

ASPB News



THE NEWSLETTER OF THE AMERICAN SOCIETY OF PLANT BIOLOGISTS

Volume 31, Number 2
March/April 2004

President's Letter

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Editor-in-Chief Search

Plant Biology 2004
July 24–28!

SPRINGing into Action



Spring is often thought of as a time of renewal and new beginnings. In this letter I'd like to discuss three examples of beginnings and renewals at ASPB.

First, I am happy to report that our search for an executive director has successfully concluded with the hiring of Dr. Crispin Taylor. Crispin brings a unique combination of leadership, management, and publishing skills to the executive directorship. Although Crispin's appointment represents a new beginning, it also represents a renewal of a long association of Crispin with ASPB. Many of you may remember him from his days as the news and reviews editor for *The Plant Cell* and later the journal's managing editor, before he assumed his current position at the American Association for the Advancement of Science's NextWave. He is a card-carrying plant biologist, having completed his graduate training at the Michigan State University–Department of Energy Plant Research Lab under the direction of Pam Green and his postdoctoral research at the University of North Carolina with Ralph Quatrano. We will introduce Crispin more fully in the next issue of the *ASPB News*, so stay tuned. I would like to take this opportunity to thank the search committee for all their hard work, and I look forward to working with Crispin, who assumes his new duties April 13.

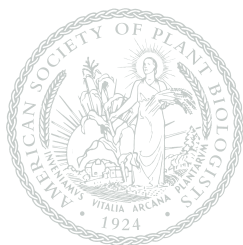
As Crispin prepares to take the reins at ASPB headquarters, Natasha Raikhel has announced her intention to step down as editor-in-chief of *Plant Physiology* when her term ends in June 2005. Thus, we are approaching a time of renewal both for Natasha and for *Plant Physiology*. Natasha has worked tirelessly to ensure *Plant Physiology*'s place as

one of the premier journals devoted to the publication of advances in plant science. She has partnered with members of the editorial board to introduce a number of exciting new features to the journal; it is no surprise that the journal's impact factor has risen significantly. A search is now under way for her successor; the full call for applications and nominations appears in this issue of the newsletter, as well as in the April and May issues of *Plant Physiology* and *The Plant Cell*. Please take a moment to reflect on where you would like to see *Plant Physiology* going in the next five years and help us identify the best person to take us there. We welcome (indeed, we actively solicit) nominations from the membership.

Finally, we are also approaching a time of renewal for the Society as a whole. I am hoping that the upcoming presidential election in the United States has everyone thinking "my vote does count"—remember what happened in Florida? You, the membership, have a critical role to play in the governance of your Society. Help keep ASPB strong and make your vote count by participating in ASPB elections. Ballots will be available online or mailed to you in late April. I want to encourage everyone to get involved and VOTE.

Still undecided about whether to attend the annual Plant Biology meeting in Orlando this summer? I can assure you that the Program Committee has put together an exciting set of sessions covering the breadth of plant biology. It is not too late to submit an abstract and register for the meeting. The searchable Plant Biology 2004 abstracts will be online by late April. I hope to see you July 24–28 at Disney's Coronado Springs Resort & Convention Center, Orlando, Florida.

Mary Lou Guerinot
guerinot@dartmouth.edu



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

ASPB Officers & Staff

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Deadline for July/August 2004
ASPB News: June 5, 2004

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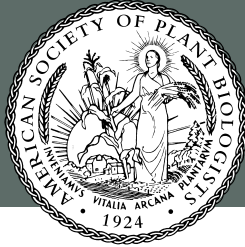
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Copy deadline is the 5th day of the preceding even-numbered month (for example, December 5 for January/February publication). Submit copy by e-mail whenever possible; submit all other copy by mail, **not by fax**.

Contact: Nancy A. Winchester, Editor, *ASPB News*, 15501 Monona Drive, Rockville, MD 20855-2768 USA; nancyw@aspb.org; 301-251-0560, ext. 117.

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Call for Applications and Nominations

Editor-in-Chief, *Plant Physiology*

The American Society of Plant Biologists is seeking a plant scientist to assume the duties and responsibilities of editor-in-chief of *Plant Physiology* effective July 1, 2005. The individual who takes the position must be able to make a commitment to the journal that will run through December 2010.

The mission of *Plant Physiology* is rapid publication of cutting-edge plant science research. The editor-in-chief must possess a broad knowledge of plant biology, provide a vision for the future direction of the journal, set journal editorial policy, select associate and monitoring editors, assign manuscripts to associate editors, serve as arbiter when publication decisions are in dispute, and work productively with staff to assure the efficient production of each month's issue.

To effect a smooth editorial transition, we plan to name a successor to the current editor-in-chief later in 2004. Individuals interested in either applying for the position or nominating a qualified individual are invited to send a letter of interest and résumé to the chair of the Publications Committee by **June 1, 2004**. Applicants should ascertain that their institutions will permit them to assume the duties and responsibilities of this position. A generous institutional allowance is provided for administrative support. Letters of nomination must indicate that the nominee is aware of and has approved his or her nomination.

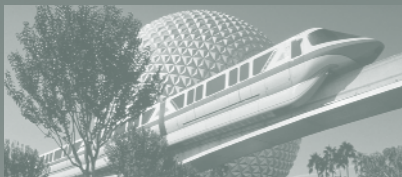
Applications and nominations will be evaluated by the Publications Committee, which plans to interview a short list of candidates in the summer. It is anticipated that the Publications Committee will present a list of finalists to the Executive Committee at Plant Biology 2004 in July. The Executive Committee will announce the name of the new editor-in-chief either at the meeting or shortly thereafter. The successful candidate must be prepared to assume the role of editor-in-chief no later than July 2005.

Submit applications or nominations for editor-in-chief of *Plant Physiology* no later than **June 1, 2004**, to Rob McClung, Chair, ASPB Publications Committee, Dartmouth College, Biological Sciences Department 6044, Gilman Lab, Hanover, NH 03755-3576.

Plant Biology 2004

July 24–28, 2004

Disney's Coronado
Springs Resort &
Convention Center
Orlando, Florida



Combine Cutting-Edge Plant Science with (Disney) World-Class Family Fun!

The Plant Biology 2004 meeting to be held July 24–28, 2004, at Disney's Coronado Springs Resort & Convention Center features great science for you and great fun for your family!

Plant Science Highlights

- ◆ Five major symposia:
 - President's Symposium, "From the Soil to the Seed," organized by Mary Lou Guerinot
 - Gibbs' Symposium, "Advances in Plant Reproductive Biology," organized by June Nasrallah
 - "Sensing and Responding to Water," organized by Keith Mott
 - "Tropisms," organized by Roger Hangarter (co-sponsored by *Plant, Cell & Environment*)
 - "Reactive Oxygen Species—Balancing Signaling and Stress," organized by Julia Bailey-Serres
- ◆ 28 minisymposia
- ◆ More than 1,000 posters
- ◆ 40 exhibitors and sponsors
- ◆ Numerous workshops, networking, and social events

Location Highlights (Disney's Coronado Springs Hotel in Disney World)

- ◆ Easy-to-navigate, single-level, one-site meeting location.
- ◆ Wireless Internet connections in public areas (small daily fee required).
- ◆ Housing for all attendees—including students and postdocs—located at the same Disney property. All sleeping rooms are in two- and three-story buildings surrounding a lovely 15-acre lake.
- ◆ Three restaurants, two bars, and a convenience store on the property.
- ◆ Guest rooms with coffee makers, ceiling fans, in-room safes, hair dryers, irons and ironing boards, data ports, and high-speed Internet access (for a daily fee).
- ◆ Health club, beauty salon, and business center onsite.
- ◆ Three swimming pools, including an expansive theme pool with a towering Mayan Pyramid featuring a waterslide.
- ◆ Convenient and complimentary motor coach connections to all Disney theme parks and resort hotels, shopping, dining, and entertainment venues.

Special Discounts on Theme Park Passes

- ◆ Must be purchased in advance through the Disney Discounts link on ASPB's Plant Biology 2004 web page: <http://www.aspb.org/meetings/pb-2004/>
- ◆ 10% discount on adult and child Park Hopper Passes for two to five days
- ◆ Special "after 2:00 pm" park entry, one- and two-day tickets
- ◆ "Charging privileges" for Coronado Springs guests at all Disney venues
- ◆ Special "behind the scenes" tour of Disney's greenhouses in Epcot Center's "The Land" Pavillion

We look forward to seeing you this summer in Orlando!



Jian-Kang Zhu Named Director of UCR IIGB

The Institute for Integrative Genome Biology (IIGB) at the University of California, Riverside (UCR), is pleased to announce the appointment of ASPB member Dr. Jian-Kang Zhu as director of IIGB, effective January 1, 2004. Zhu is an internationally renowned leader in plant science whose groundbreaking and revolutionary research has contributed greatly



Jian-Kang Zhu

to the genetic analysis and understanding of the mechanisms behind salt tolerance, drought, and low temperature stress in plants.

The IIGB mission is to foster at the UCR campus the unique and integrative approach of using genomics to ask and answer questions about biological systems (<http://genomics.ucr.edu>). IIGB is made up of several centers, including the Center for Plant Cell

Biology (CEPCEB), led by Natasha Raikhel (<http://www.cepceb.ucr.edu>). Zhu is a member of CEPCEB. In addition to his role as director of IIGB, he also serves as professor of plant molecular biology in the Department of Botany and Plant Sciences at UCR and holds a presidential chair. Zhu was selected as the 2003 winner of the Charles Shull Award

from ASPB; he was appointed a monitoring editor of *Plant Physiology* in 2000 and became an associate editor of the journal in 2004.

Prior to his appointment at UCR, Zhu was a professor in the Department of Plant Sciences at the University of Arizona. He joined the University of Arizona, Tucson, in 1996, where he became a full professor in 2000.

Zhu obtained a bachelor's degree (1987) in soil science from Beijing Agricultural University. Later, attracted to the field of biology, he studied at UCR for a master's degree in botany (1990) and then at Purdue University for a Ph.D. in plant physiology (1993).

ASPB Members Listed on ISIHighlyCited.com

The January/February 2004 issue of the *ASPB News* featured a list of ASPB members who appear on ISIHighlyCited.com.

Unfortunately, the names of several members were inadvertently omitted:

- J. Derek Bewley**
- Masaki Furuya**
- Dirk Inzé**

ASPB regrets the error.

Sam Sun Elected Member of Chinese Academy of Engineering

Dr. Samuel Sun, professor and chair, Department of Biology, The Chinese University of Hong Kong, has been elected a member of the Chinese Academy of Engineering, one of the highest academic bodies in China. Sun moved to the position in Hong Kong after serving on the faculty of the University of Hawaii for several years. He is a leader in plant molecular biology and biotechnology.

Sun has been an ASPB member since 1970, when he was a graduate student. He received his Ph.D. in 1974 from the University of Wisconsin–Madison, with Dr. Timothy C. Hall, working on seed storage proteins and cloning the phaseolin gene from French bean. He was a principal scientist and director of molecular biology at ARCO

Plant Cell Research Institute in Dublin, California, where he cloned and genetically engineered the Brazil nut methionine-rich protein gene for plant nutrition improvement from

1980 to 1987. After seven years as a professor in the Department of Plant Molecular Physiology at University of Hawaii–Manoa, he joined the Department of Biology at the Chinese University of Hong Kong in 1996, as professor of biology and chairman of the department. He is currently working on rice grain quality improvement.



Samuel Sun

Reminder!

In consideration of the low member subscription rates to the print versions of *Plant Physiology* and *The Plant Cell* and the free online access to both journals that all members enjoy, members agree to retain their personal copies of the journals for at least three years from the date of issue, not depositing them in any library or institution before the end of this time. Members also agree not to release their personal access code, assigned by ASPB, to any other party for the duration of their membership in ASPB. Thank you!

ASPB Membership Benefits: Are You Using Them?

As a member of ASPB, you are entitled to many benefits! Have you taken advantage of them?

Free electronic access to *Plant Physiology* and *The Plant Cell*

As a member you receive **free** electronic access to both *Plant Physiology* and *The Plant Cell*, including full text; all tables and figures; full-text searching by keyword; PDF integration (print out articles in the same format found in the printed journals); graphics expandable to two levels of enlargement; reference links to MEDLINE, ISI's Web of Science, and CrossRef; GenBank hyperlinks; fast international connectivity; and online reader help.

If you are not signed up to use this benefit, just pull out your member ID number and go to <http://www.plantcell.org/subscriptions/> and <http://www.plantphysiol.org/subscriptions/>. Click on "ACTIVATE Your Individual Subscription" and follow the instructions. If you have any questions, contact Kelley Noone at knoone@aspb.org.

Discounts on page charges to both journals

Corresponding authors who publish in *Plant Physiology* or *The Plant Cell* and who are ASPB members at the time their paper is accepted receive a \$10 per page discount on page charges.

Discounts with our corporate partners

ASPB corporate partners provide members with special discounts on their products and services. These partners are listed on the members-only web page. If you have suggestions for other partners who you would like to receive a discount from, please contact Kelley Noone at knoone@aspb.org.

Personal member web site with members-only content

When you log on to the ASPB web site, you'll get your own personal ASPB page with access to all members-only content, personal profile information and administration, and online tools such as My Links and Communities. Members-only content includes the database of plant biology resource links, the *ASPB News*, and Ecards (electronic greeting cards bearing images taken from *Plant Physiology* and *The Plant Cell*). Logging in is easy. Your user name is your member ID number, and your password is your e-mail address. If you have problems, contact Kelley Noone at knoone@aspb.org.

Awards for undergraduate and graduate students to attend national meetings

Travel grant awards are available for undergrad and grad students to attend national meetings. We are accepting applications now. Visit www.aspb.org for more information.

Discounts on registration fees for ASPB meetings

Members receive significant discounts on registration fees for Society meetings, including ASPB's major annual Plant Biology meeting. Visit www.aspb.org for more information.

An electronic directory that puts 6,000 members worldwide at your fingertips

The *ASPB Membership Directory* has alphabetic and geographic listings that include information on areas of specialization as well. The directory is available at the ASPB web page.


Prompt e-mails of funding initiatives and relevant developments on Capitol Hill

ASPB sponsors a cohesive effort to make educational communities, government officials, and the public aware of the benefits derived from the research and work of plant biologists. This program also coordinates the efforts of ASPB with related scientific professional societies.

Free résumé posting to Job Bank

You can post your résumé on the online Job Bank at no charge. ASPB's targeted Job Bank is the most highly accessed section of the web site.

Annual meeting opportunities

Members have the opportunity to present scientific posters or symposia at the annual meetings; have abstracts published by ASPB; participate in the exchange of the latest plant science data, techniques, and theories; network with colleagues; and obtain information on state-of-the-art products, services, publications, and equipment from exhibitors. Online abstract submission and registration are encouraged, and an online searchable index of abstracts is accessible on ASPB's web page prior to each year's annual meeting. 



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: Mary Williams
Title: Associate Professor of Biology
Place of work: Harvey Mudd College

Research area: Plant development and stress signaling

Member since: 1995

1. Has being a member of ASPB helped you in your career? If so, how?

Definitely. Being a professor in a small department in a small college is difficult. I don't have plant biologist colleagues down the hall whom I can go to with questions. ASPB provides me with that community.

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

For me, one of the most significant benefits is attending the meetings. As *the* plant biologist at my institution, I have had to develop a broader perspective of plant biology than I had as a graduate student or a postdoc. I like the diversity of talks and posters at the ASPB meetings. I also like socializing at the meetings, especially the PUI breakfast! In a larger sense, ASPB does a great job of supporting, connecting, and promoting us as plant biologists.

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

Bill Purves, whom I replaced at Harvey Mudd, suggested that ASPB membership would be worthwhile. As a new assistant professor it seemed like a financial strain the first time I wrote out the check, but I'm glad he got me started. I'm giving and getting something worthwhile for my membership dues.

4. What would you tell nonmembers to encourage them to join?

Think of it as 30 cents a day (or two lattes a month) to support a good organization. We all benefit from ASPB's efforts to promote meaningful plant biology curricula to K-12 teachers, continuing federal funding for research, and understanding of plant biotechnology.

5. Have you found a job using ASPB job postings or through networking at the annual meeting?

No.

6. Have you hired anyone as a result of a job posting at the meeting or on our online Job Bank?

No.

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

Yes, I get a lot out of the print journals. The online searching capabilities are wonderful, and the ASPB journals have some of the most user-friendly interfaces. But I like to browse the print journals when they come out. I

read the journals while I'm driving my kids around—this is LA you know. Just kidding! Actually I'm usually on my cell phone while I'm driving my kids around! I read the journals in bed.

8. What do you think is the next "big thing" in plant biology?

In vivo quantification of small molecules and metabolites, and modeling homeostasis.

9. What person, living or dead, do you most admire?

When I was in Washington, DC, last year, I visited Monticello and was amazed to learn more about Thomas Jefferson.

10. What are you reading these days?

I recently read *The Botany of Desire* by Michael Pollan, which was interesting but a little odd, and *Orchid Fever* by Eric Hansen, which I highly recommend.

11. What are your hobbies?

I have two little boys who play soccer in the fall and baseball in the spring. So the answer is either (a) I have no hobbies, or (b) my hobbies are watching baseball and soccer games.

12. What is your most treasured possession?

See answer to the previous question. Actually, my Arabidopsis mutant is pretty high on the list, too.

13. What do you still have left to learn?

Everything!



**15th Penn State Symposium in Plant Physiology: Regulation of Plant Growth
May 20-22, 2004**

Days Inn Penn State, State College, PA • <http://plantphysiology.cas.psu.edu>



The Bioethics Imperative XVI

Ethics and the Literature: Citations III

“Mokita”: The truth we all know and agree not to talk about.

Scenario: Gettin’ Frustrated is a researcher entering a new area. She has wonderful data that she thinks belongs in Nature or Science, but when she does a background literature search, she finds either too many articles or none at all. Plowing through the articles she does retrieve, she finds only vague mention of her topic or search terms in Introduction or Discussion sections. She wastes a lot of time reading nonrelevant or tangential literature. Although her article is drafted, she delays finishing it because she cannot face the reference conundrum in which she finds herself, and she does not know how to resolve the problem. Her progress falters, her guilt mounts, and her collaborators become disgruntled.

Gettin’ Frustrated needs to get help from a librarian (see the seventh bullet below)!

In this issue of “The Bioethics Imperative,” we share our conversations about guidelines for ethical citations of the literature. Our guiding principle is that one doesn’t have to know everything but should know **how to look** for it. There is a method for proceeding with literature searches just as there are methods for designing experiments. In other words, we should think of our literature searches as experiments that require careful thought, detailed crafting, and perhaps multiple experimental approaches.

- ◆ Be as specific as possible: If you’re looking for information on seals, don’t look under “fur-bearing animals.”
- ◆ In a retrospective search: If a topic simply disappears before a certain date, find out if the topic was called something different before that date. An example is AIDS (see Bioethics Imperative XV).

- ◆ Before citing a reference that you find in an article: Verify it by locating the actual article and reading it. You must assess the relevance of that reference to your work and the accuracy of your statements about that reference before you cite it. Although it is tempting to cite opinions or conjecture from the Introduction and Discussion of an article, be aware that unless cited properly, such statements can take on the status of actual data in subsequent publications.
- ◆ Whenever your search turns up a relevant article: Keep the complete citation or you’ll spend time looking it up again later, if it’s needed as a reference.
- ◆ Read the relevant references cited in 25 of the most important papers you find: This is a gold mine of what others have found in their literature searches, so read these first! In an analogy to doing forward and reverse genetics, you can do forward and reverse literature searching in two steps. Use the bibliographies of papers cited in the most important papers to find other references going back in time. Use e-journal web sites to search forward in time (click the button labeled “find articles that cite this article”) to find more recent articles that cite the most important papers.
- ◆ For publication, cite your references exactly as specified by the journal in its “Instructions to Authors.” For example, in the widely used “Vancouver style,” journals such as *Science* must be cited with both volume and issue number. Some journals require the first and last pages of cited articles, and others require only the first page.

- ◆ Ask for help from the professionals! Your librarian has a master’s degree and is an expert in choosing appropriate sources and databases. Don’t expect yourself to be an expert at this: One cannot be faulted for admitting unfamiliarity and inexperience, but one can be faulted for trying to pretend or bluff one’s way through.
- ◆ Look for errata pertaining to the citations that you use. These were often hard or nearly impossible to track in the age of paper journals, but e-journals and web sites of authors may well make this task easier. You do not want to propagate mistakes made in the literature. So, just as you must file an erratum if you find a mistake in one of your own articles, you must check others’ articles for errata and cite these, too. Journals should find better ways to make links between a paper and its errata more accessible (MEDLINE does it for you).

The mokita here is that we all suffer from information overload and too little time. One solution is to make your literature searching as efficient as possible. Some people study this for a living! Librarians often keep handouts of online search guidelines; just ask. Below are some Internet resources for constructing searches adroitly:

General

<http://newarkwww.rutgers.edu/guides/searching.htm>

<http://www.kcl.ac.uk/depsta/iss/schools/bdhamn/learning/searchstrategies.html>

Web

<http://www.learnwebskills.com/search/main.html>

Thus far, we have discussed the responsibilities of authors. However, journals also have an ethical responsibility or a stake in



the quality of the papers they publish. Many journals require a perjury statement confirming that data in an article have not been published elsewhere. More and more journals require that each author of an article submit a signed statement specifying any ties with commercial entities that might constitute a conflict of interest. Many newer journals have begun to require statements in the Acknowledgments that detail the efforts of each author (see the *BioMedCentral* journals) and/or demand structured abstracts that use specified content headings, e.g., Introduction or Objective, Design, Sample, Data Sources (databases and search terms used, and which years were searched in the databases as well as the date that those searches were done), Materials and Methods, Results or Main Outcome Measures, and Conclusions. Journals could also consider requiring all authors to sign a statement that at least one of them has read and verified each citation in their paper. 🌿

Next issues: Integrating bioethics scenarios into your teaching and research.

Tamara Turner

Librarian and editor, Seattle

Dina Mandoli

mandoli@u.washington.edu

Terrestrial Encounters

“I met with a singular plant today in blume...”

So wrote Meriwether Lewis on June 1, 1806, while camped along the Clearwater River in west central Idaho. Lewis, along with William Clark and the other intrepid souls of their party, was on the return journey of their grand expedition up the Missouri River and over the Rocky Mountains to the Pacific. The expedition camped along the Clearwater, just west of the Bitterroot Range, from May 14 to June 10 as they waited for the snow to melt higher up in the mountains. Although not often recognized as such, Lewis was arguably one of the great early American naturalists. His journal is full of detailed and meticulous observations of the plant and animal life encountered on the journey, and he brought back to Philadelphia about 200 plant specimens, most of them new to science and many of them collected in Idaho on the return journey. The “singular plant” described that day in 1806 was a member of the evening primrose family later named *Clarkia pulchella* by Frederick Pursh, a botanist who examined and described many of Lewis and Clark’s specimens. *Clarkia* was one of four new genera created by Pursh on the basis of plants collected by Lewis and Clark.

Lewis’s meticulous and accurate description of this plant demonstrates his botanical skills, but it is these first few words, *I met with a singular plant today*, that capture for me the sense of wonder and the delight of discovery that motivated and sustained Lewis throughout his epic adventure on the Great Plains and through the Rocky Mountains. It is these simple words, more than the detailed botanical description that follows, that reveal the true heart of a naturalist. This sense of joy in observing the natural world around him is conveyed again in



Clarkia pulchella

N. Eckardt

his first description of the western tanager five days later on June 6: “*We meet with a beautiful little bird in this neighborhood...*”

The words come to me at odd moments of the day, or as I’m lying in bed just before drifting off to sleep. I imagine with what delight Lewis first observed the beautiful *Clarkia* with its deeply lobed pale purple petals. It brings to mind memorable encounters I have had with plants; stunning displays of wildflowers in alpine meadows of the San Juan mountains, a single tiny wonderfully scented orchid in a Minnesota forest, the smell of eucalyptus and jasmine in the Hamner Pass in New Zealand, finding the rare Bell’s twinpod on the shale slopes near my home along the Front Range. Thanks to these few simple words written by Lewis almost 200 years ago, my memories are enhanced and my life is enriched beyond measure. It is like a mission statement for life: I will take time to observe the natural world around me, to stop and watch the hawk soaring overhead, to smell the roses, and now and again to be able to say, *I met with a singular plant today!* 🌿

Nan Eckardt

neckardt@aspb.org



The North American Arabidopsis Steering Committee

CALL FOR APPLICATIONS

Travel supplements are available for U.S. researchers to attend the Fifteenth International Conference on Arabidopsis Research. Arabidopsis XV will be held in Berlin, Germany, from July 11 to 14, 2004.

APPLICATION DEADLINE: APRIL 19, 2004.

Recipients will be informed in time to complete early registration and abstract submission (<http://www.arabidopsis2004.de/>) for the May 15 deadline.

For information about the travel awards and eligibility requirements, please consult <http://www.dartmouth.edu/~rmcclung/ArabidopsisXVtravel.html>

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NSF seeks \$600 Million for Biological Sciences

The fiscal year 2005 budget request of the National Science Foundation (NSF) seeks \$599,930,000 for the Biological Sciences Directorate (BIO). This would be an increase of \$13 million, or 2.2 percent, over the current fiscal year.

Level funding of \$89,470,000 is requested for the plant genome research program within BIO. The overall budget request for NSF is \$5,745,000,000, an increase of \$167 million, or 3 percent, over the current year's funding. The percentage increase for NSF exceeds the average 0.5 percent increase for domestic programs unrelated to defense or homeland security. An inflation rate of 1.3 percent in the overall economy is assumed by the administration for next year.

The increase sought for BIO is similar to the increase sought for other research directorates. An increase of 2.2 percent, or \$13.4 million, is requested by NSF for the Computer Information Science and Engineering Directorate. The Engineering Directorate budget request is up \$10.7 million, or 1.9 percent. Geosciences would

increase \$15.4 million, or 2.2 percent. Mathematical and Physical Sciences would receive a \$24 million increase, up 2.2 percent. The largest gain would go to Social, Behavioral and Economic Sciences, which would receive a 10.3 percent, or \$20.9 million, increase.

These budget request numbers will likely change in Congress. For the past seven years—each year of the program—Congress has significantly increased the appropriation for the plant genome research program above the request. **Senator Christopher Bond** (R-MO) and his colleagues have provided the additional funds for plant genome research.

Some physical sciences interests can be expected to continue their divisive campaign of attacking levels of funding in the life sciences. These interests maintain that life sciences research supported by the National Institutes of Health has unbalanced the research portfolio of the nation away from physical sciences in favor of the life sciences. Some physical sciences representatives have

called for lower increases for the life sciences at other agencies to provide more funds for higher increases in the physical sciences.

Large influential companies, such as IBM, have played a part in the physical sciences campaign, along with some elements of the physics community and others. Continued unfair attacks on life sciences funding could have an adverse effect on funding levels for BIO.

Help from ASPB members in contacting their members of Congress to support NSF and BIO will be needed as Congress considers the FY 2005 budget. ASPB Campus Contacts will be asked to circulate constituent mailing requests urging their colleagues to write to Congress. ASPB Committee on Public Affairs members and leadership have conducted visits with the Washington offices of their members of Congress to urge support for NSF and BIO. ASPB is also working with a coalition of biological science societies established to respond to attacks from some physical sciences representatives. 🌿

USDA Requests \$180 Million for NRI, \$988 Million for ARS in 2005

The U.S. Department of Agriculture (USDA) is requesting \$180 million in fiscal year 2005 for the National Research Initiative Competitive Grants Program (NRI). If approved by Congress, this would be an increase of nearly 10 percent over the current year's appropriation of \$164 million.

The budget request for the NRI would fund research on plants, animals, nutrition, food safety, and other areas, including initiatives in agricultural genomics, human nutrition, and obesity.

The NRI makes a major contribution to developing the next generation of agricultural scientists, the department noted. The NRI, along with Agricultural Research Service (ARS) funding, is a major source of USDA support for

multi-agency collaborative efforts in the field of genomics, the department noted.

There are opportunities to leverage USDA investments with investments from the National Institutes of Health, the Department of Energy, and the National Science Foundation in projects to map and sequence the genomes of agriculturally important species in plants, animals, and microbes, the department said. Access to genomic information and the new tools to exploit it have implications for virtually all aspects of agriculture, the department noted in its budget documents.

The FY 2005 budget request for ARS research and information programs seeks \$988 million, which is down from the \$1.168 billion appropriated in FY 2004. The budget

request for crop production research is at \$154 million, which is 6 percent above the FY 2004 appropriation of \$145 million. The 2005 request for crop protection research is at \$152 million, which is up 5 percent over the FY 2004 appropriation of \$145 million.

The department's budget documents show that research and information funding requested for ARS for FY 2005 is higher by \$75 million over the current year, if FY 2004 earmarks are not included.

Changes in the budget request are expected to be made by Congress. Contact with congressional offices by ASPB, other science societies, universities, producers, industry, and various groups can be expected to help shape the FY 2005 appropriation as it will be enacted. 🌿

DOE Requests \$228 Million for Chemical Sciences, Geosciences and Energy Biosciences

The fiscal year 2005 budget request of the Department of Energy (DOE) Chemical Sciences, Geosciences and Energy Biosciences Division seeks an increase of \$8.8 million, or 4 percent, to \$228.4 million.

The budget includes support for molecular-level studies on solar energy capture through natural photosynthesis; the mechanisms and regulation of carbon fixation and carbon energy storage; the synthesis, degradation, and molecular interconversions of complex hydrocarbons and carbohydrates; and the study of novel biosystems and their potential for materials synthesis, chemical catalysis, and materials synthesized at the nanoscale.


The DOE budget request documents describe energy biosciences research under the categories of Molecular Mechanisms of Natural Solar Energy Conversion (\$13.1 million requested) and Metabolic Regulation of Energy Production (\$18.7 million requested).

The Molecular Mechanisms of Natural Solar Energy Conversion category supports fundamental research to characterize the molecular mechanisms involved in the conversion of solar energy to biomass, biofuels, bioproducts, and other renewable energy resources. Research supported includes the characterization of the energy transfer processes occurring during photosynthesis, the kinetic and catalytic mechanisms of enzymes involved in the synthesis of methane, the biochemical mechanisms involved in the synthesis and degradation of lignocellulosics, and the mechanisms of plant oil production.

The Metabolic Regulation of Energy Production category supports fundamental research in regulation of metabolic pathways and the integration of multiple pathways that constitute cellular function. The budget documents noted that the potential to synthesize an almost limitless variety of energy-rich organic compounds and polymers exists within the genetic diversity of plants and microbes.

Understanding this potential and realizing it depend on characterizing the genetic makeup of the organism and the regulation of these genes by physical and chemical parameters. The research goal is to develop a predictive and experimental context for the manipulation and direction of metabolism to accumulate a desired product.

Research supported includes the identification and characterization of genes and gene families within the context of metabolic pathways and their regulation by signaling pathways that can affect energy production; this includes understanding the transduction of signals received from physical sources (e.g., light, temperature, and solid surfaces) at the interface between the organism and its environment, as well as the transduction of signals received from biological sources.

In FY 2005, studies will continue on *Arabidopsis* as a model system for the study of other plant systems with broader utility. Increased emphasis will be placed on understanding interactions that occur within the nanoscale range, including signal reception at biological surfaces and membranes, catalytic and enzyme-substrate recognition, and how these molecules transfer within and between cellular components. This new activity constitutes the fundamental biological advances needed to complement the chemical nanoscale catalysis activities. An emerging area will be the development of new imaging tools and methods to examine metabolic and signaling pathways and to visualize cellular architecture at both the physical-spatial and temporal scale. 


Overall Research Budget up 0.6 Percent in FY 2005 Request

The administration's budget request for total federal Research & Development (R&D) in fiscal year 2005 is \$131.9 billion. This is an increase of \$5.9 billion, or 4.7 percent, over FY 2004. The dominant share of the increase would go to Department of Defense (DOD) development of weapons systems and R&D in the new Department of Homeland Security (DHS). Total research (basic and applied) would increase by just 0.6 percent to \$55.3 billion, including DHS's expanding research efforts.

Outside DOD development and DHS R&D, the federal R&D portfolio would mostly decline or stay even with this year's funding, consistent with the 0.5 percent increase for non-defense, non-homeland

security discretionary spending overall.

ASPB works with the administration and Congress to support certain programs, and percentage increases for these programs are generally higher than the increases requested for the overall research budget. The National Science Foundation Directorate for Biological Sciences is up \$13 million, or 2.2 percent, in the budget request. The Department of Energy Chemical Sciences, Geosciences, and Energy Biosciences Division is up \$8.8 million, or 4 percent. The U.S. Department of Agriculture National Research Initiative is up \$16 million, or 10 percent, in the budget request.

The administration assumes a 1.3 percent inflation rate for next year. 

Preuss Takes Lab-Designed Chromosome from Discovery to Commercial Product Development

ASPB members **Daphne Preuss** and **Mich Hein** are working together to translate Preuss's lab-designed, mini-chromosome research findings into a commercially viable technology.

The technology allows scientists to stack multiple genes conferring multiple desirable traits in plants, Preuss explained at a seminar February 5 at the American Association for the Advancement of Science in Washington, DC. The seminar was titled "Frontier Plant Biotechnology—Advancing Crop Productivity and Market Potential." (The seminar was originally scheduled to be held in a U.S. Senate building prior to a temporary closing of the three Senate office buildings because of an attack with a deadly poison, ricin.)

Preuss said she recognized the exciting benefits that plant genome research is offering to enhance crops for better pest resistance and drought and herbicide tolerance, leading to increased yields. She said the gene-stacking capability of the mini-chromosome technology could allow compiling a series of genes with these and other traits, including enhanced nutritional qualities.

At this same time of tremendous advances in plant genomic research, there is by contrast a significant time period between lab discovery and development of commercially marketed enhanced plant products, Preuss observed.

The mini-chromosome technology cuts product development time by years, as it



Daphne Preuss

Photo by Tim Ryan



Mich Hein

requires far fewer generations of plant specimens leading to the marketable product. Preuss is directly shepherding technology development along with Hein, who is chief executive officer of their biotech firm, Chromatin, Inc. The company has an annual budget of about \$3.5 million.

Hein explained that those considering investing in small biotech companies such as Chromatin have standard questions about the product, including

- ◆ Does it work?
- ◆ Do you own it?
- ◆ Will anyone buy it?
- ◆ Will they let you grow it? (regulatory approval)

Hein noted that these questions need to be answered satisfactorily by biotech startups to attract investments. He added that small plant biotech companies face challenges such as the existence of only a small number of large companies to which a product can be marketed. In addition, regulatory expertise resides to a greater extent with large, multi-national companies.

ASPB member **Tony Cavalieri**, who had served as vice president and director, Trait & Technology Development, Pioneer Hi-Bred International, provided the per-

spective of a large company representative during the seminar. Commercialization of these technologies is occurring in developed nations, he noted. He said that some obstacles would need to be overcome before the technologies become widely available in the developing world. The United States has a thorough patenting program allowing companies to protect innovations. By comparison,

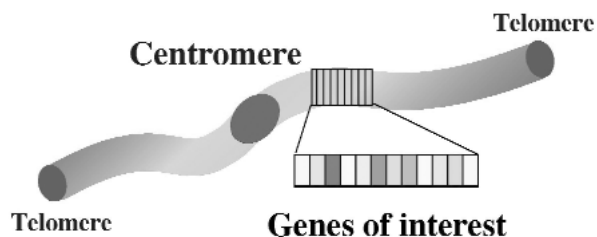
companies have tended not to patent these technologies in developing countries. He said there is a question for some developing nations as to whether they have the technological expertise to have a necessary regulatory framework in place.

Preuss noted in the question-and-answer period that organic farming is not meeting the needs of many people in Africa. She said that if you can improve crop yields in Africa through use of new technologies for enhanced crops, it improves lives.

The Center for Strategic and International Studies and Howard Hughes Medical Institute sponsored the seminar. ASPB staff attended the program, along with representatives from other associations, government agencies, and other entities.

The Chicago Tribune published an article February 3, 2004, on Preuss's research and on the "upstart Chicago biotech firm" she has initiated with Hein. The headline on the story is "Easing Process of Gene-Altering Seeds: Chromosome Firm Looks for Partners."

Preuss serves on ASPB's Committee on Public Affairs. Cavalieri formerly served on the Committee on Public Affairs. Cavalieri is now with the Center for Strategic and International Studies advising on agricultural biotechnology and on technology forecasting.



Many genes of interest coding for many beneficial traits can be stacked on a synthetic mini-chromosome for use in the modification of a plant genome. (Drawing by Daphne Preuss)

New Approaches by ASPB Members Yield Gene-Rich Regions of Maize, Accelerate Sequencing

The following information was sent to the media by the National Science Foundation in a December 18 news release.

ARLINGTON, VA.—Decoding of a variety of plant genomes could accelerate due to two complementary methods that remove from analysis vast stretches of DNA that do not contain genes.

The approaches, applied jointly in efforts to determine the gene sequences in maize, are described in the December 19 issue of the journal *Science*. The evaluation of these methods and the assembly of the resulting sequences were undertaken by two groups led by researchers from The Institute for Genomic Research (TIGR) in Rockville, Maryland, and Cold Spring Harbor Laboratory in New York.

The research was funded by the National Science Foundation's (NSF's) Plant Genome Research Program.

Only about a quarter of the maize genome codes for genes, and these are found in small clusters scattered through a mixture of non-coding DNA and transposons (mobile DNA segments). Two different methods tested by the TIGR group successfully captured parts of the maize genome containing genes. The gene sequences are of most interest because they provide the specific blueprint for an organism's development, structure, and physiology.

With so much non-gene sequence to deal with, it has not been feasible to sequence and assemble the whole maize genome with current technologies. Thus, it is a major shortcut

to capture only the portion of the maize sequence containing its genes without having to sequence the entire genome.

"Collecting the maize genes for sequencing is like panning for gold," said **Jane Silverthorne**, program director for NSF's plant genome program. "Just as gold can be separated from the surrounding rock because it is denser, maize genes can be separated from the surrounding DNA by their chemical and sequence properties."

The first method tested, called "methylation filtration," removes sequences that contain a chemical modification (methylation) found on most of the repeated sequences and transposons, leaving behind the proverbial "gold" of genes. It was developed by a team led by **Robert Martienssen**, a member of the American Society of Plant Biologists (ASPB), and **W. Richard McCombie** at Cold Spring Harbor Laboratory.


The second method, developed by researchers at the University of Georgia, removes the repeated sequences by separating the DNA into "high-copy," gene-poor segments and "low-copy," gene-rich segments.

Led by ASPB member **Cathy Whitelaw**, the research team at TIGR compared sequences obtained by the two methods. About one-fourth of the genes in each collection matched known gene sequences. About 35 percent of the genes were represented in both collections.

Each method was found to enrich for distinct but complementary regions of maize's 10-chromosome genome. Combined, the methods could cut the amount of sequencing necessary to find all of the maize genes to about one-fourth of what it would take to sequence the entire genome.

As both methods yielded short stretches of sequence, a major challenge was to reassemble these into complete genes. To do this, the Cold Spring Harbor group lined up the sequence pieces from maize along the rice genome sequence, a deep draft of which was completed in 2002 by an international consortium. The researchers then reassembled selected sets of sequence fragments into complete genes. This approach will be an important part of assembling the short pieces of DNA yielded by the two enrichment methods into complete gene clusters.

According to Silverthorne, "Together, these findings suggest that scientists could be able to sift out the approximately 450 million base pairs of DNA containing the genes from the maize genome and then reassemble the sequence. Such a comprehensive genomic resource would provide growers and breeders a wealth of tools to improve maize, as well as other cereal crops."

Other collaborators in the study included the Donald Danforth Plant Science Center and Orion Genomics, both of St. Louis, Missouri. 

International Plant Growth Substances Association Conference

September 20–24, 2004 • Canberra, Australia

For online registration and program, go to www.conlog.com.au/ipgsa2004

Agriculture Secretary Announces Awards to ASPB Members Welch, Ow, Steber

Agriculture Secretary **Ann Veneman** has announced the presentation of awards to ASPB members **Ross M. Welch**, **David W. Ow**, and **Camille M. Steber**. The three ASPB members and other Agricultural Research Service (ARS) scientists were recognized at an awards ceremony held January 22, 2004, in New Orleans. The scientists received plaques, cash awards, and additional research funding.

Welch was recognized as one of three ARS Outstanding Senior Scientists of 2003. He is a plant physiologist at the U.S. Plant, Soil and Nutrition Laboratory in Ithaca, New York. He was honored for his pioneering research and global outreach programs directed at developing sustainable agricultural systems that support adequate human nutrition, healthier foods, and better lives for all.

David Ow of the ARS Plant Gene Expression Center in Albany, California, was named one of four Area Senior Research Scientists of 2003. He was recognized for pioneering development of new methods for controlled DNA insertion and expression in plants.

Seven Area Early Career Scientists were honored by ARS. They included ASPB member Camille M. Steber, Wheat Genetics, Quality, Physiology and Disease Research Unit, Pullman, Washington. She was recognized for exceptional research on the genes controlling response to the plant hormone gibberellin. 🌿



Ross M. Welch



David W. Ow



Camille M. Steber

DuPont Announces \$1 Million Commitment to Global Crop Diversity Trust

Pledge will help sustain endangered global plant genetic resources, biodiversity

WILMINGTON, DEL., March 3, 2004—DuPont today announced a pledge of \$1 million to the Global Crop Diversity Trust, an international fund charged with securing long-term funding for the support of genebanks—storage facilities for plant germplasm—and crop diversity collections around the world.

Formed in 2002 by the United Nations Food and Agriculture Organization and the 16 Future Harvest Centers of the Consultative Group on International Agriculture Research, the trust has been charged with raising a \$260 million endow-

ment to maintain the world's most critical germplasm for agricultural and industrial crops, as well as to support struggling collections, especially those in developing countries.

DuPont's gift will improve plant genetic storage facilities, increase staffing, build capacity, and support the basic costs of conservation. The crop collections to be supported by the trust are available to public and private plant breeders and farmers under the terms of an International Treaty on Plant Genetic Resources. A key objective is to encourage crop research and development

and ensure an abundant and affordable food supply in the future.

DuPont hopes its contribution to the trust will help spark dialogue about the importance of preserving genetic resources in addition to facilitating the development of new crop genetics that will bring greater value to farmers and improved products to consumers, said Erik Fyrwald, group vice president, DuPont Agriculture & Nutrition.

Further information on the Global Crop Diversity Trust can be found at <http://www.startwithaseed.org>. 🌿



Compiled and edited by Sheila Blackman, Grand Valley State University, Biology, One Campus Drive, Allendale, MI 49401, blackmas@gvsu.edu

Science Fair Time of Year

Spring means baseball season—and also science fair season! Plants are frequently used as subjects for science fair projects because they are readily available and easy to maintain. For many students, this will be the first time that they are motivated to ask questions about plants. As ASPB members, we can do several things to cultivate this burst of botanical interest.

Mentoring

Many ASPB members get asked by friends and neighbors to serve as mentors for their children's science projects. Often, the student will have an idea for a project that either isn't well thought out or does not address a question in a scientific manner, so the prospect of helping may seem overwhelming. Some of the help they need is easy for us to provide—how to formulate a testable hypothesis and how to set up a controlled experiment. However, most of us don't have experience doing science using egg cartons and soda bottles.

If you find yourself getting regular inquiries from younger students, you might want to purchase one of the books written specifically for this age group. For example, Janice VanCleave has written several books on science fair projects, and her books are usually available in local or school libraries. The books are appropriate for adults helping younger children to dabble in science and are clear in the directions for setting up the projects. Her books also provide guidelines for standard science fair formats, including reports and presentations. On the other hand, the suggested projects tend to be simple and are usually not hypothesis driven, and the scientific background provided for each project is quite limited.

For older students, David Hershey's *Plant Biology Science Projects* is an excellent resource (he recommends the projects for ages 12 and older). This book provides sim-

ple but clear instructions for carrying out a wide range of hypothesis-driven projects using plants. The book includes a chapter titled "Projects to Avoid" and a discussion of pseudoscience. David, who has a Ph.D. in plant physiology, is very active in biology education, with numerous articles in journals such as *The American Biology Teacher*. These and many other science fair books are available from amazon.com.

Many web resources are available. A good starting point is "The Ultimate Science Fair Resource" (www.scifair.org), which has links to just about everything. This site is sponsored by the Society for Amateur Scientists (www.sas.org). Not many science fair web sites specialize in plant biology, but the science fair page of the USDA has lots of suggestions for experiments involving plants (www.ars.usda.gov/is/kids/fair/story.htm). The Wisconsin Fast Plants web site is a great resource, with links to scores of age-appropriate activities and guides for setting up experiments using simple equipment (www.fastplants.org). The experiments are designed for use with Fast Plants but can be adapted for other plants if necessary.

Often you can be an invaluable help to a student simply by helping formulate a hypothesis, identifying appropriate controls, and suggesting resources for doing the actual experiment. It is reasonable that you could do all of this in one meeting, so mentoring doesn't have to be a tremendous time commitment. At the same time, the benefits of mentoring are significant. For most children, the science fair project will be their first opportunity to be engaged in scientific inquiry. Having a mentor who is trained in science can make a huge difference in the experience. As a mentor, you get a dose of the enthusiasm that young children bring to learning. But the benefits go beyond the two of you, because the inclusion of a well-designed, scientifically sound project

enhances the science fair experience for the other student participants as well.

Judging

ASPB members can also contribute by serving as judges for school, county, or statewide science fairs. Judging usually doesn't require much time, and at most fairs the students are present during the judging of their projects. This gives you an opportunity to encourage their efforts and also put a human face to science. The judging pool is often diverse and usually strengthened considerably by the addition of a plant biologist. If you have any doubt as to your potential value as a judge, consider that at a statewide science fair, a project looking at the effect of day length on plant growth was criticized because "Plants *can't* grow better in constant light, because they need time in the dark to carry out the dark reactions of photosynthesis." If you want to volunteer, ask a teacher, ask around on your campus, or try Googling for your state science fair web site.

ASPB Web Resource

Science fair students make abundant use of Internet search engines to find background research for their projects. The resources they retrieve range from highly technical literature to inaccurate junk. The ASPB Education Committee is putting together an online resource specifically designed to provide science fair students with a better understanding of their plant projects. Called "The Science Behind Science Fair Projects," it will provide simple but accurate explanations for common science fair topics such as phototropism and plant nutrition. Contributions (ideas, writing, resource suggestions) to this project are welcome and encouraged!

Mary Williams

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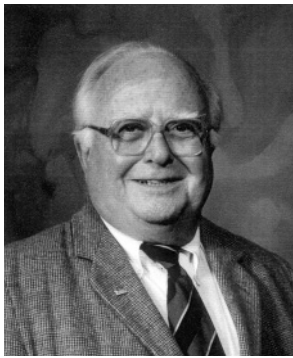


Bruce Bernot Stowe

It is with sadness that we report the untimely death on September 21, 2003, of our long-time colleague, Bruce B. Stowe, from congestive heart failure. In 1999, only a year following his retirement from the Yale University faculty, Bruce suffered a severe stroke while engaged in research near Aberystwyth, Wales. He was flown back to New Haven, Connecticut, where he was hospitalized and later received therapy in a succession of rehabilitation centers. Unfortunately, despite the latest treatments for stroke at the University of Florida Medical School, the severity of his stroke precluded significant recovery. At the time of his death, he was living at home in Gainesville, Florida, with his son Mark.

Bruce Stowe was born on December 9, 1927, near Paris in Neuilly-sur-Seine, France. His father was the distinguished World War II correspondent Leland Stowe, and his mother, Ruth Bernot, was one of the first women qualified to practice dentistry on a professional basis. He received his early schooling in Yonkers, New York, where he showed great aptitude and interest in science, especially biology and astronomy. These interests led him to apply to the California Institute of Technology, from which he obtained his B.S. degree with honors in 1950.

One of us (AWG) was a young faculty member at Caltech in the late 1940s when Bruce was an undergraduate. The team of Sam Wildman, George Laties, and Art Galston taught plant biology to sophomores in biology. Bruce's class included Carl Price, who became a lifelong friend and also went on to a career in plant physiology. (Other Caltech contemporaries of Bruce who chose careers in plant physiology include Bill Purves of Harvey Mudd College and Del McCune of the Boyce Thompson Institute at Cornell University). Bruce impressed us all by his scholarly approach to learning. He also showed his adherence to principle when he sternly informed me that I had violated



(albeit unknowingly) the sacred Caltech Honor Code by proctoring an examination.

With the concurrence of James Bonner and Frits Went, we recommended Bruce to Kenneth Thimann at Harvard for graduate work. He received his M.A. in biology in 1951 and his Ph.D. in 1954. His thesis work identifying indoles by paper chromatography

included the first unequivocal identification in plants of indolepyruvic acid, a possible intermediate in the biosynthesis of indoleacetic acid from tryptophan.

As a National Science Foundation postdoctoral fellow, Bruce went to the Department of Agricultural Biochemistry at the University College of North Wales, where his lifelong admiration for anything Welsh began. He invariably wore a leek in his buttonhole on St. David's day! Returning to Harvard in 1955, he served as instructor, tutor, and lecturer in biology. During this period, he helped train the graduate students in Thimann's lab. He further developed techniques of analytical and quantitative chromatography and pioneered gas chromatography for studying indole metabolism and later lipids. In those days, radioactively labeled IAA at high specific activity was not readily available commercially. Bruce worked out syntheses for both C^{14} -carboxyl-labeled IAA and 3H -IAA, enabling Thimann's students to pursue some of the early studies on the location and distribution of auxin in plants without always having to resort to tedious bioassays for detecting the hormone. Margaret Wickson examined auxin's role in apical dominance, Barbara Gillespie Pickard studied auxin distribution during gravi- and phototropisms, and Mary Helen Goldsmith investigated polar transport.

By the mid-1950s, it was clear that one hormone was not sufficient to account for all the phenomena. Bruce was aware that while auxin was not notably effective in initiating

flowering or enhancing the growth of certain genetic dwarfs, gibberellins were. When Toshio Yamaki, a young Japanese professor, arrived in Thimann's laboratory in 1956, Bruce took advantage of the opportunity to learn more about gibberellins and suggested that together they examine the Japanese literature. Toshio asked colleagues in Tokyo to mail copies of the relevant papers, which Toshio translated and, after extensive discussions, Bruce summarized. The outcome of their partnership, titled "The History and Physiological Action of the Gibberellins," appeared in *Annual Reviews of Plant Physiology*, volume 8 (1957). Gibberellins were the first major new group of plant hormones to be discovered since auxin, 30 years previously. Now we had two chemically unrelated molecules with overlapping regulatory functions in development, yet clearly distinct roles as well. This review brought gibberellins to the attention of western scientists, creating quite a stir. *Science* immediately requested a review, published in 1959, with the latest research. Almost overnight, Bruce became so well known that he soon found himself secretary of the American Society of Plant Physiologists and responsible for organizing the national meetings almost single-handedly.

Bruce joined the Yale faculty as assistant professor of botany in 1959. For many years, he taught plant physiology one semester and plant biochemistry the other. He enjoyed being an invited professor in the Yale School of Forestry and Environmental Studies, and for a time he also served as director of Yale's Marsh Botanical Garden. In research, he continued to make important contributions to understanding regulation of plant growth, especially by auxins, gibberellins, and lipids. He also investigated such botanical exotica as the ripening of figs and the biosynthesis of indigo in woad (*Isatis tinctoria*).

Generations of Yale students were drawn to his classes to learn about plants. In his course on plant biochemistry, Bruce introduced students to the wondrous biochemical versatility of plants. The notion, preva-

continued on page 18

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lent early in his career, that the myriad natural products plants produce—indoles, flavonoids, isoprenoids, phenolics, alkaloids, glucosinolates, resins, and latexes—were simply expressions of their biochemical exuberance was unsatisfactory. He recognized these substances as products of biochemical evolution enabling plants to survive, attract pollinators and dispersers, keep insects and other herbivores at bay, and ward off disease and parasites.


His laboratory trained a succession of graduate students and postdoctoral fellows, including Loyd Powell, John Gaunt, David Penny, James Perley, George Gardiner, Claus Grunwald, Miguel Vendrell, Ephraim Epstein, Malcolm Elliott, Takashi Iwata, and Sundararaman Mahadevan. Thanks to the support of a Guggenheim Fellowship and various other awards, he was a guest investigator in France, Australia, and Japan and at Stanford University during several sabbatical leaves.

Outside the university, Bruce was a multifaceted man. He served in the U.S. Army Signal Corps in occupied Europe for several years during World War II. He was an enthusiastic bicyclist and hiker. For many years he led students from several New England colleges on field trips in the White Mountains. The high point of these trips was the climb above the timberline on Mt. Washington to view the alpine flora at their peak of bloom. He grew grapes and made wine before that became fashionable in Connecticut, and he tapped his own maple trees for making syrup. He was the first secretary of the Yale College Faculty to record the minutes directly using a laptop. His sense of public service also caused him to assume responsibility for the Premedical Advisory Committee at Yale. He served on the editorial board of *Plant Physiology* (1965–1984) and *Annual Reviews of Plant Physiology* (1968–1973).

Bruce married Betty Kwasny Stowe, and they had two sons, Mark, of Gainesville, and Eric, of New Haven. During Betty's long battle with multiple sclerosis, Bruce gained the

admiration of all by his loving care of his increasingly immobilized wife. He designed ingenious devices to assure her comfort and took her to St. Petersburg for the International Botanical Congress. Although in a wheelchair, she accompanied Bruce on a sabbatical when he studied the effect of oleonimins, of which olive oil is an example, on the ripening of figs. We remember his delight in arranging to get three crops of figs in one year by starting off in horticulture at the University of Osaka in Japan, going to the Waite Agricultural Institute in Adelaide, and then back to Osaka. Before Betty's death, he established an innovative self-help bookshelf at the Yale Health Services Center as a tribute to her.

Bruce enjoyed many intellectual pursuits, including astronomy and history. He packed his telescope and headed off to Hawaii to view the last total eclipse of the sun of the 20th century with friends and family. In retirement, he returned to Wales to investigate the origins of the Yale family name. He discovered that a forebear of Elihu Yale, the East India Company's merchant and Yale College's benefactor, had chosen Iâl, meaning Yale, the name of the family's lands, in response to English King Henry VIII's decree that all Welshmen adopt English surnames. Thus, Yale is an authentic early Welsh surname derived from the name of an actual geographic place in a rugged region of north Wales lying just outside the town of Wrexham.

Bruce was a scientist of the highest integrity, widely respected for his scholarship and infectious enthusiasm for learning. He was an unfailing fountain of knowledge for both family and friends. Contributions in his name may be made to The Nature Conservancy. 

Arthur W. Galston
Mary Helen M. Goldsmith

Yale University
Department of Molecular, Cellular and
Developmental Biology

Important Dates in 2004

May 17

Plant Biology 2004
Early bird registration cutoff

June 4-5

Northeastern Section/ASPB
Meeting, Brown University,
Providence, RI

June 10

Notification of Elected/Award
recipients

June 18

Plant Biology 2004
Housing registration cutoff

July 24-28

Plant Biology 2004
Orlando, Florida

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Using a temporary ID?

New members receive a temporary ID (example ASPBTEMP1111) to use for up to four months. The password for temporary logins is the e-mail address provided while joining. Tools that cannot be used with a temporary login include saving your login, the résumé bank, My Links library, resetting of password, and some of the online forms.

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Select "Yes" beside "Save login" on the login page. This saves your login so you will not have to log in more than one time. Check to make sure your browser tools have minimal cookies enabled.

What is "Save login"?

"Save login" sets a cookie on your local computer reminding our web site of who you are so that you will not have to log in again.

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Reset your password by providing your member ID and e-mail address. An e-mail will be sent to your e-mail account that provides a personal link to reset your password. 

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We invite you to submit articles and letters to the *ASPB News*.

Deadlines for submission of copy follow:

Issue	Deadline
July/August 2004	June 5, 2004
September/October 2004	August 5, 2004
November/December 2004	October 5, 2004
January/February 2005	December 5, 2004
March/April 2005	February 5, 2005
May/June 2005	April 5, 2005

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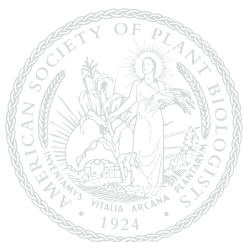
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