ASPB News

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ELECTION RESULTS

President-Elect
Rick Amasino

Secretary
Nick Carpita

Elected Member
Karen Koch

Corresponding Member
Masamitsu Wada

All recommended changes to the Constitution and Bylaws were approved.

Stories to follow in the fall issues of the *ASPB News.*

President's Letter

In the Line of Fire

Roger Hangarter

Change anything and you run the risk of ending up *In the Line of Fire.* Since the start of the present millennium, ASPB has undergone a number of changes. You may recall the heated discussion about changing the name of the Society to the more inclusive American Society of Plant Biologists, formerly the American Society of Plant Physiologists. While there are individuals who still dislike that change, I think most members agree that the change has made the Society more inclusive to plant scientists sharing the common passion of understanding how plants grow, develop, function, and respond to their environment. Coincident with the name change, the ASPB Committee on Public Affairs was becoming more engaged in defending the use of biotechnology, which has become the mainstay for much of the cutting-edge research that has been driving nearly all areas of plant science. As mentioned in a previous column, "*The Good, the Bad, and the Ugly,*" our defense of biotechnology has occasionally put us *In the Line of Fire* of those who misinterpret our support of biotechnology for advancing plant science research as being synonymous with the evils of corporate greed. We certainly do not support corporate greed or any of the evils it may lead to, but it is important for us to remind policy makers that plant biology is the *Million Dollar Baby* that feeds, clothes, houses, and decorates the world, and for it to continue to do so in the future, plant science must have the capability to advance.

During her tenure as editor-in-chief of *Plant Physiology,* Natasha Raikhel, in the course of making changes to the journal, also occasionally found herself *In the Line of Fire.* Thankfully, she endured the flames and implemented a number of excellent changes, and today *Plant Physiology* is one of the top-ranked plant biology journals in the world. Through her dedication, persistence, and boundless energy, Natasha has greatly enhanced the visibility of *Plant Physiology* and in doing so has helped increase the visibility of plant biology in general. As you know, one of the major functions of our Society is to produce the best scientific journals in the field of plant biology. Having the best journals requires having them in the best hands. ASPB was extremely fortunate to have Natasha steer *Plant Physiology* in exciting directions. Her achievements with the journal have been in many areas, including promoting the highest quality science, bringing us highly informative reviews and commentaries, establishing policies to maintain and encourage high ethical standards for both authors and the editorial board, implementing state-of-the-art online technologies, and enhancing the visual presentation of the journal. As I've said before, we are extremely grateful to Natasha for her extraordinary dedication and numerous contributions to the core function of ASPB.

The wheels of evolution continue to turn, in spite of what nearly 50 percent of citizens in the

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

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Deadline for November/December 2005 *ASPB News:* October 5, 2005

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ASPB Past President Daniel Cosgrove Elected to National Academy of Sciences

The National Academy of Sciences recently announced the election of 72 new members and 18 foreign associates from 14 countries in recognition of their distinguished and continuing achievements in original research.

ASPB members are delighted to see that among the newly elected is Daniel J. Cosgrove, Eberly Professor of Biology, Department of Biology, Pennsylvania State University, University Park.

Cosgrove served as president of ASPB from 2000 to 2001. He is a native of Massachusetts and earned a bachelor's degree in botany at the University of Massachusetts in 1974. In 1972, he opted for a junior year at the University of Oregon in Eugene. From 1974 to 1979, he was a graduate student at Stanford University, where he received a Ph.D. in biological sciences. He did postdoctoral stints at the University of Washington and the Nuclear Research Center at Juelich, Germany. In 1983, he joined the Penn State faculty as assistant professor, advancing to associate professor in 1987 and professor in 1991.

Cosgrove's research deals with the mechanisms of plant cell growth. In the early 1980s he pioneered the use of the pressure microprobe to evaluate hydraulic constraints on cell enlargement. This work led to theoretical and experimental analyses of wall stress relaxation as the key biophysical process controlling cell enlargement. Searching for proteins with wall loosening functions, his group was the first to isolate expansin proteins and to show that they are responsible for the acid-growth behavior of cell walls. Expansin cloning led to the recognition that expansins make up a large multigene family and to the discovery of a second family of expansins that include some notorious grass pollen allergens. Recent work in Cosgrove's lab is focused on the developmental, structural, and evolutionary aspects of the expansin gene superfamily, as well as on biochemical and biophysical studies of additional mechanisms controlling cell wall enlargement.

Daniel Cosgrove

At Penn State, Cosgrove has taught introductory plant physiology and a variety of more advanced courses on plant growth and development, membrane transport, and laboratory uses of computers. He has served on the editorial boards of *Plant Physiology, Planta, Plant Cell and Environment, Physiologia Plantarum,* and other professional journals and on the governing boards of the American Society for Photobiology and the American Society for Gravitational and Space Biology. He is the recipient of numerous awards, including the ASPB Charles A. Shull Award for outstanding investigations in plant physiology. In 1993, he was elected a fellow of the American Association for the Advancement of Science.

The NAS election was held during the business session of the 142nd annual meeting of the academy. Election to membership in the academy is considered one of the highest honors that can be accorded a U.S. scientist or engineer. The total number of active members is now 1,976.

The National Academy of Sciences is a private organization of scientists and engineers dedicated to the furtherance of science and its use for the general welfare. It was established in 1863 by a congressional act of incorporation signed by Abraham Lincoln that calls on the academy to act as an official adviser to the federal government, upon request, in any matter of science or technology.

Also elected to the academy is Robert E. Davis, supervisory research plant pathologist and research leader at the USDA Agricultural Research Service. Elected as foreign associate is David C. Baulcombe; head, Sainsbury Laboratory, and professor, John Innes Centre, University of East Anglia, Norwich (United Kingdom).

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United States apparently misbelieve, and more changes at ASPB are in progress. On July 1, Natasha completed her term as editor-in-chief of *Plant Physiology* and passed the torch to the capable hands of Don Ort. As our science continues to evolve, we can rest assured that Don will steer *Plant Physiology* along the crest of the evolutionary wave our science is riding. I expect that as he faces the challenges of continuing to improve what is already an excellent journal, he will occasionally find himself *In the Line of Fire.* However, I also anticipate that Don, like Natasha, will endure the flames and that we will see the journal continue on its present evolutionary path toward new levels of excellence.

Many changes at ASPB seem to occur with apparent ease, at least insofar as the membership notices. However, no matter how small the change may outwardly appear, there are often many adjustments that must occur behind the scenes. The transition to a new editor-in-chief is certainly not a minor change. However, thanks to the dedication and hard work of everyone involved at ASPB headquarters, and the Publications Department in particular, this transition has progressed as seamlessly as possible.

Once again, thank you Natasha for a job exceptionally well done!

Roger P. Hangarter
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ASPB Signs Grad Student Prize MOU with Pioneer

ASPB has a rich tradition of recognizing its most accomplished members and other contributors to the field of plant biology through a comprehensive series of prestigious awards. A number of these awards require lengthy membership in the Society or service to the discipline. But following a 2003 report on the ASPB award portfolio from an ad hoc committee appointed by then-president Dan Bush, the ASPB Executive Committee has moved to modify existing awards and create new awards that recognize excellence earlier in a plant biologist's career.

One such award, the aptly named "ASPB Early Career Award," was given for the first time this year during the ASPB annual meeting in Seattle to Michigan State University postdoc Dr. Shin-ya Miyagishima. Miyagishima received the award for his elucidation of the sequence of events that occur during the division of the plastid via a series of beautiful studies combining electron and immunofluorescence microscopy and the discovery of plastid-localized and cytosolic molecules that catalyze each step.

Continuing the trend exemplified by the Early Career Award—and reflecting the Society's ongoing commitment to and engagement with scientists at the early stages of their career—ASPB is delighted to announce the recent signing of a memorandum of understanding (MOU) with Pioneer Hi-Bred International that will support $5,000 cash prizes to the Society's most promising graduate student members, no matter where in the world they happen to be working and studying.

Three $5,000 prizes will be given each year from 2006 through 2009 to students whose work demonstrates the application of plant biology to research topics related to commodity crops. An additional $1,000 will be available to each prize recipient to support travel to the ASPB annual meeting in the year the prize is awarded.

"Encouraging and recognizing the efforts of the next generation of plant scientists is an important responsibility for all of us within the plant biology community," says ASPB's president-elect, Mike Thomashow. "This new Pioneer Graduate Student Prize is a fine example of such commitment to the future."

ASPB President-Elect Mike Thomashow

The ASPB–Pioneer Hi-Bred International Graduate Student Prize represents a continuation of Pioneer's commitment to help develop future generations of scientifically literate decision makers by supporting graduate students in collaboration with their disciplinary societies. This commitment is demonstrated by Pioneer's agreement with ASPB, and also by awards the company has funded recently through the Entomological Society of America (see http://www.entsoc.org/awards/student/pioneer.htm) and the American Phytopathological Association (http://199.86.26.56/members/phyto/2004/12/). "We are committed to supporting the public training and development of the next generation of plant scientists, which is critical to furthering the science and, of course, to developing new products that will be critical to meet the needs of a growing world population," says David Bubeck, Pioneer maize research director and chair of the Pioneer Research Awards Team.

Approved by a vote of the ASPB Executive Committee in April 2005, the ASPB–Pioneer Hi-Bred International Graduate Student Prize is the product of careful deliberations by ASPB and Pioneer. ASPB president Roger Hangarter got the ball rolling following initial communications between ASPB and Pioneer staff. A number of formats were considered, including traditional fellowships such as those mentioned above, but in the final analysis what developed was a mechanism that Pioneer and ASPB both felt would better meet Pioneer's objectives at the same time as nurturing the aspirations of greater numbers of ASPB graduate students.

Indeed, Hangarter notes that "the Pioneer Graduate Student Prize represents a novel opportunity for fostering the next generation of plant biologists. It is exciting for ASPB to be able to partner with Pioneer on this innovative program."

Because it will recognize and reward the accomplishments and potential of a dozen students over four years, Pioneer and ASPB both expect this prize to be highly competitive. Moreover, through the selection parameters outlined in the MOU—which include the facility for creative thinking, decision making, and problem solving; excellent communication skills; and the ability to build effective teams—ASPB and Pioneer expect that the prize will foster the development of leadership skills among recipients and nominees alike.

What's next regarding the ASPB–Pioneer Hi-Bred International Graduate Student Prize? More detailed information will be available later this year, and a formal call for nominations will go out early next year, along with those for ASPB's other 2006 awards (watch for e-mail announcements and a call for nominations in the *ASPB News* and on the ASPB website at http://www.aspb.org). The first round of prizes will be awarded in advance of Plant Biology 2006, which takes place August 5–9 in Boston. In the meantime, Thomashow will be assembling an award committee that will evaluate nominations and select the first group of prize recipients.

Sarah Nell Davidson Awarded 2005 AAAS/ASPB Mass Media Fellowship


Sarah Nell Davidson

Sarah Nell Davidson, Cornell University, has been awarded the 2005 AAAS/ASPB Mass Media Science & Engineering Fellowship. She will spend 10 weeks this summer learning her craft at the *Raleigh News & Observer*. Sarah is a Ph.D. candidate in the Department of Plant Biology at Cornell, where she spent her first years in the laboratory of June Nasrallah studying the self-incompatibility response in crucifers before switching gears to pursue science writing. She is currently advised by Robert Turgeon as she studies science writing by examining agricultural biotechnology issues in the developing world. She has a B.A. in biology from Reed College in Portland, Oregon, where she studied antioxidants and nitrogen fixation in legumes (advised by David Dalton). She was an intern at the *Cornell News Service,* where she wrote news briefs and covered speeches and meetings. Currently, she is collaborating with Shawna Williams at the Boyce Thompson Institute for Plant Research to initiate a "science café"—a monthly event beginning this fall that she hopes will bring the exciting science happening at Cornell to the Ithaca community at large.

Her awards and honors include two Knudson-Jagendorf fellowships, two honorable mention NSF graduate research fellowships, and a Plant Cell and Molecular Biology Fellowship.

The AAAS/ASPB Mass Media Fellowship is designed to enhance coverage of science-related issues in the media to improve public understanding and appreciation of science and technology. Fellows work for 10 weeks during the summer as reporters, researchers, and production assistants in mass media organizations nationwide. They collaborate with media professionals at radio and television stations, newspapers, and magazines to make important science news clear and comprehensive to the public. Although this is only ASPB's second year participating, the program is in its 31st year and has supported nearly 500 fellows.

We wish Sarah a fun and productive summer and look forward to reading a full report of her adventures in Raleigh in a fall issue of the *ASPB News!*

U.S. Postal Service Honors Barbara McClintock

New Postage Stamp Celebrates a Century of Science

WASHINGTON—Four American scientists—[plant] geneticist Barbara McClintock, thermodynamicist Josiah Willard Gibbs, mathematician John von Neumann, and physicist Richard P. Feynman—were honored with postage stamps dedicated in a special ceremony at Henry R. Luce Hall, Yale University, New Haven, Connecticutt.

As host to the event, New Haven holds the unique distinction of being the only city in the nation where the stamps became available May 4. The stamps also became available at post offices and philatelic centers nationwide May 5.

"These are some of the greatest scientists of our time; their pioneering discoveries still influence our lives today," said John F. Walsh, a member of the U.S. Postal Service's board of governors, who dedicated the stamps.

Joining Walsh were Paul A. Fleury, dean of engineering, Yale University; Michelle Feynman, Feynman's daughter; Marina Whitman, Von Neumann's daughter; Marjorie M. Bhavnani, McClintock's niece; John Willard Gibbs III, Gibbs's cousin; John Marburger, director, Office of Science Technology; and Victor Stabin, stamp artist. Honored guests included Richard Levin, president, Yale University and John DeStefano, mayor, New Haven.

"This is truly an honor, not only for science enthusiasts and scientists, but for our community as well," said DeStefano. "As a lifelong resident of New Haven, I am thrilled these beautiful scientist stamps are being issued here."

Barbara McClintock (1902–1992)

In 1983, the renowned geneticist Barbara McClintock received the Nobel Prize in the category "Physiology or Medicine" for discovering genetic transposition. McClintock's research on Indian corn plants led to her discovery that genetic material can change positions on a chromosome or move from one chromosome to another. The discovery was confirmed immediately in corn, and in the 1960s and 1970s in bacteria and other organisms.

It was at Cold Spring Harbor Laboratory that McClintock discovered transposition in the course of experiments on mutations caused by broken chromosomes. She called her mobile genetic elements "controlling elements" to indicate that they controlled the action of other genes during development. McClintock was among the first biologists to think concretely about the way genetic material controls the development of the organism.

Reflections on Leading a Research Group

I have been lucky enough to have had the chance to lead a research group during some of the most exciting times of what is truly the Age of Biology. Over the course of about 20 years, the team at The Plant Cell Biology Research Centre, at the University of Melbourne, focused on trying to answer two questions: (1) what is the molecular basis of gametophytic self-incompatibility? and (2) what is the role of arabinogalactan proteins in plants? The research was always a team effort, and as a team we experienced the euphoria of discovery and the frustrations of the apparent impasse. My experiences during this journey are rather personal and not necessarily relevant to all research situations. But perhaps some of the ideas might strike a chord with a young scientist experiencing the first challenges of leadership. Reams have been written about leadership, but it still seems an elusive concept. Different people have different styles and approaches. In this column, I set out some of what I learned along the way and explain what seemed to be important and what worked for me.

Challenge 1: The research question

The research question is of utmost importance and probably the toughest challenge. If you get it right, you can embark on one of the most exciting adventures that can be imagined. The trick is to define a question for your research that will have broad impact when it is answered. That is, it may open up a whole new field of research for others; it may redefine thinking about a topic; it may lead to a whole new understanding or interpretation of an accepted principle. The question you choose to tackle must of course be answerable with the tools and technology available.

Challenge 2: The money

Having set the research goals, the next challenge is to secure the money required to do the work. This is rarely easy. Sources of funds vary with each circumstance and within each country. It is worth spending time to look systematically at all the potential sources, government grants, industry funds, charitable organizations, individual donors, and so on. Being able to communicate what you are trying to do and why, in simple, compelling language tailored for each potential donor group, is a big help. Actually, being able to express ideas concisely in simple language is a very handy skill to have in facing all sorts of challenges.

Challenge 3: The people

Having secured your funding, you can then hire the research team. Whoever you hire has to be convinced that your chosen research question is really exciting and that there is a high chance of significant success. If you cannot persuade potential recruits to this view, it is unlikely that they will invest their time and talent in the project.

The team needs a mix of people who like and respect each other. These people must be intellectually very able. You want really talented individuals able to challenge your ideas. This sort of continuous internal peer review helps maintain the intellectual rigor of decisions that must be made along the research path. These very talented recruits also make truly innovative contributions. One potential trap, however, is the brilliant but difficult or selfish person. You might find that the time and emotional energy required to manage this person's interactions with the group outweighs the value of their contribution. It's also important to balance the "wild ideas" type of people with the careful, systematic organizers—the analytical sort of people.

The team also needs technically able and experienced people. They may not necessarily be brilliant, but those who are technically able, highly motivated, and enthusiastic and who can work well alongside others make invaluable team members.

Challenge 4: Inspiring and guiding the team to work toward the goals

Leadership in guiding the team has many hallmarks of managing the interactions of a family. Usually members all get along pretty well, but sometimes they squabble and "tell on each other" and sometimes there are cries of "it's not fair." Then, like a parent, the leader must find time to talk to the people involved, try to understand the problem, and help work out a solution.

Occasionally things other than the interpersonal interactions of the group go wrong. The team might start to doubt its own capacity, and this is when the team members need to know that you have confidence in them. Sometimes just sitting down with the team and mulling over the problem or impasse will give a glimmer of another way forward. Often just resting after discussing options for the way forward and coming back to the same problem the next day will turn up new thoughts or directions.

People are imperfect—even the leaders. The trick is to build on the skills of the team members and to help them through areas of weakness or uncertainty. Making suggestions is usually more productive than giving orders or making demands. You may need to make the same suggestion several times. Sometimes if you make the suggestion and then let it rest for several days or even weeks, the team will come back with the same suggestion. This creates a situation in which the team has come up with the novel idea and will then be highly committed to making it work. The leader has to have sufficient self-confidence to be able to graciously acknowledge the excellent idea. It can negate the whole exercise if the leader can't resist saying "I told you so."

There will be lots of small successes along the way to answering the big question. It's great for the team to have these successes

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acknowledged and celebrated. One especially tough lesson for the leader is that whereas success belongs to the team, failure falls at the leader's feet.

Challenge 5: Creating the culture to produce excellent research

The culture of an organization or group is hard to define. It is the way things are done, the way problems are approached, the way conflicts are resolved, and the way people are treated. It's about ideals, attitudes, and standards. These standards and attitudes are to a large extent reflected in how the leader behaves. The leader sets the standards of excellence for the work and its public presentation. Leaders also set the standards of honesty and integrity. This includes intellectual honesty as well as honesty in everyday dealings with people.

Important attitudes set by the leaders are, for example, being supportive and encouraging to people on the team and focusing on each person's strengths and achievements rather than weaknesses.

Another part of culture is how problems are approached. It is very useful for the group to work through problems and come to a solution. This process might seem to be a waste of time, especially if the solution is obvious to the leader. However, if the outcome is that everyone is committed to making the solution work, then it's time well spent and generally much more productive than ordering a way forward or finding someone to blame.

It is also very important to create an environment in which open communication can flourish. Having a free information flow and exchange of skills and knowledge in the lab is essential. An important part of achieving this open communication is the attitude that all ideas put forward at meetings are treated seriously. Sometimes even the most way-out, heretical, or seemingly naive idea has value if examined carefully and dispassionately. Creating a low threshold of courage for all members of the group to voice an opinion is critical to the creativity and cheerfulness of the group. It presupposes that people will not be ridiculed or have their ideas dismissed peremptorily.

People also need to see that their input is appreciated. Recognition and celebration of all the little "wins" along the way to answering the main question help make the quest a really joyful experience.

Challenge 6: Building communication networks at all levels

When things go wrong, it is often because of breakdowns in communication. There are several levels of communication to be considered.

Upward

The team has a higher duty than to the research group, and that is to the host institution. Sometimes this is forgotten in the excitement and focus on the research. Positive communication upward into the host bureaucracy can build very useful networks that can really help in getting things done. It helps to explain what you are trying to do to some of the key non-scientists in the bureaucracy. This can be time very well spent.

Outward to the rest of the scientific world

Two key skills are the ability to write simple and concise English and the ability to speak clearly when communicating ideas. Generally we learn these skills from our Ph.D. advisers and from the editors of journals who receive our imperfect manuscripts. For some people who don't have innate skills in writing or public speaking, more formal training can be useful.

Outward to the community

The community ultimately funds government-sponsored research through taxation. It's important that members of the community feel that the research is a good investment and understand its ultimate benefits. This involves communicating what you are trying to do in clear, non-technical language. Sooner or later, if you are successful in answering a big research question, you will encounter the world of the media and need the skills for this rather specialized form of communication. I found formal media training to be invaluable in managing contact with the media.

Inward

Apart from communication within the group, it's very useful to build strong alliances with other research groups. Scientists are really good at finding colleagues in related fields whom they respect and with whom they can find a common technical language. These alliances with related disciplines can be extremely productive and creative.

Summary

Trying to bring all this together I come back to the ideas of the various aspects of managing a family and its relationships. The research leader, like a parent, sets an example of the way to behave, the way to treat people, and the way to solve problems and conflicts. It's relatively easy when things are going well, but it's more difficult when things don't go so well. Being pleasant and even-tempered, even when you feel utterly beleaguered, is very important. You must show very publicly that you are confident of finding a way through problems. The collective wisdom of the team is a powerful force to draw on at all times, but especially when times are difficult.

It has been a great privilege for me to have had the opportunity to lead a research team. I have had wonderful experiences, worked with amazingly talented people, made lifelong friends in many different countries, and enjoyed every day of my life as a plant biologist.

Adrienne E. Clarke
University of Melbourne
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Buchanan Honored by Emory and Henry College

ASPB past president Bob Buchanan has been awarded the William and Martha DeFriece Award by the trustees of his alma mater, Emory and Henry College, "in recognition of his contribution to humanity in the field of science." Buchanan is a professor in the Department of Plant Biology at the University of California at Berkeley.

The William and Martha DeFriece Award is made by the trustees of the college to an alumnus or faculty member who "may have made some outstanding, worthwhile contribution to civilization or humanity in the fields of Christianity, or Science, or Education, or Freedom, or Peace, or Love, or Faith, or Honor, or Virtue, or all of them. The services meriting this award may include some literary production of more than common merit, a scientific discovery of moral and useful benefit to humanity, or other outstanding service which largely contributed or may largely contribute to the welfare of others."

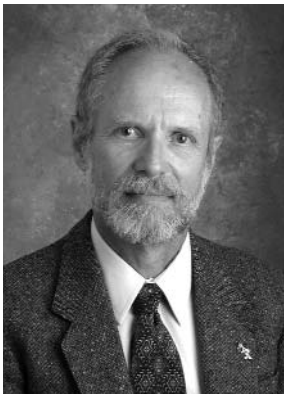
The award was established in 1951 by Frank W. DeFriece, Sr., in honor of his parents William R. DeFriece and Martha Jane Clark DeFriece, residents of Washington County, Virginia. Frank DeFriece, Sr., a member of the Emory and Henry class of 1903 and a graduate of Columbia University School of Law, was an attorney and business executive in Bristol, Virginia.

The award includes a bronze medallion, and the recipient of the award designates $2,500 from the earnings of the award's permanent endowment to support an academic or cultural program at the college.

Frank DeFriece, Jr. (right), was on hand to congratulate award recipient Bob Buchanan. Mr. DeFriece is the son of Frank DeFriece, Sr., who established the award in honor of his parents William and Martha DeFriece.

Symposium Honors Distinguished Career of John S. Boyer

On June 7, 2005, at the University of Delaware's Clayton Hall Conference Center, a symposium featuring internationally recognized scholars was held to highlight recent advances and new frontiers in marine and terrestrial molecular biosciences. The symposium also honored the distinguished career of John S. Boyer, E. I. duPont Professor of Marine Biochemistry/Biophysics, who retired from the university faculty on June 30, 2005.



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John S. Boyer

Boyer's research has focused on understanding how saline and drought conditions can inhibit plant growth. This is a particularly important issue for countries such as Australia, where the soil is naturally high in salt and agriculture is an important industry. Much of the land lies in semi-arid areas that must be irrigated, which can further increase the soil's salt content.

A prolific author, Boyer has written more than 150 peer-reviewed scientific articles and two books. Last year, he was listed by the Institute for Scientific Information as one of the 250 most-cited scientists in the world in the plant and animal sciences.

Among Boyer's many accolades, he was elected to the National Academy of Sciences in 1990, one of the highest honors that can be bestowed upon a scientist in the United States. Earlier this year, he was elected a corresponding member of the Australian Academy of Science, a distinction reserved for scientists "who are eminent in respect of scientific discoveries and attainments" but who do not normally reside in Australia.

The Bioethics Imperative XXI

Flow of allegations through the OIG: A conversation with James Kroll, Administrative Head of the NSF Office of Inspector General

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

Like my original motivation for becoming interested in bioethics (http://www.aspb.org/newsletter/mandoli.cfm), my motivation for exploring the consequences of ethical breaches was direct: I ran into a potential ethical breach in a proposal I was reviewing and was at a loss as to what to do. Who was I supposed to tell, and what was I supposed to tell them? No one ever taught me what to do in this instance, and I bet others are in the same state of ignorance that I was. I was surprised how quickly and directly my allegation reached the Office of Inspector General (OIG), an organization that I was vaguely aware of from grade school classes! You can read about what to do in a previous column (http://www.aspb.org/newsletter/janfeb05/10mandoli20.cfm) or look on the OIG website (http://www.oig.dol.gov/).

In preparing to write *this* column, I realized that understanding the structure of the OIG was essential to my understanding of the flow of allegations through the system. Just as I could not properly fulfill my duty as a peer-reviewer if I did not know how to recognize and then report potential ethical breaches, without an understanding of how allegations are processed I could not know the consequences of making an ethical mistake and I certainly could not know how to defend myself if I were accused. That's why my last column dealt with the structure of the OIG.

An analogy may be useful here: How do faculty members at a university know how to function properly if they do not know and understand the managerial system in which they work? In other words, managerial structure and process need to be transparent for anyone to work dynamically and efficiently within any governing structure. Buy-in and implementation of change of that structure by the governed will flow as an added benefit of transparency.

Now that we have reviewed the structure of the OIG (http://www.aspb.org/newsletter/janfeb05/10mandoli20.cfm), we can look at the magnitude and nature of OIG activities. In 2003, NSF received some 40,000 proposals (Fig. 1). Allegations of ethical breaches were raised in less than 1 percent of those proposals. Ethical breaches are triaged into one of three paths: Those involving violation of law are usually investigated by the Civil/Criminal section (see the example of a recent fraud case that follows this article); those involving violation of rule or regulation are usually investigated by the Administrative section; and those lacking substantive evidence of a violation of rule, regulation, or law are given a "Preliminary" review to determine substance. Eventually, those designated Preliminary will go into either the Civil/Criminal or the Administrative section or simply be closed with no further action. The outcomes from 2003 are illustrated in Figure 1.

The OIG handles numerous types of allegations. In the past, the Administrative section has looked at allegations involving

- conflict of interest
- plagiarism
- intellectual theft
- fabrication of data
- falsification of data
- false statements in the substance of a proposal
- false statements in a CV or current/pending support
- data sharing
- fraud
- impeding research progress
- mentoring/abuse of colleagues
- animal welfare/permit violations
- recombinant DNA
- peer review violation
- human subjects violations
- biohazards.

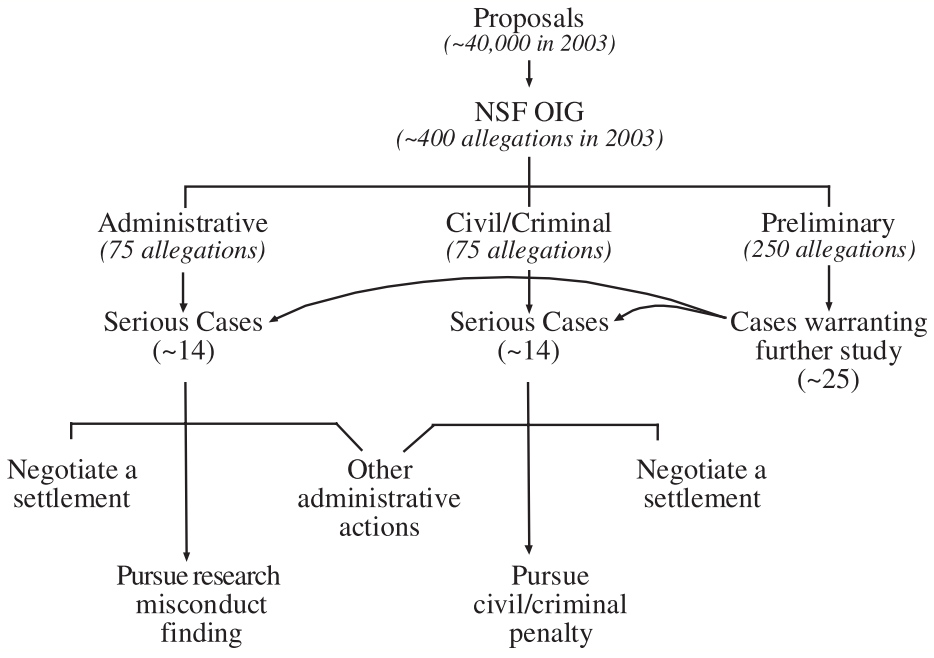

Figure 1. The flow of allegations through the NSF Office of Inspector General. The numbers provided represent the volume through each path using 2003 as an example.

In the past, the Civil/Criminal section has looked at allegations of

- fraudulent or false statements
- fraud/embezzlement
- fraudulent/false claims
- computer fraud
- conflict of interest.

Interestingly, conflict of interest can fall into either the Administrative or Civil/Criminal section: The less serious cases tend to involve a violation of rule or regulation and so fall to the Administrative section, whereas violations of law go to Civil/Criminal investigation.

Plagiarism comes in two forms: taking text or stealing ideas. Copying text from others is easy to prove or disprove because the evidence is right there in print. Stealing ideas—"intellectual theft"—is the largest category of allegations that OIG is asked to consider and is much harder to prove than copying text. How does one demonstrate that an idea is unique to oneself and that no one else has ever thought of it? This portion of my conversation with James Kroll at OIG left me wondering what one does with ideas that arise in conversations among people. Such "brainstorming" often engenders ideas that one might never have in isolation, but I can imagine that noses can get bent out of shape in these instances, too.

Intellectual theft is a category in and of itself, in part because it is the most prevalent allegation brought to the attention of the OIG. "Most often, plagiarism occurs in the Background section of a proposal. Case #6 [http://www.aspb.org/newsletter/novdec04/13mandoli19.cfm], however, was unique in that the person had stolen words that also conveyed a unique scientific concept. This individual used the idea in the scientific portion of his own proposal. Therefore, he was stealing the idea that he had read in someone else's proposal for which he had been asked to provide a confidential review." (James Kroll, Nov. 22, 2004, to Dina Mandoli.) Despite the frequency of allegations of intellectual theft, in the history of the OIG there have been only two "findings" (i.e., proven cases) of this kind of research misconduct. The rest were closed for lack of substantive evidence.

Next time: OIG investigations and their outcomes.

Ex-College President Charged with Fraud

December 9, 2004
By *THE ASSOCIATED PRESS*

ATLANTA (AP)—The former president of Morris Brown College was charged along with an aide Thursday with swindling federal loan programs out of about $5 million by signing up hundreds of students for loans they didn't want and using the money to pay the school's bills.

Delores Cross, 68, and Parvesh Singh, the 62-year-old former financial aid director at the historically black college, were charged with more than 30 counts of fraud each.

Calls to their attorneys were not immediately returned.

Federal prosecutors said Cross, president from 1999 to 2002, increased school spending by more than $8 million her first year, then sought about 1,800 fraudulent loans to pay for it.

Some of the students no longer attended the college and some never realized there were loans in their names until they applied for credit elsewhere and discovered they had defaulted on them.

"That's the real tragedy of this situation," said U.S. Attorney David Nahmias.

When the financial troubles were uncovered, Cross and Singh were fired and the college lost its accreditation. Enrollment plunged from about 2,000 students to as few as 80 at one point.

Nahmias said Cross and Singh apparently hid the scheme from the board of trustees.

Future ASPB Annual Meeting Sites

2006: Boston, Massachusetts
August 5–9
Hynes Convention Center

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

2007: Chicago, Illinois
July 7–11
Hilton Chicago

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

Plant Biology 2008
to be determined

Plant Biology 2009
Honolulu, Hawaii
July 18–22

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

Important Dates in 2005

September 30
Mid-Atlantic Section Crab Feast
ASPB Headquarters
Rockville, Maryland
For more information visit http://www.life.umd.edu/CBMG/faculty/chang/MASASPB/

October 12–16
Plant Genetics 2005
Snowbird, Utah

For more information on all ASPB events, visit http://www.aspb.org.

Membership Corner

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

Name: Moshe Reuveni

Title: Senior Researcher

Place of Work or School: ARO, Volcani Center, Israel

Research Area: Biochemistry of V-ATPase, regulation of genes during differentiation of plants cells in tissue culture

Member since: 1988

1. **Why has being a member of ASPB been important?**
   The valuable social networking that is crucial in the scientific milieu is very important. ASPB meetings give me the opportunity to participate in this networking event. ASPB is an organization that enhances that process and that exposes its members to all areas of plant biology. ASPB journals and meetings give me a forum to present my data and expose it to public scrutiny, and to view others' data as well. The diversity of talks and posters at the ASPB meetings greatly enhances my overview of plant biology.

2. **Was someone instrumental in getting you to join ASPB?**
   Yes, my Ph.D. thesis mentors Professor Alexandra Poljakoff-Mayber and Dr. Zvi Lerner encouraged me to join and even paid my first-year dues. They thought membership would be beneficial to broaden my plant physiology horizons, and they were right.

3. **What would you tell colleagues to encourage them to join?**
   I would explain that membership will help my colleague learn more about what others are doing in the general fields of plant physiology and biochemistry. I would also tell my colleague that he/she will also get the opportunity to meet new people in the field.

4. **Have you enhanced your career using ASPB job postings or through networking at an ASPB function?**
   I made some good contacts through networking during an ASPB meeting that resulted in the submission of joint proposals.

5. **Have you had any success at finding candidates as a result of a job posting at the meeting or on our online Job Bank?**
   Not yet.

6. **Do you read print journals? If so, where do you usually read them?**
   I usually read the online journals, but when I visit the library I always leaf though the print journals. You never know what will catch your eye.

7. **What do you think is the next "big thing" in plant biology?**
   The next "big thing" is the use of yeast and mammalian cell lines to study multi-protein complexes that cannot be isolated from plants. These multi-protein complexes can be expressed in yeast and mammalian cell lines and studied biochemically and functionally.

8. **What person, living or deceased, do you most admire?**
   I admire Professor Haim Weizmann. He was both a great scientist and a great politician (and our first president, 1949–1952) and contributed significantly to my country, Israel.

9. **What are you reading these days?**
   I mostly read science fiction when I have the time. Right now I am reading David Brin.

10. **What are your hobbies?**
    My hobbies are reading science fiction and raising my children, especially my 10-month-old daughter.

11. **What is your most treasured possession?**
    My immediate and extended family.

12. **What do you still have left to learn?**
    A lot about everything. I enjoy learning new things, and I think that, as the saying goes, every day one has to learn something new.

CALL FOR APPLICATIONS

American Philosophical Society Research Programs

All information and forms for all of the Society's programs can be downloaded from our website, http://www.amphilsoc.org. Click on the "Fellowships and Research Grants" tab at the top of the homepage.

Information About All Programs

Purpose, Scope

Awards are made for non-commercial research only. The Society makes no grants for academic study or classroom presentation, for travel to conferences, for non-scholarly projects, for assistance with translation, or for the preparation of materials for use by students. The Society does not pay overhead or indirect costs to any institution or costs of publication.

Eligibility

Applicants may be residents of the United States, or American citizens resident abroad. Foreign nationals whose research can only be carried out in the United States are eligible. Grants are made to individuals; institutions are not eligible to apply. Requirements for each program vary.

Tax information

Grants and fellowships are taxable income, but the Society is not required to report payments. It is recommended that grant and fellowship recipients discuss their reporting obligations with their tax advisors.

Contact information

Questions concerning the FRANKLIN and LEWIS AND CLARK programs should be directed to Linda Musumeci, Research Administrator, at LMusumeci@amphilsoc.org or 215-440-3429.

Brief Information About Individual Programs

FRANKLIN RESEARCH GRANTS

Scope

This is a program of small grants to scholars intended to support the cost of research leading to publication in all areas of knowledge. The Franklin program is particularly designed to help meet the cost of travel to libraries and archives for research purposes; the purchase of microfilm, photocopies or equivalent research materials; the costs associated with fieldwork; or laboratory research expenses.

Eligibility

Applicants are expected to have a doctorate, or to have published work of doctoral character and quality. Pre-doctoral graduate students are not eligible, but the Society is especially interested in supporting the work of young scholars who have recently received the doctorate.

Award

From $1,000 to $6,000.

Deadlines

October 1, December 1; notification in February and April.

LEWIS AND CLARK FUND FOR EXPLORATION AND FIELD RESEARCH

Scope

The Lewis and Clark encourages exploratory field studies for the collection of specimens and data and to provide the imaginative stimulus that accompanies direct observation. Applications are invited from disciplines with a large dependence on field studies, such as archeology, anthropology, astrobiology and space science, biology, ecology, geography, geology, and paleontology, but grants will not be restricted to these fields.

Eligibility

Grants will be available to graduate students, post-doctoral students, and junior and senior scientists who wish to participate in field studies for their theses or for other purposes. Undergraduates are not eligible.

Award

Grants will depend on travel costs, but will ordinarily be in the range of several hundred dollars to about $5,000.

Deadline

March 15; notification in June.

CALL FOR PROPOSALS

WSSA Undergraduate Research Award—2006

The Weed Science Society of America has developed an Undergraduate Student Research Grant designed to encourage and involve exceptional undergraduates in agricultural research. Interested faculty members are encouraged to identify potential award candidates and discuss the possibility of sponsoring a research project. Awards may be used as a stipend, for research budget expenses (travel, supplies, etc.), to defer fees, to defray living expenses for summer research, or any combination of these items.

AWARD

Up to $1000 for support of undergraduate research to be conducted over a minimum of one quarter/semester during 2006. This award may be used to defray the cost of research supplies or as a stipend. Support of a faculty sponsor is required. Awards will be made to the student, to be administered by the faculty sponsor's department.

APPLICANT

The applicant is an undergraduate student with a strong interest in Weed Science. Students majoring in all related disciplines may apply.

TO APPLY

Applicants should prepare a 2-3 page research proposal including name, address, phone number, title, objective, experimental approach, discussion, budget and references. The discussion section of the proposal should describe the expected results and their possible significance to Weed Science. The student should provide a cover letter in which general academic and career goals are discussed. A copy of the student's academic transcripts should also be provided.

FACULTY SPONSOR

Any faculty member who is actively engaged in Weed Science research is qualified to be a sponsor. The faculty sponsor should review the research proposal with special attention to the budget; the distribution of funds should be approved by both the student and sponsor. In addition, the sponsor should provide a letter of reference including a statement of his/her willingness to supervise the proposed research and to provide needed space, equipment and supplies above those requested in the proposal. The sponsor is encouraged to assist the student in presenting his/her results at a regional Weed Science Meeting.

HOW TO APPLY

The completed proposal, academic transcripts, cover letter and faculty letter of support should be forwarded to: Dr. John Jachetta, Dow AgroSciences, 9330 Zionsville Road, Indianapolis, IN 46268-1054; Phone: (317) 337-4686, Fax (317) 337-4649, E-mail: jjjachetta@dow.com. Proposals should be received no later than November 14, 2005. Funding decisions will be made by January 23, 2006 and presented at the 2006 WSSA National Meeting General Session.

Help Support ASPB and Other Nonprofit Scientific Journals

NONPROFIT JOURNALS GROUP
Ag, Food, & Bio Sciences

Nonprofit scientific societies and associations publish many of the finest scientific journals available today, but each alone lacks the financial resources to compete with commercial publishers' marketing efforts. ASPB has joined with 16 other nonprofit scientific societies and associations to form the Nonprofit Journals Group. This group needs your help to spread the word and create awareness for these valuable journals. Please visit the new Nonprofit Journals Group website and use the library recommendation form, found within each journal page, to request these journals for your library—and pass it on to your colleagues now!

www.nonprofitjournals.org

Senate Committee Boosts NSF Plant Genome Research to $100 Million

The Senate Appropriations Subcommittee on Commerce, Justice and Science made a recommendation June 21 of $5,530,959,000 for the National Science Foundation for fiscal year 2006. This is $58 million above the current year and $74 million below NSF's budget request.

For Research and Related Activities, the subcommittee recommended $4,345,213,000. This is $125 million above the current fiscal-year level and nearly $12 million above NSF's request. For Education and Human Resources, the subcommittee recommended $747 million. This is $94 million below the current-year funding level and $10 million above the budget request.

The subcommittee recommended an increase of more than $5 million for the NSF Plant Genome Research Program above both the current-year level and NSF budget request. This would bring funding for the plant genome research program to $100 million. Senator Christopher Bond (R-MO) has been working with subcommittee chair Richard Shelby (R-AL) and ranking Democrat Barbara Mikulski (D-MD) and their colleagues in support of plant genome research. The full Appropriations Committee approved the recommendations of the subcommittee June 23.

Earlier the House Science, State, Justice and Commerce Appropriations Committee recommended $5.64 billion for NSF, which is $171 million above FY2005 and $38 million above NSF's request. The House Appropriations Committee recommended a total of $4,377,520,000 for Research and Related Activities. This is an increase of nearly $157 million over the current fiscal year and $44 million above NSF's request.

For Education and Human Resources, the committee's recommendation is $807 million. This is $34 million below the current-year level and $70 million above NSF's request. The full Appropriations Committee approved the recommendations June 7. The full House passed the bill June 16.

Representatives of Congress, Executive Branch Visit ASPB Poster Exhibit on Plant Genomics

The 11th Annual Coalition for National Science Funding (CNSF) Congressional Exhibition & Reception held June 21 attracted the largest attendance to date, with more than 380 people. National Science Foundation–supported discoveries across a broad spectrum of science disciplines were featured at the exhibition in the Rayburn House Office Building.

ASPB's immediate past president, Mary Lou Guerinot of Dartmouth College, and David Salt of Purdue University prepared and presented the ASPB poster exhibit on "Genomics to Ionomics: Identifying Plant Genes to Enhance Human Mineral Nutrition and Health." Their research, supported by the NSF Plant Genome Research Program, is extending our basic knowledge of how plants control accumulation of minerals. These minerals are important to plants and to all humans as consumers of plant-produced foods.

"This knowledge is enabling the development of new crop cultivars with improved nutritional qualities and enhanced agricultural properties, and plants for restoration of metal-polluted environments," Salt and Guerinot said. Their brochure and poster can be found on the ASPB website at http://www.aspb.org/publicaffairs/briefing/brochure.pdf.

David Salt (left) and Mary Lou Guerinot discuss their NSF-supported plant research with Congressman Ben Cardin.

More than three billion people worldwide suffer from iron and zinc deficiencies. Food consumption studies suggest that doubling the iron in rice can increase the iron intake of people in poor nations by 50 percent, the poster noted. Studies suggest that there is significant genetic diversity in rice and other crops to increase iron and zinc concentrations substantially in grains, making a doubling of these nutrients feasible.

Dietary selenium plays a significant role in reducing the incidence of lung, colorectal, and prostate cancer in humans, the poster noted. Not all diets provide adequate selenium. Guerinot and Salt noted that an inexpensive way to provide selenium would be to develop food plants enriched in nutritionally appropriate selenium levels.

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Salinity is a threat to crop yields, especially in countries where irrigation is an essential aid to agriculture. There is extensive variation for salinity tolerance among various crop plants and cultivars. Based on what scientists have learned about salinity tolerance in Arabidopsis, transgenic approaches also appear effective at increasing salinity tolerance in rice and other important food crops, Guerinot and Salt noted.

"Nutrient-rich foods should lead to significant positive health outcomes. Improvements in seed nutrient levels will also improve germination and growth, as well as increased crop yields when such seeds are sown in nutrient-poor soils," the poster states. "Finally, plants with enhanced accumulation of toxic metals can be used for environmental restoration in a process called phytoremediation."

Guerinot and Salt explained their research to congressional staff, Congressman Ben Cardin (D-MD), White House Office of Science and Technology Policy Associate Director for Science Kathie Olsen, NSF officials, and representatives from other science societies. Officials from the NSF Directorate for Biological Sciences who visited the ASPB booth were Jerry Cohen, Parag Chitnis, and Diane Okamuro.

White House OSTP Associate Director for Science Kathie Olsen (left) confers with Mary Lou Guerinot and David Salt at their ASPB congressional exhibit depicting NSF-sponsored plant genome research. Olsen was later confirmed deputy director of NSF.

ASPB member Kan Wang and Jennifer McMurray also presented a poster at the exhibition: "Plant Genetic Transformation: Enabling Technology for Plant Biology and Agriculture." Their booth was sponsored by the American Society of Agronomy/Crop Science Society of America/Soil Science Society of America.

Each year, CNSF sponsors this major exhibition/reception for NSF on Capitol Hill. ASPB recommended to CNSF initiating this exhibition and has participated each year with poster exhibits. ASPB Public Affairs staff also drafted the news release on the exhibition for CNSF. Staff of the National Association of State Universities and Land-Grant Colleges (NASUL-GC) said the CNSF science poster/exhibition/reception format for Congress has served as a model for the NASULGC exhibition, also held annually.

President Bush Cites Importance of Plant-Based Biofuels

President George Bush cited the importance of plant-based biofuels on May 14 and 16 and on two subsequent occasions. These events presented a good opportunity for ASPB to comment on the important contributions of the Energy Biosciences program to production of biofuels. Following is the body of a letter to President Bush from ASPB president Roger Hangarter and Committee on Public Affairs chair Pamela Ronald sent May 25, 2005:

We thank you for supporting homegrown, plant-based, alternative fuels to help meet the nation's energy needs. In your Radio Address May 14, you cited the need to develop new sources of energy such as hydrogen, ethanol and biodiesel. On your visit May 16 to Virginia BioDiesel Refinery, you pointed out how biodiesel is one of our nation's most promising alternative fuel sources.

The American Society of Plant Biologists (ASPB) commends you for your support of research contributing to alternative fuels. ASPB is a non-profit society of nearly 6,000 plant scientists based primarily at universities and also based in government and industry labs. Our members conduct vital research on plants that contributes to innovation and increases in energy, food, and fiber production. Research programs supported by the federal government have greatly advanced knowledge of plant structure, function, growth and development for increased production of energy, food and fiber. Such research is critical for the country's economic growth and enrichment of Americans' quality of life.

In the area of basic energy research, your support for the Energy Biosciences program in the U.S. Department of Energy Office of Basic Energy Sciences is of particular importance in contributing to innovations in the production and processing of crops for biofuels. For example, research supported by the Energy Biosciences program directly led to the discovery making it possible to convert crop residues into ethanol. This new form of ethanol produced from farm wastes such as corn stems, cobs and leaves is known as cellulosic ethanol. This amazing discovery

promises to greatly increase the domestic production of ethanol from plants.

Some predict that this and other advances in research could increase our domestic production of ethanol from the current 4.5 billion gallons a year to nearly 100 billion gallons a year. Biomass production could jump from meeting the current 3 percent of U.S. total energy consumption needs to more than one-third of our transportation fuel needs, according to a report of the U.S. Department of Agriculture and U.S. Department of Energy titled "Biomass as Feedstock for a Bioenergy and Bioproducts Industry: The Technical Feasibility of a Billion-Ton Annual Supply," April 2005. This offers tremendous benefits to the nation's economy, including agricultural and manufacturing communities, to the nation's balance of trade, and to a healthier environment.

Many other advances resulting from Energy Biosciences–supported research have contributed to more efficient growth, development and processing of energy crops for biofuels and industrial chemicals. World leading researchers supported by the Energy Biosciences program have been recognized by national and international science associations, the National Academy of Sciences, Nobel Prize selection committee, and others.

Thank you for your strong support of plant-based biofuels and of the plant science research that strengthens the energy research capabilities of our nation while making home-grown biofuels more plentiful and cost-competitive.

House Committee Approves Increase for DOE Office of Science in Fiscal 2006 Appropriations

The House Appropriations Committee approved May 18 appropriations of $3.66 billion for the Department of Energy Office of Science for fiscal year 2006. The committee and its Subcommittee on Energy and Water Development recommended $203.3 million more for the Office of Science than the department had requested. The committee's recommendation is also $66 million higher than current-year funding for the Office of Science.

For the Office of Basic Energy Sciences within the Office of Science, the Committee recommended $1,173,149,000, an increase of $27,132,000 over the budget request. The committee's recommendation for the Division of Chemical Sciences, Geosciences and Energy Biosciences is $223,051,000, which exceeds the department's budget request for the division by nearly $13 million. The full House approved the measure June 16.

ASPB has been working with the Appropriations Subcommittee on Energy and Water Development in support of the Office of Science and the Energy Biosciences program within the Division of Chemical Sciences, Geosciences and Energy Biosciences.

Fiscal 2006 Appropriations for USDA Research

The U.S. House Appropriations Subcommittee on Agriculture marked up (voted on) the fiscal year 2006 appropriations bill for the Department of Agriculture May 16. The full committee action was May 25. The full House approved the bill June 8.

The committee rejected the department's budget request to cut formula funds. Cooperative State Research, Education, and Extension Service formula funds for Hatch Act, McIntire-Stennis, and Animal Health Disease programs are restored to FY2005 levels. The subcommittee did not concur with the budget request to convert these formula funds into competitive grants.

Although the National Research Initiative Competitive Grants Program (NRI) budget line was increased $35 million to $214 million, the net appropriation for NRI is actually down 2 percent from the current year. This is the result of transfers of separate competitive program accounts to the NRI. Competitive grants are maintained at current-year levels for Water Quality; Food Safety; Regional Pest Management Centers; Crops at Risk from FQPA Implementation; FQPA Risk Mitigation for Major Food Crop Systems; Methyl Bromide Transition Program; and Organic Transition Program.

The House recommendation calls for the Agricultural Research Service to be funded at $1,035,475,000. This is $66 million below the current fiscal year, but $39 million above the department's budget request for ARS.

For salaries and expenses of the Agricultural Research Service, the Senate Appropriations Committee recommended $1,109,981,000. This amount is $7,981,000 more than the FY2005 appropriation. The Senate committee recommended $190 million for the NRI. The committee recommended keeping FY2006 funding level with the current year at $178,707,000 for formula fund payments made under the Hatch Act.

ASPB has been supporting seminars for and visits to congressional offices and submitted testimony in support of research programs sponsored by the USDA. Further work will be needed in the House/Senate conference.

Senate Committee Urges White House to Assess Opportunities for Basic Science Supporting Agriculture

Report language in Committee Report 109-088 accompanying HR 2862 approved by the Senate Appropriations Subcommittee on Commerce, Justice and Science June 21 and the full Appropriations Committee June 23 places an emphasis on the need for assessing opportunities for improving merit-based, peer-reviewed basic science to support food and agriculture research. In the section of the report determining spending for the White House Office of Science and Technology Policy, the Committee said:

"Recognizing the critical challenges and important opportunities in agricultural research in this new century, the Committee encourages OSTP to asses the merit-based, peer-reviewed basic science to support food and agriculture research across all Federal agencies. The Committee further encourages OSTP to assess future opportunities and avenues for improving merit-based, peer-reviewed basic science to support food and agriculture research and to report their findings to the Committee."

This subcommittee, chaired by Senator Richard Shelby (R-AL), has jurisdiction over funding for both the National Science Foundation and the White House Office of Science and Technology Policy. Senator Christopher Bond (R-MO) is a member of the Subcommittee. Senator Barbara Mikulski (D-MD) is ranking Democrat.

The report language successfully sought by Senator Bond evolved from legislation that he introduced as a discussion draft, S. 767, that would create a division within NSF to conduct fundamental food and agricultural research. The report language does not create the new division but addresses goals of the legislation by calling upon the White House to report to the committee on future opportunities and avenues for improving merit-based, peer-reviewed basic science to support food and agriculture research. This is yet another example of the impressive legislative management skills of Senator Bond and his office in championing initiatives benefiting science and agriculture.

The report language could potentially lead to a multi-agency initiative in support of fundamental agricultural research.

China May Soon Start Commercial Production of Genetically Engineered Rice Carrying the Xa21 Resistance Gene

China, the world's top rice producer and consumer, is moving closer to approving mass production of genetically engineered rice containing the Xa21 gene sometime next year, Reuters reported. If adopted, it would be the world's first large-scale commercial production of transgenic rice; only field trials have been deployed to date.


Pamela Ronald

The Xa21 strain, which was developed through publicly funded international research, is resistant to bacterial blight, one of the most serious crop diseases in Africa and Asia. Bacterial blight can cause devastating yield loss as it spreads in water droplets. It has been reported that bacterial blight has decreased Asia's production of rice in some areas by as much as 60 percent in some years.

ASPB member Pamela Ronald, of the University of California at Davis, successfully cloned the gene, which originated from a wild species of rice indigenous to Mali, in 1995 with support from the Rockefeller Foundation and NIH. Jia Shirong, a professor from the Chinese Academy of Agricultural Sciences in Beijing, said that after eight years of laboratory study and field trials his team had applied to the government to start commercial output of Xa21 hybrid Japonica rice in the central province of Anhui, half the size of Italy.

Four genetically modified crops most commonly grown globally are insect-resistant soy, corn, rapeseed, and cotton. So far, China has permitted only the commercial production of cotton, Reuters reported. Dayuan Xue, a professor from Nanjing Institute of Environmental Sciences, as well as many other scientists from China reason that the rice will be safe because of its origination from wild rice, Reuters reported. Therefore the Xa21 rice line has emerged as the frontrunner in the race to be the first genetically engineered rice crop, ahead of insect-resistant BT rice, which contains a bacterial gene conferring resistance to insects such as the rice stem borer and leaf roller.

Putting the commercial production of the Xa21 rice into effect could trigger widespread adoption of biotechnology in areas where it can benefit the most and where humanitarian needs are the greatest.

Ronald is chair of the ASPB Committee on Public Affairs. Support for her research has also come from the NSF and the Rockefeller Foundation.

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

High-Leverage Education at the National Tropical Botanical Garden

Gaugau Tavana, Ph.D., Director of Education, National Tropical Botanical Garden Headquarters, Kauai, Hawaii

Chartered by an act of Congress in 1964, Hawaii's privately funded National Tropical Botanical Garden (NTBG) administers gardens of extraordinary beauty and historical significance, advancing scientific research, public education, and plant conservation.

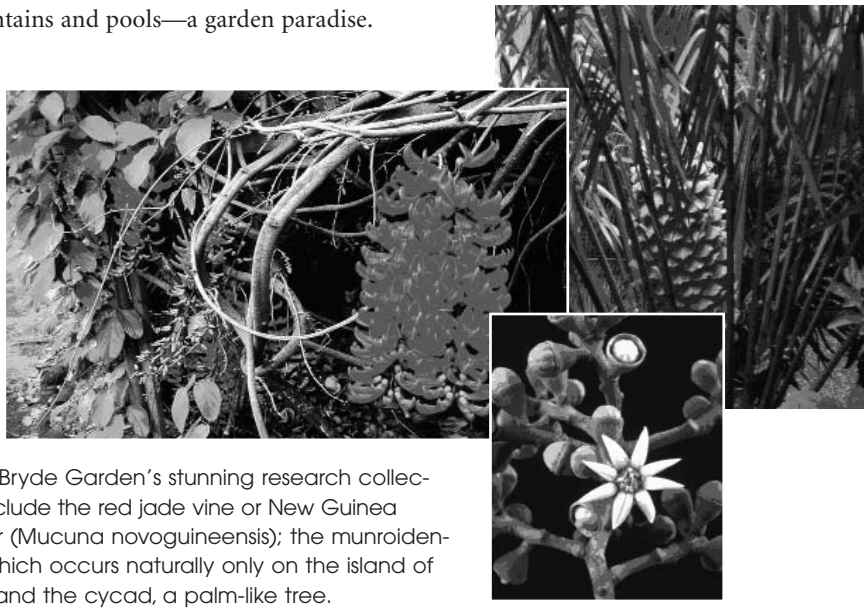
The NTBG is a network of five gardens of nearly 1,800 acres encompassing tremendous ecological diversity, allowing us to successfully propagate, cultivate, and preserve a broad range of tropical plants. The McBryde Garden is located in picturesque Lawai Valley on the south shore of Kauai, the "Garden Isle." A veritable botanical Noah's Ark, the McBryde Garden is home to major research and conservation collections. It features the world's largest collection of native Hawaiian plants, including threatened and endangered species, ethnobotanical plants of Polynesian origin, and rare palms and flowering trees.

Adjacent to the McBryde Garden is the Allerton Garden, which was once a retreat of Hawaii's Queen Emma. It is a masterpiece of lush landscape design and gravity-fed fountains and pools—a garden paradise.

The Limahuli Garden, on the dramatic north shore of Kauai, was once the site of a Hawaiian ahupua'a, a traditional land management system extending from the mountains to the ocean with distinct ecological zones. Limahuli, which was honored by the American Horticultural Society as the nation's best natural botanical garden, features rare and endangered plants of Hawaii and is a collection of great ethnobotanical value.

Kahanu is located on the island of Maui and contains the world's premier collection of breadfruit, 'ulu, and an ancient National Historical Landmark, the Hawaiian temple Hale o Pi`ilani Heiau.

The Kampong, which means "village" in Malay, is located on Florida's Biscayne Bay and contains a treasure house of tropical fruits cultivars and flowering trees. Formerly the residence of David Fairchild, the Kampong is truly an oasis within a metropolitan area and has close proximity to the academic community.



The McBryde Garden's stunning research collections include the red jade vine or New Guinea creeper (Mucuna novoguineensis); the munroidendron, which occurs naturally only on the island of Kauai; and the cycad, a palm-like tree.

With significant properties, facilities, and extraordinary living collections in both Hawaii and Florida, the NTBG has dramatically expanded its research, conservation, and educational programs and is strategically poised to fulfill its mission. We take pride in the preservation of our cultural heritage in the restoration of the Hale o Pi`ilani Heiau and many important historical sites. With the pioneering efforts of our field botanists to collect rare plant materials, the NTBG has emerged as the premier institution in rough-terrain botany. The collecting and curating of the rarest Hawaiian plants include the 118 Genetic Safety Net species that have no more than 50 individuals left in the wild.

We are extremely excited about our newly constructed Conservation and Horticultural Center in Hawaii, with new tissue culture facilities. The Kampong is emerging as a center of excellence and provides a platform to leverage courses in tropical botany. We look forward to the construction of the newly planned library/herbarium, a key component of the NTBG necessary for senior scientists to pursue scholarly research in ethnobotany, systematics, and conservation biology. The library will house the Loy Marks collection, rich in 16th-, 17th-, and 18th-century botanical information and herbals and folk knowledge needed for the discovery of new medicine. The herbarium will house our fast-growing, carefully curated collection of pressed, dried plants.

The newly established Breadfruit Institute is an important component of our conservation efforts. The NTBG nurtures the world's largest and most diverse collection of breadfruit, which includes 120 varieties collected from 18 Pacific island nations. The

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institute promotes the conservation and use of breadfruit for food and reforestation, and efforts are under way to mass-propagate superior varieties using in vitro techniques so as to produce enough `ulu to be distributed globally. One significant work in progress is the production of a comprehensive flora of the Marquesas. The project will be one of the first online resources followed by the publication of two volumes that will contain documentation of 360 flowering native plants and ferns including 40 new species.

Affiliated with the NTBG is the newly incorporated not-for-profit Institute for Ethnomedicine directed by world-renowned ethnobotanist Dr. Paul Alan Cox. The focus is on the use of ethnobotanical research techniques to study plants of medicinal value. Current projects of the institute include ethnobotanical studies of prostratin, a potential HIV Drug, ALS/PDC disease, studies of consumption of cyanobacteria and cyanobacterial products, and development of village-based pharmaceutical industries in Samoa and analysis of marine biodiversity in the Kingdom of Tonga. The institute also focuses on the preservation of indigenous cultures and participates in equitable benefit-sharing activities from any new discoveries made as a result of its ethnobotanical research efforts.

Our focus is to develop a full spectrum of course offerings that target high-leverage audiences to expand and expedite the sphere of influence of our education programs, both nationally and globally. The work of the NTBG on plant systematics, restoration biology, horticulture, ethnobotany, ethnomedicine, native plant propagation, and environmental education provides a guide for the content of formal classes offered both in Hawaii and Florida throughout the year.

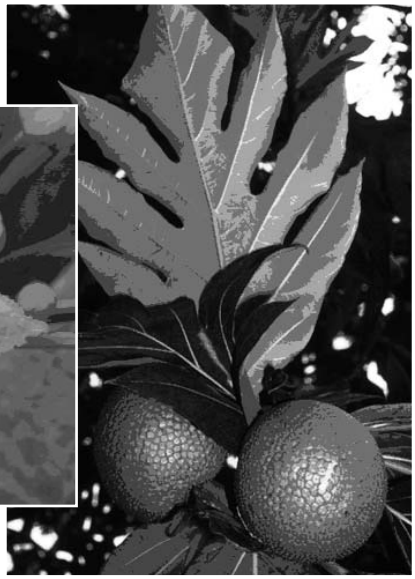
As part of the "Adopt a School" initiative, the NTBG provides K–12 students in Hawaii with experiences that directly connect them to the land and its plants and culture. Young people are exposed to real-life applications of science and conservation in a garden setting and learn to be responsible stewards in fostering sustainable development of their natural resources. Furthermore, the 'Imi 'Ike Program represents our constant search for knowledge about a culture that many recognize as being somewhat obscure while invigorating science and promoting quality education for all Hawaiian children. In collaboration with local cultural experts (kupuna), the program incorporates a solid cultural dimension based on an understanding, acknowledgment, and appreciation of traditional Hawaiian culture.

An environmental journalism fellowship offers selected working journalists in broadcast, print, and online media much-needed information about tropical ecosystems, providing deep background understanding to enhance the extent and depth of their reporting on environmental issues. The focus of the fellowship is immersion and not advocacy; the intent is to increase the depth of overall reporting and not to provide resource material for new stories. Journalists will have gained authority to better cover environmental issues and contributed to a legacy to be used by journalists reporting on these issues.

The university professors' course aims to revitalize the quality of teaching and learning in the introductory biology classes at the undergraduate level. The course is designed to show instructors how to use examples from tropical plants in discussing issues of form and function, evolution, and conservation. Professors develop and share individualized inquiry-based modules that are implemented in the classroom.

The Tropical Ethnobotany Course explores field techniques of ethnobotany with an overview of tropical ethnobotany and botany. The focus is on practical techniques for ethnobotanical research, the role of

The Alula Brighamia insignis was hand-pollinated and has been very successful in the garden.



NTBG nurtures the world's largest `ulu collection in Kahanu, Maui.

Hale o Pi`ilani Heiau, an ancient National Historical Landmark—a Hawaiian Temple.

plants in indigenous societies, interview techniques, and basic tropical botany. Graduate students successfully completing the course qualify for participation in ethnobotanical research expeditions. Previous ethnobotanical expeditions took graduate students to the most remote villages in Samoa and Tonga to study the ethnotaxonomy of breadfruit, kava, and starch.

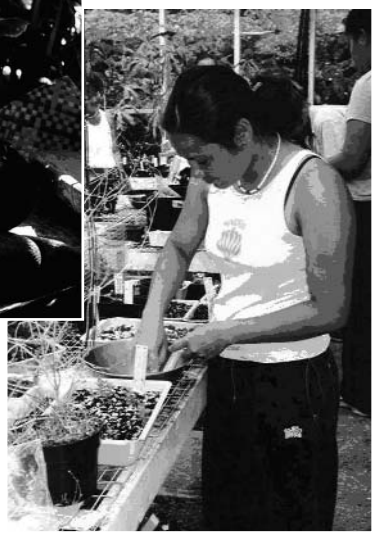
The Science Teachers' Training enhances K–12 science teachers' knowledge of current information about tropical biology and equips them with innovative techniques to improve classroom teaching and learning. Teachers develop instructional modules and devote significant time to preparing "science kits" consisting of classroom manipulatives and inquiry-based learning experiences, and provide information for an interactive website designed for teachers and students in Hawaii and used nationally.

The Physicians' Course gives important knowledge to the participants for the care of their patients, many of whom currently use herbal remedies derived from plants. Using the Kampong and its extraordinary living collections, the course covers basic botany, plant identification, medical botany, ethnobotanical approaches to drug discovery, the plant origin of pharmaceutical products, and case studies of common herbs. The Florida Medical Association (FMA) designates this activity for a maximum of 15 hours in Category 1 credit toward the AMA Physicians Recognition Award. This activity is jointly sponsored by the NTBG and the FMA and accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

The NTBG offers a semester-long Horticultural Internship program of work–study experience to college and university students interested in horticulture, botany, ethnobotany, conservation, or science-related fields. The course covers a wide range of innovative topics and provides a unique experience to help guide students in making informed decisions regarding their future academic and career paths. This is an excellent opportunity to gain valuable practical experience in a tropical setting for students interested in the establishment, development, and maintenance of a tropical botanical garden. The program is designed for motivated individuals who have a desire to improve their skills in these areas.

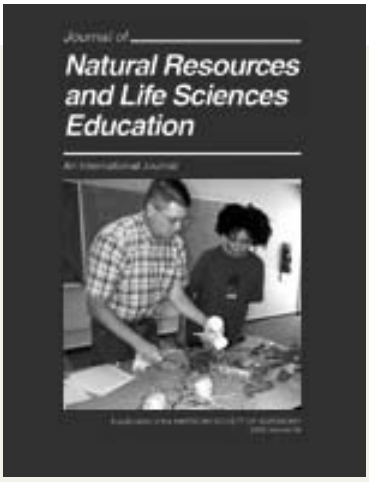
The integrated and holistic nature of the high-leverage programs offered by the NTBG in Hawaii and Florida since 1999 makes them unique among the programs offered in many botanical gardens. Through teaching and practice, science is directly connected to indigenous traditional knowledge and cultural practices in conserving natural resources and discovery of potential pharmaceutical products while caring for the land in a sustainable manner.

Qualitative data accumulated from past programs reflect remarkable and specific examples of how the experiences course participants gained from the NTBG positively affected the way in which they serve their respective audiences. Journalists address conservation issues in many of their stories in broadcast, print, and online media. College professors develop new courses and use innovative teaching ideas to rejuvenate science teaching, including offering their classes in the gardens. Ethnobotany students conduct research expeditions in the most remote parts of the islands and learn from many indigenous communities. Much of the professional work associated with the NTBG courses have been presented at conferences and are published nationally.



Science teachers learn new innovative teaching tools; physicians study ways to improve health care; and interns gain understanding of horticultural practices through hands-on/minds-on work–study experiences.

Journal of Natural Resources and Life Sciences Education



ASPB members have the opportunity to submit science education articles and subscribe to the *Journal of Natural Resources and Life Sciences Education (JNRLSE),* a peer-reviewed journal written by and for educators in the life sciences, natural resources, and agriculture disciplines.

The American Society of Agronomy publishes JNRLSE once a year in printed format and/or CD-ROM and continuously in electronic format for educators in extension, university, industry, administration, and grades K–16. To subscribe or submit a manuscript, visit **www.jnrlse.org.**

Please review the sample selections from the journal shown below. As an ASPB member, you may subscribe for just $35 (USA)/$45 (international), which includes an e-mail alerting service when new content is posted.

News features

- Tree Farms Help Environment
- Woolly Bear Winter Prediction Not Science, but Fun
- Egg Carton Dates
- Think Like a Scientist
- Tracking Elephants from Space
- Food Science Is Fun
- Observe Natural Hazards
- A Short History of Medicine
- Hog Heaven
- The Truth About Protein
- Discover Biological and Agricultural Engineering
- Who Was Also Leopold?
- What's a Blue Pike?
- What on Earth Is Earth Science Week?
- Make Some Horse Sense
- National Science Teaching Awards
- Is Animal Science for You?
- WSSA Undergraduate Research Award—Year 2004
- Fireflies on the Fly
- Unearth Teacher Resources
- Red as a Strawberry
- Spread the Word
- All About Beef
- Scientists Study the Forest
- Here Today, Gone Tomorrow
- Career Options in Agriculture
- Join the Herd
- Save the Cranes
- Incredible Eggs Teach Science

http://www.jnrlse.org/pdf/2003/03Newsfeatures.pdf

Grant-free projects for the classroom

- Outside funding is not always needed to develop classroom projects.
- Learn how much can be done with very little.

http://www.jnrlse.org/pdf/2003/E03-04K.pdf

Use a game to help spark discussions

- This game allows high school, college, and adult students to play the role of a rancher who experiences the challenges of limited natural resources owing to regulation and management and follows up with discussions.

http://www.jnrlse.org/pdf/2003/E02-12K.pdf

Case study for turfgrass on athletic fields

- The case was designed for use in a turfgrass management class and has proven to be useful in applying management options for an athletic field.

http://www.jnrlse.org/pdf/2003/E03-02.pdf

A scientist shares his teaching philosophy

- A scientist writes about the connections between teaching and learning and hopes to inspire readers to develop their own journey toward mastering the teaching and learning process.

http://www.jnrlse.org/pdf/2003/E02-27.pdf

Environmental writing helps students

- Experiences in environmental writing may help prepare future professionals to communicate with diverse audiences in a variety of formats and media.

http://www.jnrlse.org/pdf/2003/E02-28.pdf

Web lesson on plant genetic engineering

- Genetic engineering of a crop species requires the completion of several major steps and combined efforts of diverse scientists. This lesson gives an overview of this process.

http://www.jnrlse.org/pdf/2003/E01-04W.pdf

Web lesson on plant pigments and photosynthesis

- Plant pigments play important roles in harnessing energy from sunlight. This lesson examines the two major classes of photosynthetic pigments.

http://www.jnrlse.org/pdf/2003/E01-02W.pdf

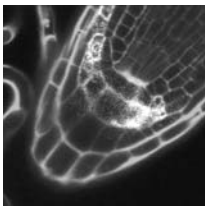
We wish to thank Jeffrey Coker, the ASPB representative for the *Journal of Natural Resources and Life Sciences Education* for bringing this information to our attention. Coker is a professor in the Biology Department at Elon University, North Carolina.

New Staff

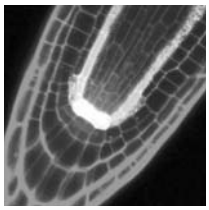
Christina King

Christina (Chrissy) King joined the ASPB staff in April as the marketing research assistant. She will provide administrative services to the members and meeting attendees, as well as assist with marketing efforts and research. She has also taken responsibility of the main telephone reception line at headquarters. She previously worked at RGS and Great Lakes title companies and at ASPB, intermittently from 1998 to 2003, assisting with membership, meeting, and accounting. Her personal goal has been to become a permanent employee for ASPB, and we are delighted to have her. She resides in Damascus, Maryland, with her soon-to-be husband.

The Arabidopsis Book



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



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

ASPB is providing funds for the posting and maintenance of ***TAB*** on the Internet as a public service. All chapters and updates are hosted in partnership with BioOne (http://www.bioone.org) in both HTML and PDF formats.

Vincent Franceschi

Vincent Franceschi, 52, director of the School of Biological Sciences and the Electron Microscopy Center, Washington State University, died unexpectedly April 30 of a ruptured aortic aneurysm. Not long before his untimely death, Vince was heard to remark, "What could be more fun than science?" His love of, and fascination with, plant physiology and structural cell biology was apparent to all during his professional career.

Vince grew up in Napa, California. His parents remember him as a very studious fellow, with a clear idea of what he wanted to do and a great determination to get it done. He was also, in their words, a "regular good old kid." Vince began his academic career at the University of California, Santa Barbara, graduating in 1976. His excellent record earned him membership in Phi Beta Kappa. Working under the direction of Dr. Harry T. Horner at Iowa State University, Vince received his M.S in 1978. His thesis work and collaboration with Dr. Horner on the subject of calcium oxalate crystals resulted in six papers, one being a major review paper, and was the basis for his ongoing interest in that subject. From Iowa State, Vince moved on to the University of California, Davis, for Ph.D. research under Dr. Bill Lucas. While at Davis, he was named a Regents Fellow. His doctoral thesis in botany was on "Membrane Structure–Function Relationships in Several Characean Species." In this work, Vince provided important insights into the formation and function of a unique plasma membrane transport system, the algal charasome. He also began his studies on phloem form and function, a topic that led him to many significant collaborations with scientists around the world. He received his doctorate in 1981 and was awarded a Lady Davis Fellowship from the Hebrew University of Jerusalem the same year.

Just prior to receiving his Ph.D., Vince applied for a position as plant cell biologist in the Washington State University Department of Botany. Never mind that he hadn't yet had his defense of thesis or any postdoctoral experience; the search committee was so impressed by the young scientist that they offered him the position. They also granted his request that he be allowed to delay his arrival for a year while he did a postdoc at E.I. duPont de Nemours with Dr. Bob Giaquinta. This time was well spent, as seminal publications emerged describing an elegant functional characterization of paraveinal mesophyll cells in soybean leaves as repositories of vegetative storage protein. This opened up a significant line of investigation that Vince and other groups pursued for another decade.

Vince joined the botany faculty in 1982. He became a full professor in 1992 and assumed the directorship of the Electron Microscopy Center two years later. In 1999, the Department of Botany and several other departments were reorganized into the School of Biological Sciences. Two years later, Vince became its director. Through his stewardship, the school moved forward with the addition of new faculty, a reassessment of its undergraduate course offering, and a sharper image of its future. His rapport with and support for the school's faculty and staff were truly exceptional.

Vince's research dealt with various aspects of regulation of partitioning of organic and inorganic compounds in plants. He had an extraordinary record of collaborative research, which included scientists in many departments at WSU and at universities across the United States and worldwide, including institutions in Argentina, Australia, Germany, India, Iran, Israel, Korea, and Russia. Vince obtained millions of dollars in grants to support his projects. In this context, he was always exceptionally generous with his time in teaching techniques to other researchers and students.

Over the past few years, Vince worked simultaneously on specific projects in three main areas to which he made significant contributions. One was characterization of cellular and biochemical mechanisms controlling carbon assimilation, transport, and partitioning in plants. Recently, he contributed to the discovery of a previously unknown form of photosynthesis that may contribute to the development of crops that can withstand adverse conditions such as heat, drought, and rising carbon dioxide concentrations in the atmosphere. He was also a lead investigator of a McKnight Collaborative Crop Research grant and collaborated with colleagues in India on genetic improvement of chickpea. Throughout his career, Vince continued to study various aspects of calcium oxalate metabolism in plants, which is important in regulating calcium levels, and in plant defense against herbivores. In recent years, he spent time working with colleagues in Aas, Norway, on defense responses in conifers against bark beetle attack, identifying signaling compounds, defense gene expression, and partitioning of resources to cellular defense. It was obvious that Vince treasured that time for research away from his administrative duties.

The fact that Vince was a recognized authority in these areas is evidenced by the fact that he was coauthor on a chapter in each of the past two years' *Annual Review of Plant Biology*—"Single-Cell C_4 Photosynthesis Versus the Dual-Cell (Kranz) Paradigm" (Edwards et al., 2004) and "Calcium Oxalate in Plants: Formation and Function" (Franceschi and Nakata, 2005)—and an upcoming *New Phytologist Tansley Review,* "Anatomical and Chemical Defenses of

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Conifer Bark Against Bark Beetles and Other Pests" (Franceschi et al., 2005). He was also working on a text on plant anatomy.

Using his extraordinary skill in microscopy, Vince examined and photographed the innermost workings of plants. His wonderful micrographs graced prominent scientific journals, including the cover of *Science*. Vince was a regular participant in symposia and annual meetings. In particular, he was an important figure at the Gordon and FASEB summer research conferences on calcium oxalate. He was a co-organizer for this summer's conference in Tucson, and there was a dedication to him on the first day.

Despite the time constraints of research and administration, Vince still loved to teach every semester. Besides multiple microscopy courses, he taught plant anatomy on a regular basis. He was a beloved adviser to many graduate students throughout his career, though some may remember less fondly his habit of bringing stacks of anatomical slides into their preliminary examinations to gleefully ask, "What's this?"

There was well-deserved recognition of his scientific career in 2004, when Vince was included on the ISI list of most highly cited researchers in animal and plant sciences, a distinction based on the high-profile nature of his 150+ publications. He also received the Washington State University College of Sciences Distinguished Faculty Research Award. Additional information about his work can be found on his website: http://www.sci.wsu.edu/sbs/franceschi.

In his spare time, Vince loved gardening and waged a never-ending battle against squirrels. In this, he was aided by his ever-faithful cat Buddy.

Vince is survived by his fiancée, Mechthild Tegeder; his parents, Rita and Giuseppe; and his brother Joe and sister Angela and their families. Those who knew Vince will remember him as a kind, friendly person with a keen scientific mind and a devotion to his profession. He was a prolific scientist whose legacy of work will go on through all his publications, through his influence on colleagues, and through the careers of the many students he mentored. He was a joy to be around, whether talking about science or life in general. Vince will be greatly missed and impossible to replace.

This tribute to Vince Franceschi was contributed by several of his friends and colleagues.

The American Society of Plant Biologists

Plant Genetics 2005
Mechanisms of Genetic Variation

October 12–16, 2005 • Snowbird Resort & Conference Center • Snowbird, Utah

Chair: Dorothy Shippen – Texas A & M University • Vice-Chair: Rich Jorgensen – University of Arizona

This conference on Plant Genetics will be the second of a series of specialty meetings sponsored by ASPB. The focus of this meeting will be on the nature and mechanisms of genetic variation and their effects on evolution of plant form and function, as well as on plant speciation and crop domestication. The meeting will bring together speakers working on different organisms, and on different aspects and approaches, with the aim of achieving a synthesis of understanding to stimulate discussion and further research. Attendance will be limited to 250 participants. The secluded setting and schedule are designed to facilitate ongoing interaction between the presenters and attendees. All meals will be on-site, and the speakers will be in attendance throughout the entire conference. Afternoons will be free for recreation, informal discussions and other activities. Participation by graduate students and young postdoctoral fellows is strongly encouraged, and discounted rates for registration and accommodation will be available.

The Snowbird Conference Center is located in a spectacular setting surrounded by mountains. The mid-autumn weather is expected to be pleasantly cool and crisp. Shuttles to Snowbird are available from Salt Lake City International Airport, which is about 40 minutes away and served by most major airlines.

Keynote Lecture: Organization and Evolution of the Human Genome
Speaker: Evan Eichler (University of Washington, Seattle)

Session 1: Evolutionary Genetics and Genomics I
Speakers: Tom Mitchell-Olds (Duke University)
Johanna Schmitt (Brown University)

Session 2: Evolutionary Genetics and Genomics II
Speakers: Michael Purugganan (North Carolina State University)
Michael Zanis (University of California, San Diego)
Elena Kramer (Harvard University)

Session 3: Origins and Nature of Genetic Variation
Speakers: Robert Pruitt (Purdue University)
Christine Queitsch (Harvard University)
Luca Comai (University of Washington, Seattle)

Session 4: Epigenetics and Epigenomics
Speakers: Steve Henikoff (Fred Hutchison Cancer Center, Seattle)
Marjori Matzke (Austrian Academy of Sciences)
James Birchler (University of Missouri, Columbia)

Session 5: Chromosome Dynamics
Speakers: Jiming Jiang (University of Wisconsin, Madison)
Wojtek Pawlowski (Cornell University)
Barbara Hohn (Friedrich Miescher Institute, Basel)

Session 6: Genetic Mechanisms in Plant Development
Speakers: Kathy Barton (Stanford University)
Hugh Dickinson (Oxford University)
Neelima Sinha (University of California, Davis)

Session 7: Genetic Mechanisms in Plant–Microbe Interactions
Speakers: Joy Bergelson (University of Chicago)
Maria Harrison (Cornell University)
Paul Schultz-Lefert (Max Planck Institute for Plant Breeding Research)

Visit http://www.aspb.org/meetings/pg-2005?mktgsource=NLJUL05 for registration and more information!

ASPB Headquarters

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

● Our office telephone number is 301-251-0560

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Subscriptions, institutional and individual							●							
Plant Physiology (except missing issues)														
Disposition of a manuscript													●	
All other questions											●			
The Plant Cell (except missing issues)														
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ASPB meetings			●											
Public affairs/government relations									●					
Education									●					
Society governance	●													
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International issues	●													
Awards		●												
Biochemistry & Molecular Biology of Plants										●				
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PERIODICALS

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