and well-being, and communities by supporting research, education, and extension programs in the land-grant university system and other partner organizations. 🌱



Education Foundation Grant Awards Program 2005 Awardees Selected

In its second year, the ASPBF Education Foundation Grant Awards Program has selected four projects totaling \$71,820. The grantees hail from the University of Maine, the University of California at Berkeley, Purdue University, and the Danforth Plant Science Center in St. Louis, Missouri. Each project was chosen through merit-based selection by the Foundation's board of directors. Board members remarked on the high quality of the many proposals submitted and the difficulty in selecting just four winners.

Disseminating Educational Resources Submitted by Peggy G. Lemaux

The Education Foundation has awarded University of California at Berkeley cooperative extension specialist **Peggy G. Lemaux** \$1,820 to continue her efforts to educate the public about the importance of plants in advancing food science.

With a 2004 GAP grant from ASPBF, Peggy developed educational baseball-type cards and exhibits that were showcased at county fairs, professional organizations, and student gatherings. The success of the program has been overwhelming, and there is now a waiting list of organizations wishing to borrow the displays. This past year a new educational game was added to Peggy's project. *Tic, Tac, Grow* was developed by graduate students to teach K-7 teachers and students about plants—what they look like and how important they are to the way we live. The interactive nature of the game both teaches and entertains. The grant will pay for postage to send these materials to organizations that cannot afford the shipping cost.

Taking Solar-Powered Sea Slugs into the Classroom

Submitted by Mary E. Rumpho-Kennedy

University of Maine professor **Mary E. Rumpho-Kennedy** will be teaching students about photosynthesis and symbiosis by using solar-powered sea slugs. Her previous work has shown that students are more eager to learn about plant biological processes because of these novel creatures.

Mary says the fascination with the creatures, *Elysia chlorotica*, is prompted by their resemblance to "crawling leaves." They are similar in shape to a dicot leaf and are brilliant green. This color is the result of chloroplasts

taken from an alga. Although it is not fully understood how the sea slugs acquire the organelles, once they are ingested they function much like they would in plant cells.

Two objectives of the project are to create color pamphlets and exhibits demonstrating the functions of chloroplasts and to disseminate them widely to students of all ages. Mary also will partner with her university's Bio New Media Laboratory to create interactive multimedia educational materials that will be accessible through the Internet and eventually on CD-ROMs.

Recent research also has allowed her to deliver a hands-on learning experience to more students. For the first time last year she was able to culture sea slugs in the lab, increasing the number available that could be sent to science teachers to use as teaching tools. Previously her research relied on collected specimens, limiting the number of students who could participate.

Part of the \$10,000 grant will go toward finding more effective ways of cultivating slug eggs in the laboratory. Mary wants to create Sea Slug Kits that can be sent to classrooms for display and teaching. The kits will be designed so that students can witness growth from egg to mature specimen. In the long run, she hopes that students will not only learn about how chloroplasts function, but through their own observations also help explain the mechanism through which sea slugs acquire chloroplasts.

continued on next page



Top: Peggy G. Lemaux, University of California; center left: Mary Rumpho-Kennedy, University of Maine; center right: David Salt, Purdue University; bottom: Terry Woodford-Thomas, Danforth Plant Science Center.

continued from page 17

Genomics Revolution Unlocked

Submitted by David E. Salt

With this year's grant, Purdue University professor **David E. Salt** will be creating a three-dimensional, interactive exhibit to demonstrate the benefits of plant genomics for agriculture, human health, and the environment. *Genomics Revolution Unlocked* aims to set straight any misunderstanding the public has about the risks and benefits of modifying genetic makeup.

David and his team will be constructing a large-scale plant cell through which visitors will walk while having virtual control over environmental stressors. As participants introduce outside environmental pressures, such as salinity, toxic metals, and bacteria, into the surrounding environment, they will see firsthand how the cell's biological processes are affected.

Exhibit information will explain the connection between daily human activity and the increasing introduction of these factors into the environment. Likewise, visitors will

learn how adding or "turning off" some genes will improve the plant's ability to survive. The consequence of which is improved opportunities to increase food production and enhance medical research.

Specifically, David's \$30,000 grant will be used to purchase special-effects equipment and a computer capable of developing and running new interactive software. Possible venues for the exhibit include Indiana State Museum, Fort Wayne Science Center, Evansville Museum of Art and Science, and Purdue's Bindley Bioscience Center. Eventually it will be a traveling exhibition.

The National Science Foundation Arabidopsis 2010 program is also helping to fund the project.

A Multi-Dimensional Walk-in Model of a Plant Leaf

Submitted by Terry Woodford-Thomas

Visitors to the St. Louis Science Center (SLSC) will someday walk through a fully functioning plant leaf, thanks to the ingenuity of **Terry Woodford-Thomas**, a scientist at the Danforth Plant Science Center (DPSC). The part-

nership of the two centers brings together the expertise of more than 250 scientists at DPSC and the innovative exhibit and science communication capabilities of SLSC.

Exhibit visitors will experience a plant like never before, from entering through the petiole to standing underneath a chloroplast as light intensity changes to mimic the sun. The exhibit will demonstrate biological processes such as converting light into chemical energy, uptake of water and nutrients, respiration, and defense mechanisms.

Terry expects that as the museum-goers better understand the complexity of plants, they will gain a greater appreciation for them. In particular, the project aims to teach the public about how plants may resolve some of the problems humans face. Potential benefits include increasing pest and drought resistance for food crops, developing alternative fuels, and finding better medicines.

The \$30,000 ASPB grant, along with private donations, will be used to build a prototype of the exhibit. The goal is to have the exhibit completed within three to four years. ☘



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The Plant Cell (www.plantcell.org) and *Plant Physiology* (www.plantphysiol.org), ASPB's premier plant science journals, now allow you to save any figure as a PowerPoint slide! This free feature is available for all articles published since 1998.

From the full-text (non-PDF) version of an article, click to "View larger version" of a figure. Then click the button marked "PowerPoint Slide for Teaching." The slide will include the full bibliographic citation of the article in which the figure was published.

We hope that you enjoy this new feature and that it enhances the teaching of plant biology in your classroom.



Compiled and edited by Lawrence R. Griffing, Texas A&M University, Department of Biology, College Station, TX 77843; griffing@neo.tamu.edu

Plant Science Education Goes Interactive in a New Online Outreach Program

“Having scientists comment on our project was cool,” said Sean, a Pershing County High School student in Lovelock, Nevada. Sean is one of many students excited by being part of a scientific community for the first time. Classrooms around the country can now share information and ideas with peers and plant scientists as they investigate plant biology in a new web-based learning community called “Scientific Inquiry through Plants.”

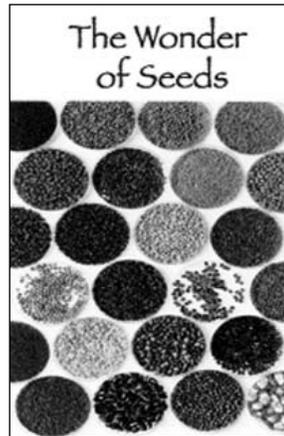
Combining online mentorship by plant scientists and hands-on inquiry projects, the program makes science relevant and exciting as students get to know leading scientists and experience the adventure of doing real science. Students work in small cooperative groups to design and run experiments centered on a common theme, such as seed germination or photosynthesis. They post their research journals on the project website (www.plantbiology.org) and “think aloud” about their observations, results, and evaluation of the evidence. “Scientific Inquiry through Plants” supports both students and teachers with resources to deepen their conceptual understanding of plant biology and to enhance the quality of their experiences with scientific inquiry.

The Botanical Society of America (BSA) and ASPBE are partnering with K–12 educators, science education researchers, and other plant societies to develop this plant-based participatory science program. Plants are ideal, though often overlooked, organisms for inquiry-based science education. “Scientific Inquiry through Plants” merges the strengths of these partners to enhance interactions between research and education and to develop flexible, field-tested instructional designs and professional development activities that incorporate proven teaching and learning methods. By building on the online scientific community, the project can reach many underserved populations who have few opportunities to interact with scientists.

A key feature that sets “Scientific Inquiry through Plants” apart from most other web-based outreach efforts is the connection among students, teachers, and scientist mentors. Mentorship has the potential to make classroom learning more meaningful and to inspire lifelong learning. Encouraging curiosity, motivating effort, deepening understanding—the positive outcomes are many and meaningful. Online conversations with scientist mentors provide insight to what scientists know and how they think and help students develop scientific reasoning skills. Across all education levels, educators are striving to find better ways to develop these skills and teach science content in context.

Some 500 students, eight teachers, and 40 science mentors have participated thus far. The pilot projects, based on a Wonder of Seeds Inquiry, rolled out in 2005 with student teams in middle school through college designing investigations on seed germination and seedling growth. “I think students are motivated by the inquiry itself and by the sharing of information with scientists and peers that are sincerely interested in their research and give thought-provoking feedback necessary to guide the individual teams through the scientific process throughout the inquiry,” said **Carol Packard**, life science teacher at Sisters Middle School in Sisters, Oregon.

Following the successful pilot projects, the “Scientific Inquiry through Plants” program is gearing up for fast growth. Additional units are in development, and release of a photosynthesis unit currently being field-tested is anticipated in fall 2006. New inquiries use the seed inquiry as a springboard to broad topics that encompass all basic plant biology con-



cepts for K–12 science education, as outlined by ASPBE’s “Principles of Plant Biology” (which are aligned to the National Science Education Standards).

Members of both BSA and ASPBE are volunteering as scientist mentors, and crossover members of both societies are part of the advisory committee overseeing development of the project.

The program is beginning to attract significant attention. During the five short months the website was live in 2005, it received 781,034 hits from far-flung regions of the world as well as the United States. Links from well-respected educational websites, such as that of the American Institute of Biological Sciences (<http://www.actionbioscience.org/education/hershey3.html>), have raised the project’s visibility, as have presentations to the National Association of Biology Teachers.

We hope to welcome many new members of ASPBE, and other scientific societies, to the growing list of mentors. Online mentoring offers great rewards for a small investment of time (about one hour a week when student investigations are running). This is a timely opportunity to bring together plant scientists from diverse settings in a united effort to effect change in science education. “Programs like this have the real potential for improving science literacy,” said **Peter Raven**, director of the Missouri Botanical Garden, Engelmann Professor of Botany at Washington University in St. Louis, and BSA past president.

To learn more, go to <http://www.plantbiology.org> or contact **Claire Hemingway**, PhD, education director for the BSA, at chemingway@botany.org.

Informal Science Education and You

In Seattle last year I greatly enjoyed the fantastic array of plant biology on display at the ASPB annual meeting. And trying hard not to be distracted by the great coffee, seafood, sights, and smells of the Pike Street Market, I was delighted to be involved in running a workshop on Informal Science Education (ISE). The speakers included Rebecca Holmquist (VP/director of programs, Minnetrista Cultural Foundation, Muncie, Indiana), Jon Bricker (senior designer and coordinator, exhibit design and production, Agricultural Communications, Purdue University), Roger Hangarter (Department of Biology, Indiana University), Emily Farrer (outreach director, Living Planet Aquarium, Salt Lake City, Utah), Margaret Corbit (research outreach, Cornell Theory Center, Cornell University), and Jeremy Friedberg (vive Technologies, Inc., Toronto, Ontario). But before I go on, why don't I explain briefly what informal science education is?

Well, in the words of the National Science Foundation (NSF), "Informal Science Education activities provide rich and stimulating opportunities outside formal school settings, where individuals of all ages, interests, and backgrounds increase their appreciation and understanding of science. Informal Science Education projects take place in diverse environments (e.g., museums, community centers) and involve the use of various media (e.g., broadcast, film, interactive technology, print, and exhibits)."

The ASPB workshop in Seattle was designed to present members with a flavor of the type of ISE that they could become involved with. Speakers addressed the role of museums in developing ISE through partnerships with university teachers (Rebecca Holmquist), through large interactive 3D exhibits (Jon Bricker), and through art exhibits based on plant biology (Roger Hangarter). Also described were novel school outreach programs (Emily Farrer) and computer-based interactive virtual plant science exhibits (Margaret Corbit and Jeremy Friedberg). The

workshop was well attended. Although numbers did fluctuate downward as the night wore on, the room was packed to hear Roger Hangarter speak about his *sLowlife* project, a traveling exhibit of plant science and art that is now showing at the U.S. Botanic Gardens, Washington, DC. The exhibit is a fantastic example of how we need to put the art back into science.

The questions and conversations that sprang up during and after the talks suggested that audience members were wondering if they should get involved in such projects, and if so, how they could do it. From the opening remarks of the workshop, ISE was framed as a supplemental activity that plant biologists could get involved in to further our responsibility to help educate the public about plants and the critical role they play in maintaining the planet we call home.

Perhaps more pragmatically, outreach and engagement with the larger community are now significant objectives of all NSF grants. As researchers we strive to put together interesting "criteria 2" projects that go beyond the simple show-and-tell models that a lot of us have used in the past for our outreach component. This workshop on ISE grew out of a genuine desire to develop an alternative vehicle for meeting the outreach component of NSF grants—outreach that not only connected our science to a larger audience, but that did it in a way that also enriched the very science it was describing. From these initial thoughts the idea arose that we could develop ISE projects that parallel our own research. Such projects would be fundable through NSF and other agencies and would give us the opportunity to try new forms of communication, ones that involve museums and art galleries, new media, and novel forms of expression. In short, getting us out of the classrooms, lecture theaters, and laboratories and exposing us to the community—our true patrons. 🌿

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Important Dates in 2006

April 14

Early registration cutoff for
Plant Biology 2006

April 8-9

Northeastern Section
Annual Meeting
Smith College
Northampton, Massachusetts

May 2

Abstract deadline for
inclusion in Plant Biology 2006
program book

June 15

Pre-registration cutoff for
Plant Biology 2006

July 1

Housing cutoff for
Plant Biology 2006

August 4 and 8

Executive Committee Meetings
Boston, Massachusetts

August 5-9

Plant Biology 2006
Boston, Massachusetts

September

(date to be determined)
Mid-Atlantic Section Crab Feast
ASPB headquarters
Rockville, Maryland

October 10-14

The Biology of Transpiration:
From Guard Cells to Globe
Snowbird Mountain Resort, Utah



Obituary

Ann Oaks

Dr. Ann Oaks died Friday, January 13, at the age of 76.

Ann was an amazing plant physiologist, a devoted member of the American Society of Plant Biologists, and a major benefactor of the Canadian Society of Plant Physiologists/La Société Canadienne de Physiologie Végétale (CSPP-SCPV). Raised in

Port Arthur, Ontario, Canada, she is remembered as an excellent swimmer and good skier, who was active in many other sports. Her lifelong fascination with nature drove her to become one of the first female firewatchers, a job that gave her ample opportunity to gather and identify local flora and fauna. Ann's interest in biology led to a BA (Honors Biology) from the University of Toronto in 1951, and to MA and PhD degrees from the University of Saskatchewan in 1954 and 1959, respectively. She visited the far north and was captivated by it, working for a year in Churchill, Manitoba.



Most of her research career was spent as a faculty member in the Department of Biology at McMaster University, Hamilton, Ontario (1965 to 1989, emeritus), and as adjunct faculty in the Department of Botany at the University of Guelph in Ontario (1989 to 1999). Her research focused on plant nitrogen metabolism, primarily in

maize seedlings, and the quality of her research gained her international respect. She developed and cherished working relationships and friendships with scientists from India, Japan, Europe, and across North America. Her work not only pushed forward the understanding of the physiology of plant growth but also helped open doors for women who followed in her footsteps.

Ann was made a fellow of the Royal Society of Canada in 1986, and received the Gold Medal from the CSPP-SCPV in 1988. Her prominence and leadership in plant physiology were recognized through an invitation to

describe her career in a prefatory chapter for the *Annual Reviews of Plant Physiology and Plant Molecular Biology* (Oaks, A. 2000. Fifty years of plant science: Was there really no place for a woman?, 51:1–16).

She passed on her passion for plant physiology and biochemistry to both undergraduate and graduate students, encouraging them to question and challenge ideas. Her interests were widespread, from fighting against the untested introduction of genetically modified crops to collecting Inuit art. In later years she did not let the frailty of her body slow her down. She was awarded a DSc from McMaster in 2004 and was recognized as a Woman of Distinction for lifetime achievement by the Guelph YWCA. She was a supporter of many charities, and her generous contributions to the CSPP-SCPV led to the establishment of the Ann Oaks Scholarship Fund.

Readers are welcome to make a donation to the charity of their choice in memory of Ann. A memorial service will be held later this year. 🌿



New Staff



Elizabeth Daerr

Elizabeth Daerr has been hired as the new Education Foundation assistant. She previously worked at the National Parks Conservation Association as news editor of the organization's national magazine and wrote grant proposals and reports for major donors.

A native of Pennsylvania, Elizabeth considers herself a Westerner at heart, having lived seven years in Boulder while working on her degree in journalism at the University of Colorado. Family ties brought her back East, and she came to Washington, D.C., after winning a political writing internship at the *Wall Street Journal*.

In the past three years, Elizabeth has had the opportunity to explore some of her many interests. She has worked as a veterinary technician and as an exercise coach for a homebound stroke patient. During much of that time she also took college science classes. In addition to ASPB, she works one day a week in the greenhouse of a commercial garden center.

Elizabeth lives in Washington with her husband, two rescued cats, and an energetic Vizsla puppy. 🐾

The Biology of Transpiration: From Guard Cells to Globe

Snowbird Mountain Resort, Utah, October 10–14, 2006

Organizers: Sally Assmann, Steve Long, and Keith Mott
<http://www.aspb.org/meetings/transpiration06/>



There have been a number of successful meetings on stomata in past years, starting with an SEB symposium in Lancaster in 1979, followed by meetings in Hawaii (1983), an FESPP workshop in East Berlin (1989), an SEB-sponsored symposium in Canterbury in 1997, and a meeting sponsored by *New Phytologist* in Birmingham in 2001. The upcoming 2006 meeting will continue and expand that tradition, using the topic of transpiration as a focal point. During the past five years, there have been rapid advances at several organizational levels in the understanding and measurement of the biology of transpiration. These areas have developed separately, yet each has major implications for the others. To catalyze needed interactions among scientists working in diverse areas, all aspects of water transport will be covered at levels that span from gene expression to global modeling, including

- root water uptake
- regulation of water flow by aquaporins
- long-distance transport and xylem hydraulics
- guard cell physiology and development
- mechanisms controlling transpiration from the leaf to the globe.

A goal of this meeting is to bring together outstanding scientists from around the globe who might not otherwise meet. To provide the participants with an intimate retreat-like atmosphere for debate and interaction, the meeting will be limited to approximately 200 participants. The meeting will include invited talks, talks chosen from abstracts, and poster discussions; each day's program will cover topics at several organizational levels.

Invited Speakers and Tentative Titles

A Genomics Approach to Understanding Guard Cell Development

Dominique Bergmann
Stanford University, USA

The Stable Isotopic Signature of Stomata in the Atmosphere

Joseph Berry
Carnegie Institution, USA

Vesicle Trafficking and Ion-Channel Regulation in Guard Cells

Michael Blatt
University of Glasgow, UK

Stomatal Behavior in Photosynthetic Mutant

Susanne von Caemmerer
ANU, Australia

Root Signaling of Water Status

William Davies
Lancaster University, UK

Revisiting Optimization Theory and Transpiration Efficiency

Graham Farquhar
ANU, Australia

Stomata, Evapotranspiration, and Atmospheric Change

Carl Bernacchi
ISWS/University of Illinois, USA

Rising Tropospheric Ozone: The Role of Stomata in Mediating Damage

David Fowler
Centre for Ecology and Hydrology, UK

Signaling Networks in Guard Cell Responses to ABA and CO₂

Alistair Hetherington
Lancaster University, UK

Guard-Cell Electrophysiology in the Intact Leaf

Rainer Hedrich
University of Würzburg, Germany

The Interplay Between the Xylem and Transpiration

N. Michele Holbrook
Harvard University, USA

Remote Sensing of Stomatal Behavior from Leaf to Landscape

Hamlynn Jones
University of Dundee, UK

Aquaporins and Water Transport Through Roots

Christophe Maurel
INRA/CNRS, France

Functional Adaptation of Transpiration to Past Climates and Atmospheres

Jennifer McElwain
The Field Museum, USA

Landscape–Atmosphere Exchanges: The Role of Stomata

Russell Monson
University of Colorado, USA

Division Regulation in Arabidopsis Stomatal Development

Fred Sack
Ohio State University, USA

The Genomics and Cell Biology of Guard Cells

Julian Schroeder
UCSD, USA

Blue Light Regulation of Stomatal Function

Ken-ichiro Shimazaki
Kyushu University, Japan

Coordination of Stomatal and Xylem Function

John Sperry
University of Utah, USA

Vegetation Dynamics and the Role of Stomata

F. Ian Woodward
Sheffield University, UK

Plant Biology 2006

Joint Annual Meeting

OF THE

American Society of Plant Biologists

AND THE

Canadian Society of Plant Physiologists
Soci t  Canadienne de Physiologie V g tale

SYMPOSIA

Plants Mitigating Global Change
Stephen P. Long, University of Illinois

Legumes: Genomes to Biology
Douglas R. Cook, University of
California, Davis

Ion Channels and Cellular Signaling
Julian I. Schroeder, University of
California, San Diego

Gibbs Medal Symposium: Genome Scale Biology
Joseph R. Ecker, The Salk Institute

President's Symposium: Plant Responses to the Environment
Michael F. Thomashow, Michigan State University

CSPP President's Symposium: Tree Physiology and Genomics
Robert D. Guy, University of British Columbia

For more information contact the
American Society of Plant Biologists
telephone: 301-251-0560
fax: 301-279-2996
e-mail: info@aspb.org
<http://www.aspb.org/meetings/pb-2006>

Boston
Massachusetts

Hynes Convention Center
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All other questions											●			
<i>The Plant Cell</i> (except missing issues)														
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Accounts payable/receivable problems				●										
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