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ASPB News



THE NEWSLETTER OF THE AMERICAN SOCIETY OF PLANT BIOLOGISTS

Governance Changes Proposed for ASPB

An Open Letter to the ASPB Community

Dear ASPB Members,

This year, ASPB is 90 years old (<http://milestones.aspb.org/aspbhistory>). Over the past nine decades, we have changed in many ways to ensure that our Society remains relevant to and serves the needs of the membership. For example, we created a professional support staff (<http://my.aspb.org/staff>), we installed an executive director, we grew the governance structure from five officers to an Executive Committee of 21 members (http://my.aspb.org/?G_Leadership#exec), we launched *The Plant Cell* (<http://www.plantcell.org>—25 years ago!), we changed our name, we've run lab leadership workshops, ASPB members work with and help educate elected policy makers (<http://my.aspb.org/members/group.aspx?id=68890>) on your behalf, and recently we've embraced a new subdisciplinary section (http://my.aspb.org/group/Enviro_Eco_PP). Those changes are continuing and, indeed, accelerating as the ways in which plant biologists carry out and communicate their research rapidly evolve. We are providing new services for members and entering

into a relationship with you that requires quick response times. With an increased speed and more to offer, it is also important that ASPB's governance is able to plan well into the future while still managing the day-to-day logistics of the present.

Toward this end, the Executive Committee, ASPB's current deliberating and voting body, has recommended a change in the governance structure that will be enacted if you, the membership at large, approve it by ballot next spring.

Well in advance of that vote, we'd like to take a moment to explain what the Executive Committee is recommending and how it reached this decision. What is proposed is a governance structure with two collaborative bodies. There would be a large and diverse deliberating body called the Council that would be dedicated to providing vision, context, and continuity for the Society without the burden of operational logistics, such as approving budgets and new initiatives. The second body will be a smaller Board of Directors (BoD) that meets much more frequently to deal with

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President's Letter

Looking Ahead

JULIAN SCHROEDER
University of California, San Diego



Julian Schroeder

The new year has begun, and ASPB has hit the ground running with exciting things happening. Many of these projects have been made possible by truly dedicated and energetic

ASPB members and staff, and in some cases these activities are the result of many years of prior work. I would like to highlight here—in short sound bites—just some of the many activities that ASPB is engaged in this year for you and with you.

Plant sciences communities in the United States have come together to develop the first decadal vision for innovation in plant sciences (2015–2025), and together with other societies, ASPB has worked hard to promote this vision over the past year (<http://tinyurl.com/mje7vzl>). ASPB member Gary Stacey initiated this approach, and Sally Mackenzie and

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ASPB staff are dedicated to serving our members.
We welcome your questions and feedback.

For quick response, e-mail us at info@aspb.org
or visit our FAQ at www.aspb.org/faq.

ASPB Executive Committee

President	Julian Schroeder
Immediate past president	Alan M. Jones
President-elect	Rick Dixon
Secretary	Karen Koch
Treasurer	Karen Koster
Chair, Board of Trustees	Rob McClung
Chair, Publications Committee	Neil Olszewski
Chair, Women in Plant Biology Committee	Marisa Otegui
Chair, Minority Affairs Committee	Adán Colón-Carmona
Chair, Education Committee	Kathleen Archer
Chair, International Committee	Tuan-hua David Ho
Chair, Membership Committee	David Horvath
Chair, Science Policy Committee	Patrick Schnable
Elected members	Elizabeth (Lisa) Ainsworth Joe Kieber MariaElena B. Zavala
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Northeastern	Om Parkash Dhankher
Southern	Rebecca Dickstein
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Western	Camille Steber

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The *ASPB News* is distributed to all ASPB members and is also available online. It is published six times annually in odd-numbered months. Its purposes are to keep membership informed of ASPB activities and to reinforce the value of membership. The *ASPB News* is edited and produced by ASPB staff from material provided by members and other interested parties.

Copy deadline is the 5th day of the preceding even-numbered month (for example, December 5 for January/February publication).

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GOVERNANCE CHANGES *continued from page 1*

issues and needs as they emerge. This seven-member body will also be representative, in that it will be composed of your officers and elected representatives—the individuals you select to serve in these capacities. We refer to this as a collaborative structure because BoD members will also serve on the Council, so they will be intimately familiar with the vision of the Council and therefore well equipped to implement its plans.

Another important change involves representation. Because ASPB membership is genuinely

and increasingly international in scope and reach, the Executive Committee feels that the BoD should have at least one representative from outside the United States.

As to how the Executive Committee developed this proposal, an ad hoc committee composed of a diverse group of ASPB members studied the problem and proposed a governance redesign that will provide the flexibility that governance now needs while maximizing the breadth of ideas and member representation. The idea was vetted by several of ASPB's past leaders before being presented to the Executive

Committee, which made additional refinements that further improved the initial concept.

For additional information regarding the rationale behind and timeline for these proposed changes, please see the Proposed Restructuring of ASPB Governance document on pages 4–6 of this issue (also online at <http://tinyurl.com/lmuheff>).

Clearly, there is much to think about, so to provide you with the time and opportunity to discuss these changes and to make suggestions aimed at improving this new governance design, we have posted this letter on the ASPB blog at <http://tinyurl.com/mpznn6h>,

and we invite you to offer your comments and questions there. We look forward to hearing from you and to considering your suggestions and input. ■

Julian Schroeder, *President*
Richard Dixon, *President-elect*
Alan Jones, *Immediate Past President*
Peggy Lemaux, *2012–2013 President*
Crispin Taylor, *Executive Director*

PRESIDENT'S LETTER *continued from page 1*

David Stern have been working with other plant sciences societies and ASPB members to further the goals and objectives that make up this important initiative. The decadal vision is designed to enable plant scientists across many disciplines and societies to speak with a unified voice. This vision of future goals and impact underlines the need for investment in the plant sciences and will play an important role in working with and informing members of Congress of the value and importance of innovation in the plant sciences. As such, the U.S. decadal vision mirrors an analogous effort undertaken by the U.K. Plant Sciences Federation (see <http://tinyurl.com/o9oqk6p>).

ASPB's primary goal is to provide a professional home that supports your individual career needs and your specific plant biology-related interests. ASPB has been working over the past few years to create a new digital plant sciences home that is aimed at enabling our members to actively work together in groups of their choice and to engage in many specific professional interests. A launch of this platform and its initial suite of tools is planned this summer.

During the past year, ASPB headquarters has also restructured the responsibilities of its staff toward better serving the many diverse needs of our membership while also enhancing the ways in which staff teams work and interact with members. One aspect of our restructuring

is to create a meetings and events department that will serve the community by providing tailored meetings services, such as registration and abstract submission, or full-service conference and event management. This unit will also organize specialty conferences on emerging topics in plant sciences and in areas that are not well covered by existing meeting programs. If you have suggestions regarding topics on which we might focus, please let us know. More generally, we would welcome your input on the above activities, as ASPB strives to be proactive in serving our members.

ASPB and our Minority Affairs Committee (http://my.aspb.org/?G_Leadership#minority) are working to increase diversity and opportunities in the plant sciences community. Of particular note,

NIH has awarded a substantial \$19 million National Research Mentoring Network for a Diverse Biomedical Workforce (NRMN) grant to David Burgess, Christine Pfund, and colleagues, and thankfully ASPB members, including MariaElena Zavala, Adán Colon-Carmona, and John Harada, have been instrumental in supporting this effort from its earliest days (<http://tinyurl.com/ptxoj5x>). Among many other things, NRMN provides the opportunity for ASPB to apply for funds to support innovative diversity efforts and enhance our existing activities. Efforts are already under way by the Minority Affairs Committee to organize ASPB's first initiative within the NRMN.

As described in detail in my preceding letter to you, I am

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Proposed Restructuring of ASPB Governance

1. Background Information

- a. The current ASPB governance structure is 90 years old. There were no ASPB staff at the organization's genesis—the governance architecture was designed for volunteers *only*, not administrators. Today, we have a professional staff that effectively handles many of the tasks that were originally the responsibility of governance. We have also grown from an organization of just over 100 members in 1925 to one of several thousand today.
- b. Governing boards have a tendency to creep larger and do not downsize until they become ineffective—and then only if there is still sufficient leadership left to sense the need for change.
- c. Organizational governance theory indicates that nonprofit associations can realize effective and efficient governance via a top governance group (board of directors, or BoD) comprising as few as five individuals, especially when those individuals are chosen primarily for their specific skill sets and anticipated contributions. The term *Executive Committee* in today's jargon typically refers to a subset of an overly large BoD; however, ASPB's current Executive Committee is effectively itself a large BoD.

2. Current Responsibilities of the ASPB Executive Committee

- a. Consider and vote on proposals from committees (deliberation and voting role)
- b. Establish and approve an annual budget (voting role)
- c. When necessary, initiate changes to the Constitution for vote by the general membership (voting role)
- d. Approve president-elect's proposed appointments to the Board of Trustees (BoT; effectively ASPB's finance committee), the Publications Committee, and the Constitution and Bylaws Committee (voting role)
- e. Meet in person at least twice a year for 1 to 1½ days (to carry out both deliberation and voting roles)

3. Problems the Governance Changes Are Intended to Address

- a. A large portion of Executive Committee meetings is occupied currently by status reports and ad hoc action items, which are important but limit deliberation of strategic plans, the capacity to manage projects, or to brainstorm.
- b. The large size of the current Executive Committee makes it difficult and expensive to meet more often in person; it has even proven difficult to schedule teleconferences to deal with urgent issues that arise between the twice-yearly in-person meetings.
- c. The Executive Committee welcomes new subdisciplinary or special interest sections. The Society's Constitution currently guarantees each section a seat and vote on the Executive Committee, meaning that this committee might grow even larger over time.

- d. The problem of an overly large Executive Committee is not new. In the 1990s, the Operations Subcommittee (OPS), composed of the president-elect, president, past president, BoT chair, and executive director, was created on an ad hoc basis, and although OPS meets eight-plus times a year, mostly by phone, it has no voting power. Also, OPS is not a formalized committee; it serves an advisory role for the president and executive director. Although it is easier to find times for a five-person committee to meet, OPS does not have the broader perspective of the current Executive Committee.
- e. ASPB membership is currently 40% non-United States; however, we have no elected member on the Executive Committee who represents this large contingent of the Society. Although one of ASPB's priorities is to continue making efforts to affect U.S. policies to benefit its U.S. members, ASPB also values and needs input from members outside the United States to better serve this constituency.

4. Rationale for a Change

- a. Beginning in 2013, ASPB has been reorganizing its business model to incorporate member services as a high priority. Most of these services will be digital tools and instruments, which change rapidly due to improvements in technology and which are part of a competitive and volatile market. A voting body needs to gather input, consider options, and make binding decisions more frequently than we are currently able to do, given the difficulty in achieving a quorum for binding votes of the Executive Committee.
- b. The current Executive Committee is expected to do two major jobs with limited time to meet in person: one is to design, implement, and maintain a strategic plan, and the second is to vote on all issues requiring a binding decision, such as the annual operating budget. Consequently, little time is devoted to big-picture topics, such as the strategic plan and ASPB's future goals, and relatively too much time is spent on operational issues.
- c. To get both perspective and vision among a group of volunteer scientists, we need to have a large deliberating body, but to have efficiency and high reaction speed, we need a smaller body to make decisions.
- d. We need both a larger body with broad perspective that is focused on the strategic plan and ASPB's future *and* a smaller body that meets frequently to make timely decisions (binding votes) that affect the operations of the Society.
- e. The decision-making body must represent the Society and protect its future.
- f. The composition of this smaller voting body must include most or all of the officers elected by the members.

5. Action History

- a. At the March 2014 Executive Committee meeting, then ASPB president Alan Jones described the problem and announced that he would assemble an ad hoc committee charged to (1) determine if a smaller Executive Committee is needed and, if so, (2) propose a new governance structure. This committee, designated the Executive Committee Restructuring Committee (ERC), included Jones (president), Peggy Lemaux (then past president), Crispin Taylor (executive director), John Harada (then chair, Minority Affairs Committee), Lisa Ainsworth (elected member), Sarah Wyatt (then Midwest Section representative), and Debby Delmer (Constitution and Bylaws Committee member). The ERC met by teleconference on May 14 and June 5, 2014. These meetings were interspersed with extensive e-mail discussion. This committee determined that a smaller Executive Committee would benefit the Society, and it generated a proposed new governance architecture.
- b. The ERC was unanimous for all aspects of the proposal except for how the three elected members of the proposed new BoD would be determined. This matter (see below; bullet 6. l.) was resolved by a majority vote of the committee.
- c. OPS was consulted via teleconference on June 6, 2014.
- d. Dan Bush (former president and former member of the Constitution and Bylaws Committee) was consulted.
- e. Debby Delmer informed the current Constitution and Bylaws Committee of the initial proposal.
- f. ASPB's external auditor Susan Colladay (Tate and Tryon) was consulted on June 19, 2014.
- g. Four members of OPS met in person to discuss the final proposal on June 19, 2014.
- h. All members of the ERC endorsed this proposal before it was placed on the Executive Committee agenda for July 11, 2014.

6. Proposal (the Solution)

- a. Two bodies are formed: a voting body called the Board of Directors (BoD) and a deliberating body called the Council.
- b. The following changes to the governance will be described in the Constitution and therefore will require a vote of the membership.
- c. The BoD is the *voting body* and is composed of:
 - President
 - President-elect
 - Chair of the BoT/treasurer (see synopsis, below)
 - Executive director (nonvoting)
 - Secretary
 - Elected member 1: open nomination from membership
 - Elected member 2: open nomination from membership, *but* nominations are constrained to non-U.S. members when more than one-third of ASPB membership is non-U.S. at the time of the election.
 - Member selected by the Council from among the Council members—no restrictions.

[PLEASE NOTE: The original proposal from the ERC to the Executive Committee envisioned an 11-member body; however, during the Executive Committee's discussions during its meetings in July 2014 in Portland, Oregon, this proposal was modified to the eight-member body described above.]

- d. The BoD is chaired by the president.
- e. The composition of the BoD and its designated chair is placed in the Constitution.
- f. The BoD will meet in person at least once a year and in person or remotely as necessary.
- g. The *deliberating body* is called the Council. This body is charged with *determining and maintaining the strategic plan* for the Society. This body does not make binding votes for the Society.
- h. The Council comprises the members of the BoD *plus* the following additional members (22 total currently). Note that this is the composition of the current Executive Committee.
 - Immediate past president
 - Chair, International Committee
 - Chair, Minority Affairs Committee
 - Chair, Women in Plant Biology Committee
 - Chair, Education Committee
 - Regional and Interest Section Representatives; currently six
 - Chair, Membership Committee
 - Chair, Publications Committee
 - Chair, Science Policy Committee
- i. The Council is chaired by the immediate past president, a one-year term.
- j. The composition of the Council and its designated chair is placed in the Constitution.
- k. The Council meets physically at least once a year.
- l. The ERC was split on the BoD member chosen by the Council. Approximately one-third wanted the Council to choose among sectional reps only, and two-thirds did not want any constraint placed on the Council. This issue was extensively debated. In the end, we resorted to a majority-rule recommendation on this point.
- m. The Council's chosen appointee to the BoD is for a one-year term that can be renewed for as long as the individual remains a member of the Council.
- n. Agenda items that require a vote by the BoD originate from the Council, the BoT, the membership, or the BoD themselves, at any time of year, and will be voted on by the BoD at the next BoD meeting.
- o. Because the composition and leadership of the Council is written into the Constitution, the BoD cannot make changes in either body's composition without an approving vote by the general membership.
- p. The frequency of the new BoD meetings depends on the time sensitivity of agenda items.
- q. Create an ad hoc committee to evaluate the efficiency of the governance structure every six years and report back to the Council.

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RESTRUCTURING GOVERNANCE

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7. Logistics and Timeline

- a. July 2014: Discussion and vote up or down at Executive Committee meetings during Plant Biology 2014 [DONE]
- b. September 2014: Send to Constitution and Bylaws Committee for draft language [DONE]
- c. October 2014: Draft language back to the ERC [DONE]
- d. October 2014: Final language preliminarily approved by Constitution and Bylaws Committee [DONE]
- e. December 2014 through February 2015: Input on proposed changes solicited from membership [IN PROGRESS; please see <http://blog.aspb.org/2014/12/16/governance-changes-proposed-aspb/>]
- f. March 2015: Final language voted on by Executive Committee
- g. April 2015: Final language voted on by Society

SYNOPSIS

Current Governance Architecture

Board of Trustees

Roles: financial and investment planning

- To set the budget, invest the endowment, assure compliance with nonprofit regulations.
- The trustees share with the treasurer the responsibility for the financial stability of the Society.
- All members and the BoT chair are appointed by the president-elect upon approval by a vote of the Executive Committee.
- The BoT meets in person once a year at the Rockville headquarters (associated with the audit report and budget preparation) and by teleconference as necessary.

Executive Committee

Roles: both deliberating and voting bodies combined

- Envision and establish the strategic plan for the Society, vote on issues that affect the budget, vote on archiving records (e.g., minutes, sectional reports), vote on other agenda items.
- Approve appointments to the BoT, Publications Committee, and Constitution and Bylaws Committee.
- The chair of the Executive Committee is the president.
- There are currently 22 members on the Executive Committee.
- The Executive Committee meets in person twice each year; one of these meetings is during the annual Plant Biology meeting and the other is at headquarters.

Proposed New Governance Architecture

Board of Trustees

Roles: financial and investment planning

- Same as above, except the appointed treasurer is also the chair of the BoT.

Council (*the former Executive Committee with modifications, as described above*)

Roles: the deliberating body

- Envision and constantly adjust a strategic plan for the Society and work with the BoD to establish this plan.
- The Council is chaired by the past president.
- There are 22 members on the Council, but this can increase depending on the number of section reps.
- The Council meets in person once each year.
- Generate agenda to be voted on by the BoD.

Board of Directors (*as described above*)

Roles: the voting body

- Decide by binding vote all issues that affect the budget, records, new initiatives, and other agenda items.
- Vote on the appointments to the BoT, Publications Committee, and Constitution and Bylaws Committee.
- The chair of the BoD is the president.
- There are eight members on the BoD, and this number is fixed.
- The BoD meets in person at least once each year and additionally either in person or remotely (e.g., videoconferencing) as needed. ■

Plant Biology 2015

JULY 26–30 MINNEAPOLIS, MINNESOTA
PLANTBIOLOGY.ASPB.ORG

Plant Biology 2015 Highlights

Plant Biology 2015 has it all! And with the meeting coming up July 26–30 in Minneapolis, it's time to register and start familiarizing yourself with the conference program, including the workshops, major symposia, expanded poster hours, and all the networking and social events. A single registration fee gives you full access to the entire conference program, including

- All major symposia, minisymposia, workshops, poster sessions, exhibits, and the on-site career center
- One copy of the final program book
- Free wireless Internet in the Minneapolis Convention Center and all designated conference hotels
- Two evening receptions and two morning coffees in the poster hall
- Four days of refreshment breaks and snacks
- The opening reception Sunday and the closing celebration Wednesday

Networking, Networking, and More Networking

The Plant Biology annual meeting is the moment each year when you can find the highest concentration of professional colleagues, mentors, and peers, all together in a single location. So it's no surprise that participants have been asking for more unstructured time for networking and informal exchange.

You spoke. We listened. The program for Plant Biology 2015 includes

- An opening reception in the exhibit hall on Sunday evening, July 26, followed by a dine-around featuring the best of Minneapolis cuisine
- Morning coffee and three dedicated viewing sessions in the poster area
- A grand celebration Tuesday evening at Orchestra Hall, just a few blocks from the Minneapolis Convention Center, featuring ASPB's first-ever ping pong and foosball tournament along with great music, great food, dancing, and celebration

Check the Schedule at a Glance (<http://tinyurl.com/kduzlt3>) for details.

Register now for Plant Biology 2015
<http://plantbiology.aspb.org>



Symposium I Hormones in Plant Development

Organizer: Elliot Meyerowitz
California Institute of Technology
Pasadena

Recent research shows that each plant hormone has many different functions, depending on when and where it is acting. The regulatory role of hormones in plant development thus depends on highly dynamic patterns of hormone response, with changes in spatial patterns and nature

of response occurring on a timescale of minutes to hours, at single-cell spatial resolution. This dynamism has been revealed by recent advances in live imaging, transcriptome analysis, and use of inducible transgenes. It is mediated by changes in, and feedbacks between, synthesis, transport, perception, and degradation of these signaling molecules. The lectures will discuss control of development in roots, shoots, leaves, meristems, and flowers, as mediated by dynamic networks of hormone responses, with emphasis on new discoveries and new analytical methods—computational as well as experimental—for hormone regulatory networks.

Speakers

Ottoline Leyser, University of Cambridge, Cambridge, UK
The fall and rise of apical dominance

Ari Pekka Mähönen, University of Helsinki, Helsinki, Finland
Interplay of auxin and cytokinins in the activation of the vascular cambium in Arabidopsis root

Enrico Scarpella, University of Alberta, Alberta, Canada
Control of vein formation by auxin movement

Doris Wagner, University of Pennsylvania, Philadelphia
Hormone-mediated reprogramming of transcriptional responses for flower initiation

Elliot Meyerowitz, California Institute of Technology, Pasadena
Take it from the top—cytokinin action in shoot meristems

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Plant Biology 2015

JULY 26–30 MINNEAPOLIS, MINNESOTA
PLANTBIOLOGY.ASPB.ORG



Symposium II

Interactions in the Rhizosphere and the Root Microbiome

Organizer: Maria Harrison
Boyce Thompson Institute
Ithaca, New York

Plant roots greatly influence the chemistry of their surroundings, resulting in a rhizosphere rich in microorganisms, whose collective activities modulate many processes including nutrient cycling, plant nutrient acquisition, and pathogen profiles. Thus,

the well-known associations of roots with mutualistic symbionts, as well as interactions with entire microbial communities within and around plant roots, impact plant health and productivity. Lectures in this symposium will focus on the interactions of plant roots with microorganisms, from individual interactions with symbionts, where details of signaling and regulation are emerging, to root and rhizosphere microbial communities where advances in sequencing technologies and bioinformatics have enabled characterization of the root microbiome.

Speakers

Maria Harrison, Boyce Thompson Institute, Ithaca, New York
Regulation of arbuscular mycorrhizal symbiosis

Giles Oldroyd, John Innes Centre, Norwich, UK
Dissecting and engineering symbiosis signaling

Phil Poole, University of Oxford, Oxford, UK
Plant control of the microbiome

Jeff Dangl, University of North Carolina at Chapel Hill
Synthetic communities and microbiome function



Symposium III

Epigenetic Variation in Plants

Organizer: Joseph Ecker
The Salk Institute for Biological Sciences
La Jolla, California

Plants provide an unparalleled experimental system to explore the mechanistic links between genetic and epigenetic variation and phenotype. High-throughput sequencing methods now allow linking of genotype/epigenotype variation to specific developmental processes within individual plants as well as studies of

natural variation in large plant populations for any species of interest. The symposium speakers will discuss their latest studies of genetic/epigenetic variation in genes and genomes and their impact on phenotype using a variety of plant systems.

Speakers

Mary Gehring, Massachusetts Institute of Technology, Boston
The contribution of epigenetic variation to seed development

Robert Schmitz, University of Georgia, Athens
Exploring genome-wide patterns of DNA methylation throughout the plant kingdom

Joseph Ecker, The Salk Institute for Biological Sciences, La Jolla, California
1,001 Epigenomes Project

Nathan Springer, University of Minnesota, St. Paul
Probing the sources of variation for the maize methylome



Minneapolis

City by Nature

Minneapolis is the largest city in the state of Minnesota. It was founded in 1819 and gradually developed into a regional center for banking and industry. General Mills is a prominent local food producer, and the city's rejuvenated waterfront features parkland, the Mill City Museum, and the popular Guthrie Theater. For more information or for scheduling a tour, visit <http://www.minneapolis.org>.

Keep up-to-date with all the latest information: plantbiology.aspb.org

Start the conversation on Twitter: @aspb #plantbiology15





Symposium IV Plant–Microbe and Plant–Insect Interactions

Organizer: Xinnian Dong
Duke University, Durham, North Carolina

The studies of plant–microbe and plant–insect interactions involve many facets of biology. With several key plant immune mechanisms identified during the past two decades, this symposium will focus on the physiological and ecological aspects of plants’ responses to microbes, insects, and nematodes. The interplay

between plant defense, growth, and metabolism and the influences of environmental cues on plant immunity will be discussed.

Speakers

Alisa Huffaker, University of California, San Diego
Maize interactions with pathogens and herbivores: intersection of signaling and metabolism

Melissa Mitchum, University of Missouri, Columbia
Signaling in plant-nematode interactions

Xinnian Dong, Duke University, Durham, North Carolina
The interplay between plant immunity and the circadian clock

Ian Baldwin, Max Planck Institute for Chemical Ecology, Jena, Germany
Ecological studies of plant–insect interactions



Symposium V ASPB President’s Symposium: Global Water and Salinity in Plants

Organizer: Julian Schroeder,
University of California, San Diego, and
ASPB President

Abiotic stress encountered by plants, in particular drought, flooding, and salinity stress, threaten stable global food availability in light of the growing world population, increasing per capita consumption, and predicted impacts of climate change.

In arid regions, more than 80–90% of fresh water is used for agriculture. Drought and salinity stresses will have increasingly detrimental effects on plant growth and agriculture in the many semi-arid zones around the globe. Moreover, crop irrigation in drought-prone regions, as well as rising sea levels in low-lying regions, are increasing salinity stress, thus reducing agricultural production and available cropland. This symposium will highlight progress being made and will delineate newly arising challenges. The symposium speakers will cover the range of basic discovery research into the unknown mechanisms mediating water and salinity stress resistance and use of recent research advances toward developing crops with enhanced yields in the field in light of these stresses. Furthermore, the relevance of this R&D for small-holder farmers in the developing world and future challenges for our community will be highlighted.

Speakers

Jose Dinneny, Carnegie Institution for Science, Stanford, California
Spatiotemporal regulation of water-stress responses in roots

Julia Bailey-Serres, University of California, Riverside
Waterproofing plants

Mike Nuccio, Syngenta Biotechnology, Inc., Durham, North Carolina
A GM approach to improve yield preservation in maize subject to water deficit at flowering

Rob Horsch, Bill and Melinda Gates Foundation, Seattle, Washington
Like water for carbon? ■



Plant Biology 2015

JULY 26–30 MINNEAPOLIS, MINNESOTA
PLANTBIOLOGY.ASPB.ORG

An Expansive Vision for Plant Science

BY CRISPIN TAYLOR
ASPB Executive Director

As ASPB works to highlight and promote the priorities articulated in *Unleashing a Decade of Innovation in Plant Science: A Vision for 2015–2025*, it's inspiring to see our community adopting an increasingly expansive view of what plant science research encompasses.

The Decadal Vision report (<http://tinyurl.com/q9ajqgs>), which was developed in a process that involved input from across a very broad spectrum of plant science and related disciplines, is all about connecting fundamen-

tal discoveries with real-world challenges. That means building a wider, deeper appreciation for the value of scientific inquiry and establishing closer connections across the entire spectrum of plant science research—from fundamental discoveries to crop development, seed management, and even to the production and processing of food.

When it convenes in Minneapolis (July 26–30), Plant Biology 2015 will provide ample opportunity for plant scientists from around the world to connect those dots. Collectively, our major

symposia speakers reflect the arc of knowledge, understanding, and research that spans the most fundamental to the most applied.

For example, the symposium that Maria Harrison has organized on plant interactions with rhizosphere microorganisms will incorporate the latest information regarding signaling in symbiont–plant pairs, as well as detailed investigations of entire root microbiome communities and the ways in which they are influenced by plants. Meanwhile, Julian Schroeder's symposium on water will feature discovery

research into the mechanisms mediating water and salinity stress resistance and applied research aimed at developing field crops with enhanced yields under stress conditions.

The fundamental purpose of ASPB's Plant Biology meetings is to create a space where plant scientists can join together and interact around the scientific issues and challenges that interest them most. By fostering this robust dialogue in the context of the most recent discoveries from across our discipline, Plant Biology 2015 furthers ASPB's mission to serve as a trusted space for the profession to convene and share knowledge.

The meeting also provides a forum for community members to explore the future of plant science, for early career scientists to advance their career trajectories, and for employers to spot the talent that will help their organizations thrive in the years and decades ahead.

From the moment you set foot at Plant Biology 2015, you'll see that the plant science on tap in Minneapolis is—like the Decadal Vision—far broader in scope and impact than you might have expected. We look forward to seeing you there. ■



The Untold History of Women in Science and Technology

BY MARISA OTEGUI
University of Wisconsin–Madison

Brilliant women have made major contributions over the years to science and technology, but many of their stories and achievements have not received the recognition they deserve. It is about time to change that, and the White House has launched an initiative to get these women's stories heard. In "The Untold History of Women in Science and Technology" (<http://www.whitehouse.gov/women-in-stem>), women from President Obama's administration talk about remarkable women scientists who have inspired them and many others with their creativity, brilliance, perseverance, and courage.

Megan Smith, the U.S. chief technology officer, introduces the first audio track talking about Grace Hopper, who was a pioneer in programming language development from the 1930s through the 1980s. The site also highlights other stories of women who excelled in computer science, mathematics, chemistry, space science, and, of course, biology. "Women were central in the early teams building the foundation of modern programming. They unveiled the structure of DNA. Their work inspired new environmental movements and led to the discovery of new genes. It's past time to write their stories permanently into history, so they can stand side by side with the

“Don't be afraid of hard work. Nothing worthwhile comes easily. Don't let others discourage you or tell you that you can't do it. In my day I was told women didn't go into chemistry. I saw no reason why we couldn't.”

—Gertrude B. Elion

American biochemist and pharmacologist, recipient of the 1988 Nobel Prize in Physiology or Medicine



extraordinary men like them who have used their technical and innovation skills to bring needed solutions and discoveries to our world,” Megan Smith and Jo Handelsman, associate director for science at the White House Office of Science and Technology Policy, write in a blog post (<http://tinyurl.com/m7fjzxl>) about the audio project. They also add, “Telling and sharing these stories will actively help create more of them in the future. Research shows us that a key part of inspiring more young people to pursue careers in science and technology is simply sharing the stories of role models like them in these fields who have had a significant impact on our world.”

The stories highlighted in the audio tracks are just the beginning. Visitors are encouraged to add their own inspirational stories. The guidelines state that Nobel Prize winners are not the only source of inspiration to pursue a career in science: “There are millions more untold stories of women who have broken down



Grace Hopper, a pioneer in programming language development from the 1930s through the 1980s.

barriers in the fields of science, technology, engineering, and math—and accounting for the rich history of women's contributions in these fields is going to take all of us telling them. Maybe

it's a former teacher. Maybe it's your grandmother. Maybe it's you.” Be sure to visit this site and tell your “untold” story. ■

As the years churn on, many esteemed members of ASPB have passed the torch to their younger colleagues and stepped out of the limelight to allow others to bask in its glory. Yet, many continue their good works to the benefit of plant biology and the world. Edited by Beth Gantt, University of Maryland, "Where Are They Now?" is part of the *ASPB News* suite of columns focused on the personal and scientific life and insights of ASPB members at all stages of their career. This column offers a look into the current activities of influential members of ASPB who continue to make a positive mark on our Society. We hope you all enjoy this addition to your newsletter.

Please feel free to submit your own article to "Luminaries," "Membership Corner," or "Where Are They Now?" For details please contact me, David Horvath, Membership Committee chair, at david.horvath@ars.usda.gov. As always, we are open to suggestions for articles or features of interest to readers of the *ASPB News*. Enjoy!

Winslow Briggs

Director (emeritus), Department of Plant Biology, Carnegie Institution for Science;
Professor (emeritus), Department of Biological Sciences, Stanford University

Although I was invited to focus on how I have been keeping out of trouble since my official retirement as director of the Department of Plant Biology, Carnegie Institution of Washington (now Carnegie Institution for Science) in 1993, I need to begin with an incident that happened a few years earlier. At that time, the Carnegie Institution had a strict policy for directors: full retirement at age 65. As administrators, directors were not afforded the protection that faculty members currently enjoy. However, a director from another Carnegie Department challenged the policy and won the case. Hence, in 1993, when I arrived at the magic age of 65, I shed my administrative chores (gleefully, I might add) and returned full time to science.

In the ensuing years, I devoted the lab completely to efforts to purify and characterize an extremely interesting plasma-membrane protein. It was unique in that we could activate it with blue light, causing it to undergo extensive phosphorylation. Although we had discovered



Winslow Briggs

the protein in etiolated pea epicotyls in 1988, the biochemical purification techniques that had been quite successful with phytochrome proved to be ineffective. Grants were running out, and although we made a lot of progress characterizing the reaction itself biochemically (kinetics of phosphorylation and dephosphorylation, any ionic requirements, pH optimum, and so on), we made no progress in purification of this elusive but tantalizing protein. A column step

that gave us a tenfold reduction in total protein resulted invariably in something like a tenfold loss of phosphorylation activity. Note that even today, no laboratory has been successful in either purifying the native protein or producing more than miniscule amounts in insect cells. Paul Oeller, a skilled plant molecular biologist, struggled valiantly with the project, to no avail. On top of everything else, Ahmad and Cashmore, in a lovely study published in 1993, announced their discovery and characterization of the first real blue-light receptor in higher plants—cryptochrome I. To top it off, I was diagnosed with incipient esophageal cancer and led kicking and screaming to the operating table. Overall morale was at rock bottom.

Fortunately, prior to that unwelcome intrusion, genetics and Arabidopsis had entered the lab. There were a few phototropism mutants already described in the literature, but they were only incompletely characterized. In 1992, Philippe Reymond found that one of the published Arabidopsis mutants, JK224, was

severely impaired in its ability to carry out blue-light-activated phosphorylation. This was the first real link between a phototropism-altering mutation and a biochemical consequence of the mutation. Hence, in 1995, Mannie Liscum carried out a brand new screen. The screen identified a group of phototropism mutants in five different complementation groups. At the same time, Mannie introduced us to the analytical technique known as restriction-fragment length polymorphism (RFLP) to chase down the mutated gene. Eva Huala took up and completed the chase, and all of a sudden things were looking up: the sequence for the mutant *nph5* indicated that the *NPH5* gene had suffered a direct hit by a fast neutron!

Suddenly we had our hands on a very interesting complete DNA sequence for the wild-type gene. It consisted of a highly conserved domain (that we named a LOV domain) that appeared twice upstream from a classic kinase domain. (We applied the acronym LOV because of its similarity to domains in other proteins sensi-

tive to Light, Oxygen, or Voltage. This turned out to be a bad mistake. People repeatedly think, incorrectly, that a single protein can carry out all three functions, whereas there is no evidence that any of them can carry out more than one.) We published the finding in *Science* in 1997. However, the editor cautioned us not to claim (yet) that it was a genuine photoreceptor (although we firmly believed that it was!). Within a year, John Christie succeeded in expressing the wild-type gene in insect cells and demonstrating that the encoded protein bound a flavin and retained full photoactivity—in the absence of any other plant protein. This time, *Science* allowed us to use the word *photoreceptor* and link it to the word *phototropism* in the title of the article. We were describing for the first time what was later to be designated phototropin I, the photoreceptor for phototropism. During those years, as I was gradually recovering well from some massive surgery, an NSF grant was renewed, the lab was full of great people, and we were off and running. Suddenly things looked pretty rosy!

By 1999, we had demonstrated that the highly conserved domains—about 100 amino acids each—were both binding sites for the flavin, FMN. Then, in 2000, we found that we could express these LOV domains in *E. coli* and obtain milligram amounts for analysis. The first thing senior visitor Michael Salomon did was to examine their absorption spectrum before and after blue-light treatment. A typical flavin absorption spectrum was transformed into a spectrum with a single broad peak in the UV-A. At the time, I was clueless

as to what might be going on, but when I described the spectral change at a flavin meeting in Switzerland in 1999, an intellectual giant among flavin biochemists, Vincent Massey, leapt to his feet in great excitement and said in effect, “You have produced a flavin C(4a)-cysteinyl adduct photochemically.” Outwardly I said, “Wow! That is really exciting! Can you give me a reference?” Inwardly, I said, “What the blazes is a flavin C(4a)-cysteinyl adduct?” We actually did find out and published the finding in 2000. Indeed, we had discovered an entirely new photoreceptor photochemistry.

Trevor Swartz, in a collaboration with Roberto Bogomolni’s lab at UC Santa Cruz, then demonstrated the domain’s photocycle—formation of a triplet, decay to the adduct, and subsequent return to the dark state—in 2001, and, in 2002, produced the first vibrational spectroscopy demonstrating light-driven protein structural changes. Also in 2002, continuing the collaboration that has lasted up to the present, Roberto’s graduate student Stephanie Corchnoy published evidence jointly with us that irradiation of the LOV domain with blue light induced a major conformational change—about a 30% loss in alpha-helicity. This conformational change was later beautifully documented from solution-NMR studies by Shannon Harper in Kevin Gardner’s laboratory.

We estimated in 2001 that there were only two laboratories working on phototropins—ours and Mannie Liscum’s (he had moved to a faculty position in Missouri). By 2005, however, the number had swelled to more

than 40 labs. This brand new photochemical reaction immediately attracted the attention of a large number of biophysicists, ever anxious to get some new photochemistry into their highly sophisticated device—whatever it did.

The reason I included the introductory paragraph should by now be clear. Without the tenacity of a previous Carnegie director, none of this research would have happened. And, of course, without the extremely able postdocs that I mentioned (and others that I didn’t), none of these findings would have been published (at least not by us!). The privilege of continuing full-time research following retirement produced what is probably the most gratifying period of my scientific career.

Outside of the laboratory, however, I have become deeply involved in two other projects. The first activity is editorial. At some time in the fall of 2006, I received an email from Sheng Luan at UC Berkeley. The gist of the email was that the Chinese Society of Plant Physiologists and the Chinese Academy of Sciences had jointly decided to publish an international journal in plant biology. Sheng asked me if I would be interested in helping to get it started. A glance at the table of contents of *Plant Physiology*, *The Plant Cell*, or *The Plant Journal* revealed a very large number of Chinese names, many as lead author but also many as anchor author. A quick perusal supported the following conclusion: Chinese scientists from the People’s Republic of China are producing some outstanding plant science. Clearly, the time was ripe for them to have their own major English-language

journal—and thus *Molecular Plant* was born. I eagerly accepted Sheng’s challenge (hoping that my experience with *Annual Reviews* might be helpful). Thus, I was able to participate from the very beginning in getting the journal up and running, and I have continued this association right up to the present. It has been with great excitement that I have been able to watch *Molecular Plant* climb up into the ranks of the top few plant biology journals worldwide—something that has also been immensely gratifying.

The second activity is something completely different. As a couple in love with the great outdoors, my wife Ann and I have been volunteering for more than three decades at Henry W. Coe State Park, a 135-square mile rugged state park in the interior coastal mountain ranges southeast of San Jose, California. As the park has expanded by acquisition from a starting area of about 22 square miles over that time period, we worked out new trail alignments, helped develop a system of signs, wrote trail guides, advised the public, organized events, participated formally in several park committees, and served for more than a decade in the administration of an official state-parks cooperating association. We also took on a whole range of other park activities including helping to develop an award-winning GPS-based park trails map. It was almost a second career for us.

Then in 2007, there was a major wildfire in the park, and approximately half of the park burned. Despite the devastation, it looked like a wonderful opportunity to enlist volunteers and

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WINSLOW BRIGGS
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initiate a study of postfire recovery in the various ecosystems in the park. With approval of the State Parks District Supervisor, I put out a call for volunteers. About 20 people signed up, were given training, provided with instructions in radio communication (essential in this huge park), and checked for 4-wheel driving skills (an important consideration in this rugged park). For more than five years they faithfully recorded vegetation changes in their designated plots. The intense scrutiny is now

over, data analysis is under way, and a number of citizen volunteers are now personally familiar with the several postfire recovery mechanisms—seed germination activated by chemicals in smoke, stump sprouting, and induction of flowering by plants developing from bulbs or corms. They have also observed plant succession patterns in chaparral areas as certain shrubs outgrow all other plants, close the canopy over them, steal their sunlight, and put them out of business. In the course of the project, I made contact with Steven Smith's group at the University of Western

Australia, where they were carrying out pioneering molecular work on compounds in smoke that induce seed germination in sensitive species. The contact provided me with a postdoctoral fellow, David Nelson, and a short but extremely fruitful collaboration. Overall, in addition to introducing me to an entirely new field of science, it has been a wonderful weekend activity. It has been a great pleasure experiencing the interactions with the volunteers, watching them learn, acquire a lot of new natural history knowledge, and in several cases communicate it to the public. It has been

a wonderful way to keep out of trouble (and still is).

Meanwhile, we still have two very interesting stories developing in the laboratory. One involves trying to elucidate the roles that microtubules play in stomatal function, and the other involves determining the physiological role of phototropin ubiquitination. Science never ceases to be fascinating. ■

Editor's note: Winslow was the 2014 Founder's Choice award winner, bestowed annually by the journal *Plant Physiology* on a plant biology pioneer.

PRESIDENT'S LETTER
continued from page 3

happy that ASPB is now enabling our members to be immediately informed of new or pending congressional actions related to plant sciences funding and related policy issues. If you would like to be more proactive or be added to our mailing list, please contact Tyrone Spady, ASPB's director of legislative and public affairs, at tspady@aspb.org. The need for increased funding of plant sciences research has been recognized and highlighted by several influential bodies. However, the plant sciences community needs individual plant scientists to get directly involved in spreading

the word about the vital importance of plant sciences research. In other words: We need you. Realization of this goal will be best met if our congressional representatives hear from you, regardless of whether you are a young scientist just starting out or at any other stage of your career.

It is great news that 2015 will be the inaugural year for ASPB's newly endowed Innovation Prize for Agricultural Technology, which will recognize outstanding advances made by industry scientists. Many ASPB members are active in industry, and it is high time that ASPB recognized their most notable contributions. In fact, our work with industry and recently with the STEM

Connector Food and Ag Council (see <http://www.stemconnector.org/stem-food-ag-council-0>) has informed us that substantial job growth is projected in plant- and agriculture-related industries for well-trained plant scientists.

I am also excited that Sabeeha Merchant has come on board as the new editor-in-chief of ASPB's flagship journal, *The Plant Cell*, as of January 1. Sabeeha has been working hard at bringing changes to *The Plant Cell's* review process, with a view toward covering a wider range of approaches, including biochemistry, structural biology, and biophysics; shortening the time to final acceptance and publication of articles by streamlining the review process;

encouraging new PIs with special attention to their manuscripts; broadening the reviewer base beyond the plant biology community; and enhancing the tradition of expedient publishing of new breakthrough research for the benefit of the whole plant sciences community.

ASPB's overarching goal is to bring our diverse and growing family of plant biologists together and to serve your many needs, goals, and initiatives. Please do not hesitate to contact me if you have suggestions for improving on or building any of the above or other initiatives that ASPB is pursuing. ■

Policy Update

BY LAUREN BROCCOLI
Lewis-Burke Associates, LLC

Appropriations Update

At the time of writing, the House and Senate just released details of the fiscal year (FY) 2015 omnibus appropriations bill. This piece of legislation would fund the entire federal government for FY2015 and provide only short-term funding for the Department of Homeland Security, in an attempt to thwart action on the president's recent executive action on immigration. Highlights include

- \$7.34 billion for the NSF, \$172 million over FY2014
- \$325 million for USDA's Agriculture and Food Research Initiative, an increase of \$8.6 million over FY2014
- \$592 million for DOE's Biological and Environmental Research Office, a decrease of \$18 million below FY2014
- \$30.08 billion for the NIH, \$150 million over FY2014 (not including money for Ebola).

All numbers are approximate. Complete details of the FY2015 omnibus are available at <http://tinyurl.com/lr99ctr>.

2014 Midterm Elections Overview

In the November 4 midterm elections, voters gave a sweeping victory to Republicans, who took the majority in the Senate and expanded their majority in the House of Representatives. In the House, gains were slightly above expectations, as Republicans will now control a total of 244 seats.

In the Senate, the Republicans picked up nine seats.

Republican congressional leaders have indicated their desire to use their unified majority to move away from brinkmanship, prove they can govern effectively, and pass legislation meant to showcase their differences with President Obama. Without a filibuster-proof majority in the Senate, Republicans are also likely to use reconciliation, a legislative mechanism that only requires a simple majority for budget-related measures, to push through changes in mandatory spending, tax provisions, and other key priorities.

The outcome of the 2014 election ensures there will be a significant turnover in both the House and Senate committees and subcommittees. Below are details of key 114th Congressional Committee leadership positions that are *anticipated*.

House Appropriations Committee

- The committee will remain under the leadership of Chairman Harold Rogers (R-KY) and Ranking Member Nita Lowey (D-NY).
- Rep. Robert Aderholt (R-AL) will serve as chairman of the House Appropriations Agriculture and Rural Development Subcommittee, alongside Ranking Member Sam Farr (D-CA).
- Rep. John Culberson (R-TX) will serve as the new chairman for the House Appropriations

Commerce, Justice, Science, and Related Agencies (CJS) Subcommittee, replacing Rep. Frank Wolf (R-VA) who is retiring. Rep. Chaka Fattah (D-PA) will remain ranking member.

Senate Appropriations Committee

- The committee will likely retain Senator Barbara Mikulski (D-MD) as ranking member, and Senator Thad Cochran (R-MS) is expected to become chairman.
- Senator Roy Blunt (R-MO) is likely to be the new chair of the Agriculture Subcommittee, which will now have a new ranking member with the defeat of Senator Mark Pryor (D-AK). Senator Jon Tester (D-MT) is mentioned as the likely ranking member.
- Senator Barbara Mikulski (D-MD) will likely assume the ranking member of the CJS Subcommittee, while the chairmanship will depend on whether Senator Richard Shelby (R-AL), current ranking member, remains or leaves for another post.

House Agriculture Committee

- Rep. K. Michael Conway (R-TX) will become chairman of the committee, replacing Rep. Frank Lucas (R-OK) who completed his six-year term as chair under Republican term-limit rules.
- Rep. Collin Peterson (D-MN) will remain the ranking member.

Senate Agriculture, Nutrition, and Forestry Committee

- With Republicans taking control of the Senate, Senator Thad Cochran (R-MS), current ranking member of the Senate Agriculture Committee, is expected to become chairman of the Senate Appropriations Committee. This would enable Senator Pat Roberts (R-KS) to become chairman of the Senate Agriculture Committee. Senator Roberts has been chairman of the House Agriculture Committee and served as ranking member of the Senate Committee in the past.
- Current Committee Chair Debbie Stabenow (D-MI) is expected to become ranking member.

House Science, Space, and Technology Committee

- Both Chairman Lamar Smith (R-TX) and Ranking Member Eddie Bernice Johnson (D-TX) will continue to serve in their respective leadership roles for the 114th Congress.

Senate Commerce, Science, and Transportation Committee

- Current Ranking Member John Thune (R-SD) is expected to become chairman of the Committee in the 114th Congress. Senator Thune has been ranking member since 2013.

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Intelligence² Hosts Debate on Genetically Modified Foods

BY TYRONE SPADY

ASPB Director of Legislative and Public Affairs

Participating in and even following the public debate on genetically modified (GM) foods can be a rather dispiriting exercise. It is a discourse driven by ideology more than information and lays bare how irrelevant factual information can be to our thinking and appraisals of the world around us. There is, however, reason to be hopeful. On December 3, 2014, Intelligence² hosted a debate on genetically modified foods. The debate was moderated by ABC News cor-

respondent John Donovan and featured Monsanto’s Rob Fraley and UC Davis animal scientist Alison Van Eenennaam arguing in support genetic modification technology. On the opposing side were Charles Benbrook, research professor at the Center for Sustaining Agriculture and Natural Resources, and Margaret Mellon, science policy consultant and scientist with the Union of Concerned Scientists.

Part of why this event worked so well was how Intelligence² structured it. The moderator

mercilessly policed panelists and the audience. Grandstanding, rigid adherence to talking points, and rehashing topics that had previously been broached were all curtailed by Donovan. As a result, each side had to rely largely on the merits of their respective arguments and had to concede when the opposing argument was stronger.

Another critical feature of the debate was the audience was polled at the start of the event. (The public was allowed to participate in a separate poll in advance

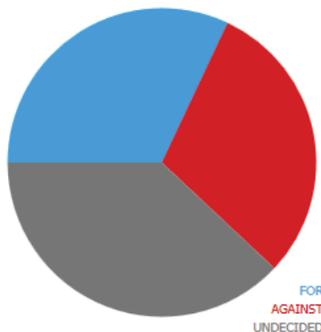
of the debate.) Thirty-two percent of the audience was pro-GM, 30% was against, and 38% was undecided. By the end of the debate, the support of the “for” position had ballooned to 60%!

At least to many in the audience of this event, the facts mattered. To learn more about the debate and to access the webcast, please visit Intelligence² at <http://bit.ly/1wvTHam>. ■

DECLARED WINNER: FOR THE MOTION

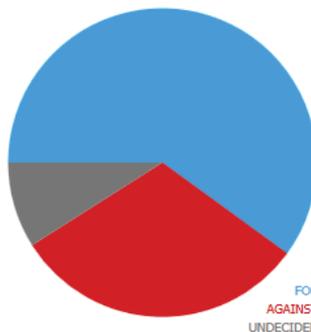
PRE-DEBATE POLL RESULTS

32% FOR | 30% AGAINST | 38% UNDECIDED



POST-DEBATE POLL RESULTS

60% FOR | 31% AGAINST | 9% UNDECIDED



ONLINE VOTING

ONLINE VOTING RESULTS

52% FOR | 48% AGAINST
10958 votes | 10303 votes



CAST YOUR VOTE:

FOR THE MOTION

AGAINST THE MOTION

Voting Breakdown

52% voted the same way in BOTH pre- and post-debate votes (29% voted FOR twice, 18% voted AGAINST twice, 5% voted UNDECIDED twice). 48% changed their minds (2% voted FOR then changed to AGAINST, 1% voted FOR then changed to UNDECIDED, 9% voted AGAINST then changed to FOR, 3% voted AGAINST then changed to UNDECIDED, 22% voted UNDECIDED then changed to FOR, 10% voted UNDECIDED then changed to AGAINST). FIGURE REPRODUCED BASED UPON INTELLIGENCE².

Pursuing a Unifying Message in Support of Ag Research

BY TYRONE SPADY

ASPB Director of Legislative and Public Affairs

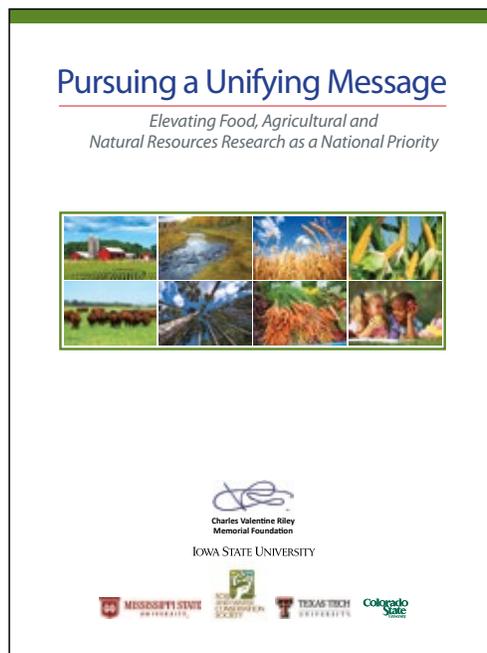
On December 5, 2014, the Charles Valentine Riley Memorial Foundation and Iowa State University, in partnership with Mississippi State University, the Soil and Water Conservation Society, Texas Tech University, and Colorado State University, released a new report, *Pursuing a Unifying Message: Elevating Food, Agricultural and Natural Resources Research as a National Priority*, at the National Press Club. ASPB was a significant contributor to this effort. The report, according to former U.S. Secretary of Agriculture Dan Glickman, “. . . presents a case for why we should be pursuing a unifying message on the importance of investing more in agricultural research.”

Pointing to the mounting threats to U.S. agriculture within the contexts of growing investments in research in China and India and rapidly increasing rates of agricultural productivity in China and Brazil, the report urges the creation of a new coalition of stakeholders, which would include federal agencies, universities, professional associations,

farm organizations, trade groups, and advocacy coalitions, to develop a common purpose, a common message, and a common focus on the public good.

Echoing many of the themes in the *Plant Science Decadal Vision* (<http://bit.ly/197Eph9>), which was shared by former ASPB president Dan Bush with the attendees of this effort's first organizational meeting, the report discusses, for example, the great opportunities that increasingly data-rich components of the agricultural enterprise pose for further innovation.

The report goes on to say: “Foundational advances in major research areas will depend on increased funding. Agricultural production will require unprecedented levels of innovation and cooperation to ensure adequate food for billions more people worldwide—and in turn, redefine the importance of rural communities. Sustaining natural resources is essential to achieve long-term goals for food security, economic



viability and quality of life. Food science and human nutrition promote healthy growth, development and well-being, and ensure a safe food supply. Forestry is a cornerstone for economic and environmental benefits for all Americans. Common threads running through many research priorities are sustainability, resiliency and innovation—all central

to the public good and future quality of life as scientist tackle the immense challenges of our time, including climate change, alternative energy sources (bioenergy), water quality and quantity, public health, hunger and job creation.”

Essentially, the ultimate goal of this effort is to develop “the story and strategy” to capture the public’s imagination and “position agricultural research as having a place among the nation’s highest priorities for the public good.” The next step, according the report,

is for the leaders of ag’s diverse communities to come together to form a new coalition.

To access the report, view the archived webcast of the rollout event, and learn more about the effort to pursue a unifying message, please visit the Riley Memorial Foundation at <http://rileymemorial.org/>. ■

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POLICY UPDATE continued from page 15

- With the retirement of current Chairman Jay Rockefeller (D-WV), Senator Bill Nelson (D-FL) is expected to become ranking member. Senator Nelson is currently the chair of the Science and Space Subcommittee.

Retiring Congressman Rush Holt Named AAAS CEO

Congressman Rush Holt (D-NJ) will become the 18th chief executive officer of AAAS and executive publisher of the *Science* journals. Holt is a trained physicist, with master's and doctoral degrees from New York University, and was selected as a AAAS Science & Technology Policy Fellow. As a Congressman, Rep. Holt was a staunch advocate for federal research, development, and science education, serving on the Natural Resources and the Education and the Workforce Committees, as well as cochair of the Research and Development caucus.

Sources and Additional Information

The full AAAS announcement is available at <http://www.aaas.org/news/AAASCEO>.

NSF Updates Transparency and Accountability Guidelines

As part of an effort to update the foundation's transparency and accountability practices, NSF has rolled out new guidelines and training for writing award abstracts and titles. The agency's Transparency and Accountability Initiative was launched in 2013 to strengthen the merit review process and communicate the public justification for research projects in nontechnical terms.

Sources and Additional Information

More information about the initiative and updates available at <http://tinyurl.com/q5jnkho>. ■

NABT 2014 Cleveland

Midwest Meeting for Science Education Mastery

BY VALERIE HAYWOOD
Case Western Reserve University

The National Association of Biology Teachers (NABT) held their Professional Development Conference November 12–15, 2014, at the Convention Center in Cleveland, Ohio. The conference included teachers from across the country and across the educational spectrum, from K–12 to undergraduate educators. The event featured several renowned speakers including Nobel laureate Stanley Pruisner as well as Erin Dolan, newly appointed executive director of the Texas Institute for Discovery Education in Science and editor-in-chief of *CBE–Life Sciences Education* and past chair of the ASPB Education Committee.

The ASPB Education and Outreach booth was among the many exhibitor displays at the NABT conference. Scott Woody, associate scientist at the University of Wisconsin–Madison and member of the ASPB Education Committee, served as booth manager, directing all booth logistics and coordinating content dissemination between booth volunteers and visitors. During exhibition hall open hours, Scott showcased a collection of Fast Plants–self-compatible (FPsc) genetics education resources including both living plants and hands-on educational tools useful to demonstrate fundamental

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Scott Woody (University of Wisconsin–Madison) demonstrating *The Mating Game* to visitors at the ASPB Education and Outreach booth.



Convention Center in Cleveland, Ohio

Thank you!

ASPB warmly thanks the “local talent” who worked with Scott and each other to share their time, energy, and expertise with booth visitors. Kudos for a successful collaboration to

- Renata Brown**, Cleveland Botanical Garden
- David Burke**, The Holden Arboretum
- Christopher Cullis**, Case Western Reserve University
- Valerie Haywood**, Case Western Reserve University
- Marta Laskowski**, Oberlin College
- Juliana S. Medeiros**, The Holden Arboretum
- Emily S. Rauschert**, Cleveland State University
- Rebecca Summerfield**, Cleveland Botanical Garden

To learn more about the ASPB Education and Outreach efforts, please visit <http://my.aspb.org/?page=Education>. To volunteer at a future event, contact katie@aspb.org.



Four of the fabulous ASPB booth volunteers (left to right): esteemed guest-experts Juliana Medeiros (Holden Arboretum) and Becky Summerfield (Cleveland Botanical Garden) and ASPB/NABT dignitaries Jane Ellis (NABT president-elect) and Janice Haldeman (NABT 2014 award winner).



The Journal Is OPEN

Evidence-Based Teaching Resources for Undergraduate Biology Education

BY KATIE ENGEN

ASPB Education Coordinator

On December 3, 2014, Robin Wright, editor-in-chief, and Jessamina Blum, managing editor, announced with great pleasure that *CourseSource* is now live at <http://www.coursesource.org>. According to the site,

CourseSource is an open-access journal of peer-reviewed teaching resources for undergraduate biological sciences. We publish articles that are organized around courses in biological disciplines and aligned with

learning goals established by professional societies representing those disciplines.

CourseSource exists thanks to the backing of the Howard Hughes Medical Institute and nine active supporters (<http://bit.ly/15Paqty>). Our Society is one of those nine. In tandem with the Botanical Society of America, we established the journal's new Plant Biology Learning Framework shared at <http://www.coursesource.org/courses/plant-biology>. For more

information on the framework coauthors, please see this same Framework page or the article on page 25 of the November/December 2014 issue of the *ASPB News*.

Plant biology courses recently added to *CourseSource* include

- The Case of the Missing Strawberries: RFLP Analysis (<http://bit.ly/1tNorw3>)
- Coevolution or Not? Crossbills, Squirrels and Pinecones (<http://bit.ly/1I0IaCW>)

An approximately three-minute video on the *CourseSource*

home page features a quick tour of the journal. The editors encourage site visitors to explore the articles and other information in the journal and share feedback, comments, and suggestions.

Be sure to register for a free account if you don't already have one. Only registered users can download the PDF files of *CourseSource* articles. And of course, submit your manuscripts on scholarly plant science education resources. ■

NABT 2014 continued from page 19

genetic concepts. See <http://fpsc.wisc.edu> for more information on these tools and The Mating Game companion piece.

Also on display were many of the valuable plant biology educational materials developed by members of ASPB. Sally Sunflower helps students explore plant life in *My Life as a Plant*, an engaging activity book that provides younger elementary-

grade students the opportunity to explore fundamental concepts in plant biology. Another activity on offer to visiting teachers challenges young students to identify how many plants are used to build a fast-food burger. Upper-level educational resources included, among many others, a module for constructing a dye-sensitized solar cell using fruits and vegetables to demonstrate electron transfer (like many ASPB resources, these are published in both English and Spanish).

Despite the treacherous winter conditions, ASPB members from the Cleveland area were out in full force (has a little snow ever deterred a true Midwesterner?). Booth volunteers included ASPB members with professional affiliations to Case Western Reserve University, the Cleveland Botanical Gardens, the Holden Arboretum, and Oberlin College. Also joining the Midwest cast of volunteers was Jane Ellis, former chair of the ASPB Education Committee and incoming president of NABT, and

Janice Haldeman, ASPB member and winner of this year's NABT Four-Year College & University Section Biology Teaching Award. It was wonderful to see so many ASPB members join together, and especially encouraging to witness the ways that ASPB promotes cross-pollination among the organizations whose mission is to improve awareness of plant biology through education. ■

Plants Are Fascinating!

On May 18, 2015, We Will Show the World Why

BY KATIE ENGEN

ASPB Education Coordinator

Fascination of Plants Day (FoPD) 2015 is an international event that showcases how plants are essential to the food, pharma, fuels, and fibers integral to our daily lives and a sustainable environment.

FoPD is an internationally coordinated activity designed to sow constantly germinating seeds in the collective mind of the world public to appreciate and understand that plant science is of critical significance to the social, environmental, and economic landscape now and into the future.

All are welcome to participate! ASPB is serving as the U.S. National Coordinator. And YOU are invited to

- Clear your calendar to celebrate FoPD in tandem with countries all over the world on May 18, 2015
- Catch up on who is in already with this interactive world map: <http://bit.ly/1yZVAKo>
- Conduct an event and share resources from the FoPD toolkit at <http://www.plantday.org>
- Compare ideas with other U.S.-based organizers by checking the FoPD Events & Activities tab at <http://bit.ly/1uybGHf>
- Cultivate fascination in your community on (or close to) May 18. Become one of many

U.S.-based individuals and organizations supporting FoPD by offering free events to create a fascination with plants

- Contact Katie Engen (katie@aspb.org) to learn about ideas and resources you can use at your event and to report news about an event you are curating.

About FoPD

Launched under the umbrella of the European Plant Science Organisation (<http://www.epso.org>), Brussels, the third international FoPD will be held on May 18, 2015. This follows up on the success of the first event, which took place in 2012, and the second in 2013, for which over 689 institutions from more than 54 countries organized over 1,000 events attracting many thousands of people.

More than 26 countries have adopted FoPD, and the number is growing. The initiative is supported by a network of national coordinators who voluntarily promote and disseminate the activities within their countries. A large number of scientific institutions, universities, botanical gardens,



Fascination of
Plants Day
May 2015



Germinate new fascination with plants in your community!

and museums, together with farmers and companies, have already announced that they will open their doors, with a variety of plant-based events for all interested people from toddlers to grandpar-

ents. More information is available at <http://www.plantday.org>.

FoPD supporters actively communicate and coordinate with the media, scientists, farmers, politicians, and industrialists to encourage them to present the latest state-of-the-art breakthroughs in the plant science world and explore all of the new potential applications plant sciences can offer. ■

Find Resource Guides, Messaging and More at
<http://blog.aspb.org/fascination-of-plants-day/>



Fascination of Plants Day May 18th 2015



Plant Science * Agriculture * Forestry * Plant
Breeding * Biodiversity * Nourishment and
Nutrition * Plant Protection * Environmental
Conservation * Renewable Resources *

Everybody is welcome to join this initiative, which started with great and extraordinary success in May 2012 and was a huge success in May 2013. We invite you to organize for the 18th of May 2015 a fascinating activity related to plants attracting and interacting with the public. Just contact your **National Coordinator** or the EPSO Coordinator Trine Hvoslef-Eide trine.hvoslef-eide@nmbu.no to discuss and access all supporting material for the Fascination of Plants Day. We invite many others who would like to contribute to the Fascination of Plants Day to join in, ranging from

schools to horticulture, research institutions to the media. Many **plant science** institutions – universities, institutes, botanical gardens, and museums, together with farmers and companies, have opened their doors at the Fascination of Plants Day 2012 and 2013 with a variety of plant-based events for all the family. Also, the **media** are invited to join in, and scientists, farmers, politicians and industrialists will discuss with them and present the latest state-of-the-art research and breakthroughs in the plant science world and explore all of the new **potential applications** plant science can offer.



www.plantday.org

Please contact us to become a sponsor of the Fascination of Plants Day: epsos@epsomail.org



Announcing the 2014–2015 ASPB Master Educators

Scholars Earn Professional Development Funds to Advance Active Learning for Undergraduates

BY KATIE ENGEN
ASPB Education Coordinator

Established in 2012, the ASPB Master Educator Program (MEP) is a new example of ASPB's continued support of national Vision and Change initiatives designed to transform undergraduate biology education. MEP funds successful applicants to

- Participate in an approved professional development (PD) activity
- Create and pilot teaching resources based on the PD experience—resources will align with Vision and Change recommendations and ASPB's core concepts in plant biology
- Present resources and related outcomes at the Plant Biology 2015 or 2016 meeting.

The ASPB Education Committee is pleased to announce the newest class of Master Educators:

Cheryld Emmons *Alfred University*

The work Cheryld proposed doing centers on attending the National Academies Summer Institute on Undergraduate Education at Princeton University (<http://bit.ly/1vlf7QC>) in mid-2015. Upon learning of her proposal's acceptance, Cheryld responded,

"I am grateful to ASPB for this support and excited to begin the process of revising my approach to teaching plant biology."



Cheryld Emmons

Cheryld's reasons for pursuing MEP include

- Applying evidence-based instruction. Alfred University is shifting to incorporate Vision and Change ideals. Cheryld's goal to adopt active learning techniques is timely, since, as she noted, "I will be team-teaching the [new] Structure & Function course, which will compare and contrast plant and animal strategies for survival."
- Demonstrating that professional development is relevant for all faculty. Cheryld explained, "As the senior member of our division, I am the least familiar with the newest teaching approaches. I . . . incorporate case studies and other in-class experiences for my students and [would like to expand my skills] for the



Tara Phelps-Durr

'flipped class' style that is proving to be so very effective."

- Inspiring future plant biologists or plant-aware citizens. Mindful of being the only plant biologist among five full-time division faculty, Cheryld said, "I am very concerned with the apparent lack of knowledge and interest in plants from our students. I want to develop new teaching skills . . . that will entice and encourage students to investigate plant biology."

Tara Phelps-Durr *Radford University*

MEP resonated with Tara since Radford already has adopted many Vision and Change recommendations. Additional professional development support for active learning will help Tara advance and refine what has been

started. Tara had this to say about her MEP award and project plans:

"It is truly an honor to be selected for the 2015 Master Educator Program. The professional development program that I will attend is the workshop hosted by the National Center for Case Study Teaching in Science (<http://bit.ly/1FNrdrL>). My goal is to create a series of student-centered classroom activities that integrate plant biology case studies with hands-on phenotype analyses of Arabidopsis mutants and computational modeling of proteins required for normal plant development. These classroom activities will be designed to help students understand and appreciate the molecular mechanisms underlying plant development."

Tara and her department consider computational modeling a great fit with their priorities to operationalize Vision and Change recommendations. Tara wrote, "Because there are few examples of plant proteins that have a confirmed 3D structure, the computational molecular modeling activities offer students the opportunity to carry out true inquiry-based projects."

continued on page 24

MASTER EDUCATORS continued from page 23

MEP Mentoring

To support the skills learned from the professional development activities, each Master Educator will work with a mentor experienced in teaching undergraduates with active-learning methods. The mentor volunteers for the duration of the grant (up to 18 months) to serve as a sounding board and suggest resources and accountability measures. Kathleen Archer (Trinity College) has volunteered to work with both Master Educators this year. ASPB appreciates Kathleen's willingness to share her time and expertise to support colleagues as they explore scholarly teaching. Thank you, Kathleen!

As the chair of the Education Committee, Kathleen will enjoy various perspectives of the MEP 2014 cycle. She noted,

"The Education Committee was very impressed with the applications we received in this round of the Master Educator Program. Clearly, the Vision and Change report has stimulated much interest in learning how to use evidence-based, effective methods to teach college biology, and our applicants showed an eagerness for the training the MEP makes possible. Many



Kathleen Archer

already had ideas for pedagogical projects, and ASPB's members should look forward to seeing some exciting and useful teaching tools becoming available as our awardees build and test-run educational resources for plant biology. As a mentor for the 2014–2016 Master Educators, I am really looking forward to working with Tara and Cheryl."

For more information on the Master Educator Program, see <http://mep.aspb.org>. Details on Vision and Change can be found at <http://bit.ly/1yQcjAB>; a follow-up report is expected in 2015. The PULSE community also offers significant support to higher education professionals pursuing Vision and Change goals (see <http://www.pulsecommunity.org>). ■

MEP Supports the Community

(Yes, even nonrecipients)

It's disappointing when a proposal is not accepted. It also can derail the motivation to continue any professional development. So like some other ASPB award panels, the MEP review panel offers options that may help nonrecipients develop skills and gain experience with active-learning techniques. Here's an excerpt from one such exchange with an early-career applicant:

"Clearly you are a strongly motivated teacher . . . So at this stage of your career, you may wish to consider these options (some offer funding):

The Center for Integration of Research, Teaching, and Learning (<http://www.cirtl.net>)—Check the calendar for summer institutes, especially at the University of Wisconsin.

The National Academies and Howard Hughes Medical Institute host regional summer institutes (<http://bit.ly/1vlf7QC>), such as the program at Yale (<http://bit.ly/1vsrTBK>).

Your interest in professional development and goals for science education scholarship are appreciated. So . . . , the review panel encourages you to consider applying with an updated or new proposal in a future cycle of this annual grant."

In a rapidly returned email, this applicant said:

"I think that this is the most thoughtful and useful rejection notice I've ever received in my life—indefinitely more meaningful than the usual boilerplate rejection (or silence, for that matter). I am looking into the options that you highlighted, and I fully intend on applying again in a few years when I've settled into a permanent position. This is yet another example of why I'm so happy to be a part of the plant biology community."

ASPB BLOOME Grant Update

Outreach Delays Overcome in Ghana amid Ebola Concerns

BY KATIE ENGEN

ASPB Education Coordinator

Addressing an epidemiological crisis like the Ebola outbreak is not typical for this newsletter. While not intended to present the direct impact of Ebola on individuals and communities around the world, this article can serve as a reminder that even seemingly unrelated topics or activities can be touched by this type of public health emergency—and that good work can blossom despite difficult circumstances.

First, a happy ending: to ASPB's knowledge, nobody associated with the programs in this article has been directly harmed by Ebola. Yet, a vibrant outreach program in Ghana was interrupted by restrictions related to the outbreak.

A bit of background: ASPB member Marian Dorcas Quain (CSIR) is the primary investigator (PI) for an ASPB education and outreach grant (<http://bloome.aspb.org>). Marian's project is called Introducing Basic Biotechnology Teaching Techniques in High Schools in Sub-Saharan Africa—Ghana. But the project's impact extends far beyond high school classrooms. To make it all happen, Marian works with coinvestigators Marceline Egnin (Tuskegee University), James Y. Asibuo (CSIR), and Eric Warren Acquah (International Community School Oboasi Ghana). Aspects of this busy team's project already have

been featured in the July/August 2014 issue of the *ASPB News*; see page 19 (<http://bit.ly/1rowjEe>) for the prior update.

In November 2014, Marian reported to ASPB that her normally active program's progress was delayed because Marceline could not join the team in Ghana. She was due to help lead an important teacher training session, but Tuskegee administration would not release Marceline to travel because of the Ebola health crisis in some West African countries. Although no cases of Ebola were reported in Ghana to date, the team, of course, complied with this cautious directive.

Despite the interruption, team members based in Ghana did not sit idly by and wait. Instead, they conducted what they call "awareness creation sessions" to generate interest in biotechnology education and career preparation. For example, in November Marian's team collaborated with the CSIR Ladies Club to host a career guidance program for Adawomase Senior High School in the Ashanti region. The session had more than 600 students and teachers in attendance. The complete story about how this impressive turnout developed is available at <http://bit.ly/1vjD0ws>.

As for that delayed training session requiring Marceline's travel to Ghana? It was rescheduled. Likewise, ASPB extended Marian's grant (at no cost)

through December 2015 to accommodate the new timing. As originally intended, that training session is/was

1. Based on specific gaps identified and a validated instructional model for the effective teaching of modern biotechnology and genomics in high schools in Ghana
2. Organized as a hands-on experience for high school teachers to explore basic concepts of biotechnology and genomics teaching model
3. Framed as an opportunity to empower stakeholders and beneficiaries to make informed decisions on modern biotechnology issues. ■



Ghana's proximity to West Africa.

Plant biology can have a direct impact on Ebola

- CNN Health posted videos and related text titled Tobacco Plant May Be Key to Ebola Drugs on October 3, 2014: <http://cnn.it/1Anmc81>.
- On August 4, 2014, WebMD offered this overview on an Experimental Ebola Serum Grown in Tobacco Leaves: <http://bit.ly/XAhtSR>.
- PubMed offers an abstract on this paper from October 24, 2011: Rapid High Yield Production of Different Glycoforms of Ebola Virus Monoclonal Antibody, <http://1.usa.gov/1yS7juv>.
- NIH offers this retrospective overview (1996): Experimental Inoculation of Plants and Animals with Ebola Virus, <http://1.usa.gov/1y8UYBF>.

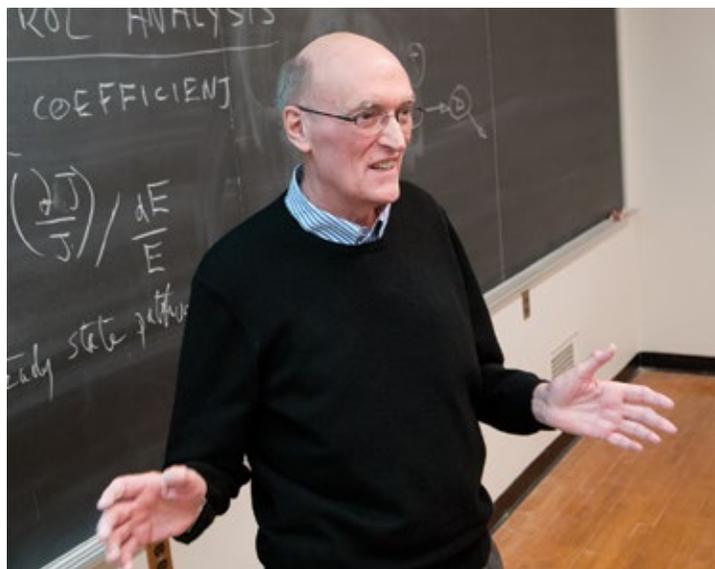
Roger M. Spanswick

June 24, 1939–February 12, 2014

This tribute was contributed by several of Roger's friends and colleagues.

Roger Spanswick was born in England, in a thatched cottage in Barford St. Michael and St. John, a village between Oxford and Banbury, and grew up in nearby Bloxham, Oxfordshire. After concentrating on math and science at Banbury Grammar School, he graduated from Birmingham University with an honors degree in physics. He went on to the University of Edinburgh, where he earned a diploma in biophysics under the mentorship of Jack Dainty. Elwyn J. Williams supervised Roger's PhD, including his early research on ion transport, using the large internodal cells of *Nitella translucens*. Roger continued his studies of characean cells as a Nuffield Foundation Postdoctoral Fellow with Enid MacRobbie in the Botany School of Cambridge University.

On arriving at Cornell University as an assistant professor in 1967, Roger joined the Section of Genetics, Development and Physiology in the Division of Biological Sciences. He was one of a new group of plant physiologists recruited along with Rod Clayton, Andre Jagendorf, and Peter Davies. Roger became an associate professor in 1973 and a full professor in 1979. In 2001, he moved to the Department of Biological and Environmental Engineering. As a teacher in Transport of Solutes in Plants and Transport of Water in Plants, he inspired students with that expertise, his vast general knowledge, personal stories, and



Roger Spanswick in action in the front of a classroom.

historical anecdotes. He carried those attributes in to the development of a new course in Metabolic Engineering.

Roger made major and pioneering contributions to the understanding of basic ion transport processes in plant membranes. Central to Roger's work was the integration of reductionist theoretical and experimental techniques with a systems perspective in order to understand the physical processes that make life in general, and plant life in particular, possible. In 1972, Roger published a groundbreaking paper in which he presented evidence for the existence of an ATP-dependent electrogenic proton pump in the membrane of characean cells. This H⁺-ATPase was distinctly

different than the ATP-dependent Na⁺/K⁺ exchange pump found in animal cells, so disproving the then-prevalent assumption that plant cells were like animal cells. He showed the H⁺-ATPase generated voltage across the membrane of plant cells was greater than that produced by the Na⁺/K⁺-ATPase of animal cells. Roger published a review on electrogenic ion pumps in the *Annual Review of Plant Physiology* in 1981 that put an end to any idea that, in terms of electrophysiology, plants were just slow animals.

Roger began to direct his intellectually diverse group of graduate students and postdocs with two goals in mind: expanding our understanding of transport in plants and developing the human potential of each individual

member of the research team. He considered each one of his students, whether undergraduate or postdoc, as an individual with much to offer. The research was focused on understanding the physicochemical basis of transport and an understanding of the integrated complexity of transport. Roger steered his research team down the reductionist path by working with purified H⁺-ATPase and discovered that there were distinctly different proton-pumping ATPases in the plasma membrane and vacuolar membrane. They also found that the electrochemical proton gradient established by the H⁺-ATPase was able to drive transport of sugars, amino acids, and other ions through cotransport of a proton with the other substrate. Following the complexity path, members of Roger's lab also elucidated how sugars were transported from the maternal tissues of the plant into the embryos of the developing seeds, how ammonium and nitrate were transported into the roots, and how insectivorous plants generated a neuron-like action potential that allowed them to capture their prey.

Roger worked for a second time at the Botany School in Cambridge as a Senior Visiting Fellow in 1973–1974, and in 1981–1982 he was awarded a Guggenheim Memorial Fellowship to study at the University of California, Davis. He received the accolade of Highly Cited Scientist from the Institute

for Scientific Information and was elected a fellow of AAAS. Roger was cited twice by Cornell's Merrill Presidential Scholars as the professor who had most affected their undergraduate career.

Roger married Helen Walker in Edinburgh in 1963. They have two sons, Andrew and Robert, as well as three grandchildren. Roger and Helen looked on his graduate

students, postdocs, and colleagues as extended family and had great pride in their accomplishments. In 1996, Roger was diagnosed with prostate cancer, was treated, and seemed cured. In 2008, he developed multiple myeloma. Always optimistic, he considered the treatment of his cancer as another experiment; he actually enjoyed the science behind his treatments,

was grateful for the medical care he received, and never gave up hope that each new procedure would give him more time to work. He was rewarded with five more productive years, but the disease finally took him from us on February 12, 2014, while at home in Ithaca, New York. Friends, colleagues, and family celebrated Roger's life with a memorable

symposium at Cornell in June 2014 (link to videos of that symposium: <http://ecommons.library.cornell.edu/handle/1813/37294>). Our loss of Roger's intellect is great. Yet he will continue to affect the lives of those of us who knew him well. We loved him and he loved the entire world. ■

Plant Physiology[®]

Call for Papers

Focus Issue on Ethylene

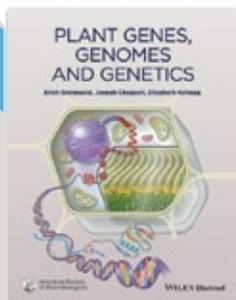
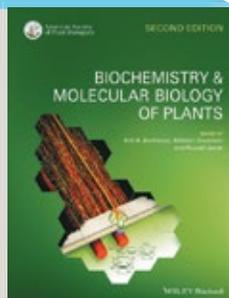
Deadline for Submission: March 6, 2015

To submit an article, please go to <http://pphys.msubmit.net>

First discovered as a plant growth regulator over a century ago, ethylene continues to be a focus for research worldwide. It controls numerous physiological processes during plant growth and development in various phases of the plant life cycle and in interaction with the environment. Ethylene was previously featured in a *Plant Physiology* Focus Issue in 2004, but there have been substantial advances in our understanding of how this phytohormone functions in the decade since then, arising in part from emergent new technologies, thereby inspiring our 2015 Focus issue on Ethylene. The scope of this Focus Issue includes all aspects of ethylene as a plant signaling molecule. Topics include, but are not limited to, the mechanisms of ethylene biosynthesis and signaling, the role of ethylene in plant growth and development, and how ethylene mediates interactions and responses of the plant to its biotic and abiotic environment.

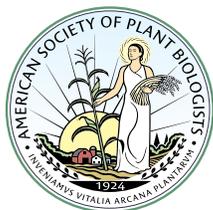
Authors interested in contributing should indicate this in the cover letter when submitting papers online at <http://pphys.msubmit.net>. Please select "Ethylene (July 2015)" from the Focus Issue list in the online submission system. Articles published in *Plant Physiology* on this topic within 2 years before and after the Focus Issue publication date will be collected in an online Focus Collection on Ethylene.

Please contact Eric Schaller (george.e.schaller@dartmouth.edu) or Rens Voeselek (L.A.C.J.Voeselek@uu.nl) for more information.



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