

# BULLETIN

SPRING2008

VOLUME 54

NUMBER 1

Science, Success, and Satisfaction. A Look at Planning a Botany Conference.....	2
Experiences of a local arrangement committee for a large scientific Conference.....	6
The Three C's: Early Botanical Leaders at the University of Chicago.....	12
News from the Society	
Picturing the Past.....	15
Report from the Office.....	15
American Journal of Botany.....	16
BSA Science Education News and Notes.....	17
Editor's Choice.....	19
Preview of Botany 2008 - - University of British Columbia Botanical Garden.....	19
Announcements	
<i>In Memoriam</i>	
Donald Robert Kaplan (1938-2007).....	20
Richard Goodwin (1910-2007).....	22
<i>Personalia</i>	
Crop Science Society Honors Missouri Botanical Garden's Peter Raven.....	23
Symposia, Conferences, Meetings	
Student Research in Plant Biology and Conservation Symposium.....	23
3rd Meeting of the International Society for Phylogenetic Nomenclature.....	23
Fourth International Conference: Comparative Biology of the Mono- cotyledons and The Fifth International Symposium: Grass Systematics and Evolution.....	24
Courses/Workshops	
A Short-Course in Tropical Field Phycology.....	24
Award Opportunities	
Colorado Native Plant Society.....	24
Positions Available	
Senior Vice President of Plant Science and Conservation, Missouri Botanical Garden.....	25
Botany Fellow- Wellesley College Botanic Gardens.....	25
Other	
Rancho Santa Ana Botanic Garden Receives Fletcher Jones Foundation Funding.....	26
Botanic Gardens Conservation.....	26
Lenhardt Library Schedule of Exhibits.....	27
The New York Botanical Garden Announces Collaborative Campaign to Barcode all 100,000 Trees of the World.....	27
Books Reviewed.....	28
Books Received.....	47
BSA Contact Information.....	47
BOTANY 2008.....	48

THE BOTANICAL SOCIETY OF AMERICA

Leading Scientists

and

Educators

since 1893



PLANT SCIENCE

The Botanical Society of America: The Society for ALL Plant Biologists

ISSN 0032-0919

2007 was a good year for the Botanical Society: membership was up; we were very successful in seeking external support to fund PlantingScience; and we had a historic joint meeting with the Plant Biologists (who were the Plant Physiologists when we last met jointly 3 decades ago). 2008 looks to be GREAT! As we start the new year there are two major changes in the *Plant Science Bulletin*. The first will not be noticeable, but as of the first of the year both the *American Journal of Botany* and the *Plant Science Bulletin (PSB)* are being produced by a new printer, Sheridan Press. The second will be very noticeable, and make the *PSB* more timely and useful. For the past year we have been posting all position announcements on the BSA web page as soon as they are received, rather than waiting for the next hard-copy issue of the *PSB*. With volume 54 we will begin to post **all** announcements on the web page as they are received in addition to publishing them in *PSB* on a quarterly basis.

As I write this in January, staff are running a workshop in the Society Office for St. Louis teachers coming on-board for PlantingScience this spring. This summer the annual meeting is returning to the site of BOTANY 80 for another joint meeting with the Canadian Botanical Association (CBA/ABC) at the University of British Columbia in Vancouver. Another big meeting in a big venue. With that in mind we focus this issue on what goes into planning a major scientific conference. In our first article, the BSA Conference Manager, Johanne Strogan, describes the process for site selection and arrangements that go into planning our annual meeting. In the follow up article, David Spooner and his colleagues at U.W. Madison describe their experience as the local arrangements committee for a major international meeting. Hopefully these articles will stimulate some of you to consider hosting a future BSA meeting; you will certainly have a better understanding of what is involved! Finally, we provide a highlight from last year's meeting- a contribution

from Nels Lersten on the early history of botany at the University of Chicago.

-the editor

## Science, Success, and Satisfaction A look at Planning a Botany Conference

Finding the appropriate venue for a Botany Conference is more than throwing a dart at a map! There are many factors that the Program Committee and I consider before contracts are signed and we head toward the next meeting site. The process starts many years before the first presentation begins and the first cup of coffee is poured!

In 2000 when the Botanical Society of America decided to break away from the American Institute of Biological Sciences, the goal was to produce successful meetings that meet the needs of the membership. Success can be measured in many ways, but the two areas that are most important to the majority of members are the quality of the scientific program and overall satisfaction with the meeting experience. As Conference Director, my main focus is not the science itself (that's up to our very capable members), but member satisfaction with the meeting. This means involving the Program Committees of all the sponsoring societies in selecting the sites and negotiating the best arrangements possible—juggling the many factors of location, location, location, cost, ease of transportation to and within the area, housing for attendees, cost, food and beverage, opportunities

### ***PLANT SCIENCE BULLETIN***

ISSN 0032-0919

Published quarterly by Botanical Society of America, Inc., 4475 Castleman Avenue, St. Louis, MO 63166-0299. The yearly subscription rate of \$15 is included in the membership dues of the Botanical Society of America, Inc. Periodical postage paid at St. Louis, MO and additional mailing office.

POSTMASTER: Send address changes to:  
Botanical Society of America  
Business Office  
P.O. Box 299  
St. Louis, MO 63166-0299  
E-mail: [bsa-manager@botany.org](mailto:bsa-manager@botany.org)

Address Editorial Matters (only) to:  
Marshall D. Sundberg, Editor  
Dept. Biol. Sci., Emporia State Univ.  
1200 Commercial St.  
Emporia, KS 66801-5057  
Phone 620-341-5605  
E-mail: [psb@botany.org](mailto:psb@botany.org)

for extracurricular activities, preferences for academic campuses or professional conference facilities, and the ever-important coffee!

### Site Selection—Size Does Matter

Much time, effort, and thought go into the site we choose. The site needs to be large enough to hold the meeting comfortably. As the membership of the Botanical Society of America continues to grow, conference attendance also continues to grow: from just under 800 attendees in Portland in 2000, to over 1200 in Chico in 2006. We are a strong presence in any city we visit, and we contribute significantly to the local economy. It has been estimated that a conference of 1000 attendees can bring as much as \$750,000 to the host city. This includes hotel rooms, food and beverage, attendee spending, and recreation, as well as wages to hotel staff and workers.

With growth comes growing pains. A typical Botany conference requires 10-15 concurrent session rooms each day, preferably, at least 26,000 sq ft of contiguous space for our Exhibit Hall and scientific poster displays, which are a large and critical part of the meeting. These requirements somewhat limit the venues we can consider. For example, Hotels and conference centers traditionally have ballrooms that can accommodate our Exhibit Hall needs. It is rare that an academic campus venue can. For example, one campus wanting to be considered for a future meeting has proposed that we use their hockey arena for the Exhibit Hall. The Director of Conference Services promised to take up the ice—no sense having you all slip, slidin' away. Then again, it is a hockey arena...with all the ambience of a hockey arena!

On the other hand, campus venues have a virtually unlimited amount of meeting space ranging from small classrooms to large auditoriums. This is a plus and makes arranging the scientific program a cinch. One drawback, however, is that sometimes

these classrooms and auditoriums are a bit far from each other—which makes it difficult to session hop. Getting to the coffee breaks in the Exhibit Hall can be a hike as well. If session hopping is important to you and you have to walk too far to take advantage of the free coffee, then your satisfaction goes way down. (This is evident from your responses to the post-conference surveys.)

One of the major factors in choosing a site, which is tied closely to member satisfaction, is, of course, cost. From the beginning, the BSA and partner societies decided that the annual conference was not to be a major moneymaker. The most important goal was and is to make the meeting as affordable as possible to enable as many members and students (future members) to attend as possible. Financial goals were also to cover costs, have some seed money for future meetings, and share any profit among the participating societies. In all but one year since 2000 we have been able to share a small profit among our partners.

### Negotiating Contracts

A considerable amount of negotiating is involved in drawing up a successful meeting contract. Many factors need to be considered to make the event a win-win for Botany as well as the venue. An advantage of a hotel or conference center is that they will consider the entire meeting *package* and can help reduce some costs based on the strength of other expenditures. For example, we have significant food and beverage expenditures at a Botany conference; because of this we could have all or part of the meeting space fees waived. For example, in Austin (Botany 2005), we were able to use all the meeting space we needed with no charge. We filled our negotiated room block and held almost of the Food and Beverage events in the hotel. This saved us over \$25,000.

It is very important that attendees take advantage of the negotiated room rates that are offered with hotel

## *PLANT SCIENCE BULLETIN*

Editorial Committee for Volume 54

Samuel Hammer (2008)  
College of General Studies  
Boston University  
Boston, MA 02215  
[cladonia@bu.edu](mailto:cladonia@bu.edu)

Joanne M. Sharpe (2009)  
Coastal Maine Botanical Gardens  
P.O. Box 234  
Boothbay, ME 04537  
[joannesharpe@email.com](mailto:joannesharpe@email.com)

Nina L. Baghai-Riding (2010)  
Division of Biological and  
Physical Sciences  
Delta State University  
Cleveland, MS 38677  
[nbaghai@deltastate.edu](mailto:nbaghai@deltastate.edu)

Jenny Archibald (2011)  
Department of Ecology  
and Evolutionary Biology  
The University of Kansas  
Lawrence, Kansas 66045  
[jkarch@ku.edu](mailto:jkarch@ku.edu)

Root Gorelick (2012)  
Department of Biology  
Carleton University  
Ottawa, Ontario, Canada, K1H 5N1  
[Root\\_Gorelick@carleton.ca](mailto:Root_Gorelick@carleton.ca)

registration. If we can guarantee that 80-85% of attendees will stay at the host hotel, this also can result free meeting space. If we can give the Hotel something they can give us something in return.

In contrast, college campuses have discovered that summertime conferences can be a cash cow. Empty rooms while school is not in session can be turned into significant revenue streams. Traditionally each department or facility controls the price of their space. Campus catering controls food and beverage costs. The residential life office controls the price of dorm space. And the Conference Administration Department charges a non-negotiable administrative fee per each attendee. These fees can add up: We have been quoted from \$7.50 to up to \$100.00 per person for administrative fees.

An advantage of college campuses is that they have been becoming "technology savvy" Most meeting space classrooms are outfitted with LCD projectors and screens, and in some cases, built-in computers. This results in a cost savings in Audio Visual dollars. The average conference spends up to \$50,000 on AV.

The possibilities for negotiating food and beverage costs can also vary greatly between venues. A gallon of Peet's coffee on campus in Chico (Botany 2006) was \$28.00, in contrast with \$92.00 per gallon for coffee (plus tax and service charges) at the Hilton conference center in Chicago. (Botany/Plant Biology 2007) (Just FWIW we were able to get Starbuck's coffee in Chicago at no additional charge.) This fee is significant as Botany conference attendees consume a lot of coffee!

### **Banquets**

In the past, the main purpose of the BSA Banquet, always a formal affair was to recognize the major award winners in Botany. It also was, and remains, an opportunity for the incoming BSA President to share his/her area of interest. As times have changed, the formality has relaxed but the event is still important for the Society.

Banquets are also seen by catering departments as a way to make "big bucks." When considering a venue we ask for menus—and often the only affordable (for our normal banquet ticket price) option is the traditional "rubber chicken." One way around this has been to work with the catering department and ask what they can do for a ticket price of, say, \$45 - 50. This gives the chef some room for creativity, and you, the attendee, a better-than-average banquet dinner...accompanied by sometimes lengthy speeches, which are free!

The banquets in recent memory contrasted, again, depending on the venue. For a \$50.00 banquet

ticket in Chico, attendees enjoyed a sprawling buffet in a great setting—a beautiful lawn on campus, perfect weather, under the stars. After that highly successful event (as judged by high satisfaction in the post-conference surveys), we approached Chicago with an idea of a mini-"taste of Chicago." The menu was to include famous Chicago-style pizza and hotdogs. If we added a vegetarian option and ice cream sundaes for dessert the cost would be \$35.00 per person. (The lowest priced banquet meal on the traditional Hilton conference menu was \$65.00 plus 10% tax and 20% gratuity—for chicken.) We charged \$25.00 to encourage people to attend, and the BSA picked up the difference.

The idea was a good, even if in actuality the mini-"taste of Chicago" was rather bland. The point is we were trying to keep attendee cost in control and attain good attendance at an important event. To some extent, it worked. Almost 325 people were there to honor the new awardees and to welcome the new president.

### **Getting there**

Traveling to the conference is one of the three biggest expenses that people have in attending a conference. (Housing and Registration fees are the other two.) In weighing the total cost of one venue vs. another, we take into account the travel costs. Since the 2000 meeting we have been able to offer travel discounts with either Delta or American Airlines. This information is always posted on the conference website. We have also been able to offer Avis rental car discounts. With the popularity of online discount travel very few attendees take advantage of these discounts. And with good reason...to save money. But by using these discounts it can result in free air travel and free car rentals for planning the next conferences, bringing down a somewhat hidden cost in producing the conference.

Travel is one area where there can be a big difference between campus and conference center venues. Air travel to the larger cities or airline hubs tends to be cheaper and easier than out-of-the-way campus venues. Airfare and other travel to Chico, for example, was a bit more expensive and challenging than to Chicago or Austin, Texas (Botany 2005).

### **Hotel Rates**

In the months before September 11, 2001, the hotel industry was struggling; after this fateful day, leisure travel dropped off even more and the convention business slumped. Many people were reluctant to travel, and meetings were cancelled. At this time, hotels and convention centers scrambled to book space, and incredible deals were made. We negotiated highly favorable room rates for several years.



As time has passed, the industry as a whole has rebounded, and prices are going up. In July, 2007, *USAToday* quoted the average price of a hotel room had reached \$100.00 for the first time ever. Unfortunately for attendees and for the meeting industry, this is a trend that is not likely to reverse in the near future, if ever!

We have been able to host the Botany conference in some really nice places due to creative negotiating. In Austin in 2005, for example, we booked the meeting before the hotel was even completely built. I had a hard-hat tour of the building site, complete with a ride up the outside of the hi-rise building in an open-air elevator. We were able to secure a room rate of \$112.00 for the meeting by booking in 2001 at pre-opening prices. During the Botany 2005 conference another planner friend of mine came to visit our meeting. She liked the hotel and was quoted a room rate for 2008 of \$152.00. She has a larger meeting and would bring in more revenue, but the price had increased by 74%!

The bottom line in Austin was that we secured a good rate at an attendee-friendly conference hotel that was easy to get to in a city that had lots to do when sessions were over. At the Chicago Hilton (Botany/Plant Biology 2007), conference center, we were able to negotiate the government rate for our room block, which was significantly less than regular rooms. Again, Chicago was an attractive venue because the room rates were favorable, it's a great city, easy to get to with lots of opportunities for things to do outside the meeting. Chicago was also attractive as a site for the joint meeting due to the increase in buying power of several societies. BSA and the traditional society partners would never be able to meet in Chicago by ourselves.

Another more subjective issue that is high on the satisfaction meter is the ambience of the meeting. Madison (Botany 2002), Snowbird (Botany 2004), Chico, (Botany 2005), and Austin, (Botany 2006) are among your favorites according to post-conference surveys. Chicago (2007) and Mobile (Botany 2003) lacked the ambience of these other meetings. In considering a venue, we also look at what is around the area. Are there areas of botanical interest, with good field trip possibilities? Are there things to do when sessions are over: good local restaurants, cultural attractions, fun local flavor? Is there fresh air? Breathing re-circulated air conditioning all day is not good for anyone. Snowbird provided opportunities for hiking and communing with nature. Austin and Chicago had great night life. Chico, Austin, and Madison offered small local restaurants and good food.

### **The Future**

We have currently booked venues for 2008 and

2009. Plans are already under way for Botany 2008 to meet at the campus of the University of British Columbia with our traditional partners and the Canadian Botanical Association/L'Association Botanique du Canada, July 26 – 30, 2008 ([www.2008.botanyconference.org](http://www.2008.botanyconference.org)). Much more information will be coming soon!

Botany 2009 will be a return to Snowbird, July 25–30, 2008. We'll be back in the majestic mountains of Utah, enjoying the great field trip possibilities and the beauty of the area. From a meeting planner's perspective, Snowbird is appealing for many reasons. They offered us great rates if we signed on right after the Botany 2004 conference. They offer enough meeting space to fit our needs and have flexible housing opportunities. In addition to the traditional hotel rooms, they have condo units that can sleep up to 6 people and have kitchen facilities. Groups of students are encouraged to take advantage of these condos....or bring your family and combine science and vacation.

Currently, I am searching for a site for Botany 2010. It has been suggested that we go East. The Joint Society program committee has charged me with searching from Maine to Puerto Rico, so stay tuned as I travel, search and report back to you.

As we go forward with our conferences we strive to increase your satisfaction with our site choices. We will continue to rotate around the country and occasionally meet in Canada with our Canadian partners—and who knows? Perhaps someday in we will meet in Mexico or Latin America. Wherever we end up, please know that a lot of thought, research, investigation, and comparison has gone into picking the best site for the conference. We will continue to look for “deals” – affordability and value in the costs we can control and careful consideration of the direct costs to all attendees.

If you have any comments about this article or suggestions of cities, convention centers or campus' you would like us to consider for future Botany meetings, please contact me:

[johanne@botany.org](mailto:johanne@botany.org).

Your suggestions are always considered.



## Experiences of a Local Arrangement Committee for a Large Scientific Conference

How many of us have gone to a scientific conference unaware of the organization behind it? The registration line flows smoothly, the program is well organized, the abstract book clearly directs you to the talks and posters you wish to see, the rooms are appropriately sized and clearly marked with schedules posted outside, the projection equipment operates well with assistants to help you, web access is provided to allow you to keep up with communications that cannot be delayed, and social events flow smoothly and provide opportunities to meet colleagues in a relaxed atmosphere to make and reinforce collaborations and friendships. Ideally, the conference is inexpensive, especially for students and post-doctoral researchers. All these experiences provide good memories and a successful conference.

Good conferences flow smoothly and are efficiently organized, thanks to hundreds of coordinated decisions made over at least two years of conference planning. In addition, the hosting of a conference often requires considerable financial backing raised from conference leaders or their academic programs or departments. The planning of a scientific conference, while personally and professionally satisfying, entails more work, responsibility, and potential pitfalls than many anticipate. The purpose of our paper is to convey the experiences and insights we gained from organizing the combined conference of the VI International Solanaceae Conference, the Potato Association of America, and the III International Solanaceae Genomics Conference. Assistance in planning the conference was obtained from websites and personnel from prior Potato Association of America (PAA) Local Arrangements Committees and Solanaceae conferences. We hope this documentation of our experiences will be useful for future conference planners as many details were not available to us from any other sources.

This paper details the challenges and opportunities of organizing a scientific conference and to aid future conference organizers. It arose from the organization of the combined conference of the 90th Annual Meeting of the Potato Association of America, the VI International Solanaceae Conference, and the III Solanaceae Genomics Conference of the Solanaceae Genomics Network, held in Madison Wisconsin from July 23-27, 2006. It was attended by 539 participants from 42 countries. The unifying theme of these three groups was the science of the Solanaceae. The theme of the Conference Solanaceae: Genomics Meets Biodiversity,

described the goal of integrating all phases of Solanaceae science with the emerging field of genomics. This goal is fostered by the parallel DNA sequencing efforts of both the tomato and potato genomes.

### Pre-Event Planning

Many decisions need to be made about conference venue years in advance of a conference. First is conference attendance estimate for the various oral sessions. If an organization has a long history, then predicting attendance numbers should be fairly easy. If a conference is for a new organization or it combines several organizations, then attendance would be more difficult to predict. Despite the importance of this decision you can only make a rough guess about actual attendance.

Decisions need to be coordinated with Conference leaders well in advance. The initial critical decisions that must be made by a local arrangements committee (LAC) of a large scientific conference are the choice of venue and conference dates. The conference should be held in a city that is easily accessible by air. For example, locations with service by regional airlines or only a few flights per day will limit participants to those who make early travel arrangements. The location must have adequate convention facilities appropriate for the size of the conference. Most commonly, conferences are held at large hotels that have their own meeting rooms and staff that can help with conference planning. A conference date must be chosen to minimize conflicts with other professional meetings likely to be attended by potential participants. Early announcement of the conference help other organizations to schedule meetings with minimal conflicts as well.

Hotel accessibility is important to consider when choosing a conference site. Ideally the conference hotel will have reasonable room rates and enough rooms for all participants. If additional rooms are needed, hotel options should be available within walking distance and with a range of rates to suit the needs of diverse participants with different travel budgets. For the convenience of both the LAC and participants, host hotels should offer complimentary airport shuttle service. In addition, most participants will not have their own transportation so the venue should be within walking distance of a shopping district with a number of restaurant options. The LAC should visit potential hotels and meet with hotel staff before making a final decision about the conference site. The selected hotel(s) should be appealing, clean, and provide modern amenities, such as free high-speed internet access.

The LAC should learn specifics about how hotel contracts are written when meeting with staff. We

encountered two types of contracts. Our host hotel contract contained a “contingency clause” that required reservation of a number of rooms for each night of the conference. The LAC was financially responsible for any rooms that were not booked by conference participants. Reserving enough rooms for all participants that wanted to stay at the host hotel had to be balanced with the financial risk of overestimating the number of rooms necessary. The second type of contract encountered reserved rooms until one month before the conference. These hotels were less expensive than the host hotel, but were farther from the conference site. We did not know during early planning whether the majority of participants would pay the higher room rate of the host hotel for the convenience of staying at the conference site, but the majority of the attendees paid a higher room rate in order to stay at the host hotel.

Because the LAC members for this conference were scientists and not professional meeting organizers, it was important to the committee to hire, at a reasonable cost, professional conference planners. A LAC should interview several conference planners to make sure they have experience planning scientific conferences, a successful track record, and enthusiastic recommendations from previous clients. The Monona Terrace staff was the venue planning resource for this conference, and was thus familiar with the attractions and limitations of the facility and could offer several options for each conference’s needs. Hotel staff can also provide guidance on meeting room requirements, audio-visual (AV) equipment, and catering needs. Although facility personnel were critical for providing logistics expertise for this conference, they do not typically have enough experience with scientific meetings to help with the scheduling of talks, the preparation of the program book, or the publication of conference proceedings. The Botanical Society of America (BSA) managed the registration and finances for the conference.

Social events were critical for the Solanaceae conference success by providing relief from the intensity of scientific presentations, opportunities to forge and maintain collaborations, keeping the group together outside of meeting sessions, and making the conference memorable. PAA conferences traditionally maintain membership, meeting attendance, and a sense of community because of well planned social programs, including an accompanying persons program and a formalized final banquet and awards program. Social events for this conference were an opening evening reception, an evening wine-and-snack post-viewing social, an evening cookout, and a closing evening awards banquet. In addition, full hot breakfasts, lunches, and morning and afternoon

breaks kept the group together between sessions, and we provided a full-day mid-conference tour of local sites for accompanying persons. In addition, we set up at a desk at the convention center to provide tour ideas, maps, brochures, bus schedules, and information about local attractions.

### **Fundraising**

Fundraising is critical to keep costs low yet provide a quality conference. The PAA and the Solanaceae Genomics Network have a wide number of multinational, regional, and local industries that participate in the conference and serve as potential donors, and the fundraising committee included members committed to hosting the conference and familiar with the societies represented and as well as allied industries. It was critical to identify “connected” fundraisers with good reputations through extension or other outreach programs to solicit funds from potential industry donors.

A good conference program attracts participants and registrants. This was especially evident during our fundraising campaign, as some contributors donated funds only after they reviewed the program. Our meeting had a joint half-day opening plenary session, and thereafter the PAA and combined Solanaceae groups met separately. The Solanaceae groups have a large concentration of scientists in South America and many there wished to attend but could not afford the travel costs. An awards committee provided grants to aid attendance.

Our first fundraising step was to identify potential sponsors that included 1) industries and entities that annually sponsor the PAA conference, 2) industries and entities that are related to Solanaceous crops, 3) biotechnology and agrochemical companies, and 4) scientific granting agencies. We identified potential sponsors by consulting prior contributors to the PAA and the Plant and Animal Genome Conferences, as well as local grower associations who provided lists of associate members. We also searched the web for biotechnology companies. The large focus on genomics of Solanaceous crops dramatically increased the list of potential sponsors as many companies market products used in genomics research, sell genetic resources of solanaceous crops (seeds), or have a direct interest in the marketing of solanaceous crops other than potato. In total, we contacted more than 150 companies, and raised 112,000 from 36 donors. First contact was made by writing letters to collaborators or known contacts of companies familiar to the fundraising committee. For companies for which the fundraising committee had no contacts, letters were written to the presidents or marketing directors. Contacts were made two years before the conference because some companies plan funding

cycles and set budgets years in advance. In addition, fiscal years vary by company and range from January to December, requiring budgets be set 12 to 18 months in advance of the conference. Follow-up letters were sent to identify contacts within each company 12 to 14 months prior to the conference to provide information about the conference, identify dates, and solicit their potential support. Follow-up contacts were made repeatedly in person 12 to 6 months prior to the conference to continually remind key sponsors about the upcoming meeting. Approximately six months before the conference, each contact was called again and asked for a firm funding commitment. This process—which, in all, required hundreds of hours—continued until the final weeks before the conference.

### Budget Planning

Building the budget was one of the most important and frustratingly difficult aspects of the conference, because there were many unknowns. The most critical variables were the number of registrants, fundraising success, and unfilled rooms from hotel contracts. As conference organizers, we did not anticipate being personally responsible for financial obligations with hotel contracts. The PAA was the only one of the three groups with a formalized organizational structure and it had an endowment and a budget. However, the PAA did not take any financial responsibility for conference expenses, placing that burden on the LAC. There were many sleepless nights tracking registration numbers, raising funds, fundraising, and contemplating possible catastrophes that could stop the conference (e.g., SARS, Bird Flu, Mumps (there was an epidemic in adjacent Iowa), stringent visa restrictions, terrorism,).

The LAC had to balance the need to keep registration expenses low (especially for students and post-docs) with the need to cover conference costs. Budget planning was one of the first steps in planning the conference. It required several key steps. First, the fundraising committee needed to be familiar with each of the organizations in order to know what was expected by each group and its attendees. For example, complimentary lunches are traditionally a part of the PAA conference. In addition, the PAA plans multiple business meetings that require food. Without being familiar with the PAA, there would be no way to plan for the resources necessary to host a successful conference. Next, a list of the budgeted items was created to identify expected costs. Numerous ancillary expenditures arose at multiple points along the conference planning process, but large budget categories had to be identified up-front for overall planning. The PAA provided budgetary information on its website, and we interviewed prior conference LACs of the PAA and Solanaceae Conferences to identify key

and unexpected expenses. A potential huge cost was hotel contingency contracts, which stipulated reimbursement for unbooked rooms. After identifying the conference venue, we could obtain estimates for all key items such as catering, audiovisual, and venue costs. The final step was to estimate conference attendance. By estimating conference attendance and predicting total costs of the conference, we could set registration fees as well as fundraising goals necessary to support the conference.

### Publicity

Advertising the conference was critical. The PAA and the Solanaceae Genomics Network have organized communication structures with e-mail lists, newsletters, and web resources so advertisement was relatively easy. To advertise the conference, we relied on e-mail lists from the Solanaceae conference in Nijmegen, the Netherlands, in 2000; the Solanaceae Genomics Network; the Ischia Italy 2005 conference; the PAA; and the Lat-SOL Network. We gathered e-mail addresses from 1050 participants who gave papers at the conference, and this list will be available to future conference organizers. Various conference leaders further advertised the conference with poster and oral announcements at the Solanaceae section of the Plant and Animal Genome Conference, the business meetings of the American Society of Plant Taxonomists, the Sociedad Argentina de Botánica, the International Botanical Conference, the Botanical Society of America, the Solanaceae Genomics Conferences, and the PAA annual conference. We also advertised through newsletters or through the Eucarpia Conferences website, the International Coffee Genome Network, Lat-SOL, Red Latinoamericana de Botánica, the Crop Science Society of America, the Red Latinoamericana de Botánica, the Society for Economic Botany, the United States Department of Agriculture, Cooperative State Research, Education, and Extension Service, CSREES Plant Sciences Update, and the University of Wisconsin Department of Horticulture, and in *Global Potato News*, *Taxon*, the *Botanical Society of America Plant Science Bulletin*, *The Solanaceae Newsletter*, *The World of Food*.

All five prior Solanaceae Conferences had published proceedings, and we initially had an oral agreement with a publisher for the 2006 conference. This agreement became much more complex as negotiations advanced. Considerable time was necessary to work with this publisher and at the end we were not given a contract but rather only a promise to consider the manuscripts after an all peer-reviewed copy was submitted. Fortunately, Acta Horticulturae, an experienced publisher of horticultural conferences, actively sought to publish the proceedings from this conference and based on



experiences to date we recommend them as publisher for other conference proceedings.

### **Meeting Planning Meeting Rooms**

The meeting room size must match attendance. If a room is too small, then some people have to stand, and if too big, then a speaker is talking to a half-empty room. Room configurations can be used to adjust the room capacity. With theater-style seating, rows of chairs are placed in the room. This allows for the largest seating capacity, but required audience members to take notes on their laps. Classroom seating places a row of tables in front of every row of chairs. During the Solanaceae conference, the configuration of rooms at the conference center gave us the option of enlarging a room if necessary. For each of the PAA concurrent sessions, we reserved an extra, adjoining meeting room, allowing us the opportunity to remove a wall to double the size of each room if necessary. The PAA Breeding and Genetics section meetings required this option due to a larger than average attendance, presumably because of participation by the other two groups.

A simple amenity appreciated by participants was a set of tables and chairs made available throughout the week in the large open area used for breaks. This provided participants with a relaxed and comfortable setting in which to continue conversations initiated during the breaks.

### **Audio-visual equipment**

Audio-visual (AV) equipment can make or break the scientific portion of a conference. We chose to use the highest quality projection equipment available (large screens and high-resolution projectors) so equipment would not stand in the way of presentations. A wireless microphone and computer mouse in each room allowed speakers to be mobile during their presentations. In the large presentation room, we placed microphones throughout the room so that the audience could use them to ask the speakers questions. We rented a "speaker-ready" room with several computers, allowing presenters to review each slide and download their PowerPoint files to a central server. Then, when giving a presentation, the speaker simply loaded the file from the server with the assurance it would look exactly as it did in the speaker-ready room. We required speakers to format presentations as PowerPoint files on a PC-based platform. This avoided technical problems associated with maneuvering across file formats and platforms. In addition to the speaker-ready room, we provided a small room with a projector and computer, allowing speakers to practice. Speaker podiums and microphones were rented for receptions, banquets, and other social events.

We also provided a set of six computers with Internet access and a printer for checking e-mail during the conference. This was important for members of various committees who needed to write and print reports during the conference. In addition free, high-speed wireless Internet was provided throughout the conference site.

### **Catering**

The hotel or conference site staff was able to provide advice regarding catering needs. We chose to provide a hot breakfast and lunch for participants. The lunch was especially important to keep the afternoon scientific meeting on schedule, and the breakfast helped keep the participants together as a group throughout the day. It is also important to provide refreshments during the morning and afternoon breaks. Late registrations can create a problem for catering estimates. We provided a head count for each meal approximately one week prior to the conference. The Monona Terrace automatically planned for 5% more guests than requested, so a few last minute additions were not a problem. We told participants that they might not be provided with meals if they registered less than a week before the conference. However, we were able to renegotiate food service contracts for 42 late registrants. Finally, special meal requests need to be available on the registration form so that vegetarian and other specific nutritional needs can be met.

### **Registration and Staffing**

While the human resources required for planning a conference are large, so are the resources for running the conference itself. The registration desk was continuously staffed by two to three people, with one person adept at web registrations. We flew a staff member from the registration company, the Botanical Society of America, to our conference for this purpose. Additional staff members were added during expected busy times such as Sunday afternoon and Monday morning. AV/computer experts were hired from the Monona Terrace to work full-time throughout the conference to handle potential problems such as computer access to the network and microphone feedback. One was stationed in the large Solanaceae meeting room, while another worked among the three smaller PAA rooms. In addition, we hired and trained students to work in the speaker-ready room and to act as projectionists in each of the three PAA rooms. Colleagues were recruited to serve as session moderators. The Monona Terrace provided us with hand-held radios so LAC members could keep in contact with each other and with the Monona Terrace staff.

Poster sessions were relatively easy to organize. An early deadline for poster submissions provided



the time necessary to determine the size of the room needed for the poster session and the number of poster boards needed. The Monona Terrace provided the poster boards for our conference, but local companies were also capable of supplying the boards. We tried to group the posters into logical categories so that those with similar topics would be together. We organized a wine-and-cheese social event to encourage participation and enjoyment of the poster session.

Many details are needed to organize a conference. Potential and actual participants need to be kept informed of deadlines and costs for early and late registration, hotel availability and booking dates for reduced costs, local logistics, social and scientific events, opportunities to speak and give posters, media format, times for talks and posters, visa requirements, and Internet access. The large e-mail list for advertising was trimmed to a list of conference attendees to communicate information to abstract authors and registrants.

This was the first year the PAA utilized web registrations and abstract submissions, requiring considerable adjustment by members accustomed to postal mail submissions. However, there were so many cost and time-saving advantages to web registration and abstract submission that we had to rely on this system exclusively. A contract was initially signed with a company to take on-line abstracts and registrations, but they performed poorly. We cancelled their contract at a cost of \$1200 for their initial work. We ultimately used BSA, which took on-line abstracts, registrations, and published the abstract book with their in-house proprietary software and organizational staff. This system was highly integrated and allowed multiple options to view and query the program. In addition, in-house publishing by the BSA was efficient and cost-effective. The BSA saved us considerable time and produced high-quality copy, and we recommend them highly.

Some attendees were taxonomists who used this opportunity to visit local herbaria. Special access hours were needed at the University of Wisconsin-Madison herbaria on evenings and weekends for this service. We took every opportunity to acknowledge everyone who aided in the conference on the web, in the abstract book, and in this article.

An effective committee structure was important. The PAA and Solanaceae groups had separate program committees. However, good communications were necessary with each program committee and the BSA to coordinate abstract submissions, plan rooms, and print the program. Other committee responsibilities were lodging to include a primary conference hotel, signage at the conference, tours and events, visas,

grants and fundraising, a local and an accompanying persons committee, and invitation of dignitaries to address the opening session.

### **Other Lessons Learned**

**1. The 5%/95% rule.** No matter how hard you try to make registration, abstract submission, hotel options, and other details clear to your participants, a small minority of your attendees (5%) will require huge amounts of your time (95%). The LAC was responsible for clearly written directions for the many tasks of the conference, but many people are very busy, do not read directions, and attempt to perform all on-line tasks intuitively. Tremendous time was needed to write back to registrants and get them to correct abstract or informational errors. Many simply did not respond, leaving committee members with the task of researching and filling in necessary data. Some special requests were encountered including sending registration detail and abstracts by email and transcription to online forms, sending registration money by wire transfer, making hotel reservations, pick up from the airport even though all local hotels provided free shuttles, or securing foreign-language speaking babysitters.

We tried to meet all requests for two reasons. First, we needed a critical mass of registrants to meet our fixed costs (accurate, actual attendance was impossible to predict). Second, we realized that what appeared to us to be an unreasonable request could be caused by our failure to communicate clearly, special needs, unfamiliarity with the web or browser incompatibilities, cultural differences, or other problems. Ultimately, our primary goal was a positive meeting experience for all in attendance.

**2. Time commitments.** We tried to maintain a quality conference in the premiere conference venue in Madison at a reasonable cost. The venue expenses were considerable, so we tried to compensate by performing as many organizational tasks ourselves as possible to save costs. This included raising funds to keep registration fees (including food and social events) as low as possible. Using this model, planning for the conference proved to be an 80% time commitment for the chair of the LAC for 12 months preceding the conference, and 40% of the LAC chair's time the year before that. In addition, two other LAC members (Bussan, Jansky) spent 15% of their time committed toward the conference as the date approached. The other LAC members donated additional time, in addition to time spent by the abstract submission and registration company (BSA) and the program directors.

**3. Conference updates.** Conference updates were crucial to communicate developments to all registrants, especially reminders of deadlines for

early registrations and cutoff dates for conference event sign-ups, hotel reservations, etc. Eighty percent or more of abstracts and registrations were submitted in the few days immediately preceding deadlines. Deadlines were advertised three months, three weeks, and one week before cutoff dates. Registration income was critical to running the conference and local organizers were concerned to and beyond the conference if the conference was solvent. However, late registrations were common. About 15 registrants cancelled and required refunds and there were 70 late registrants.

**4. Announcements.** The opening reception and the plenary session was our only opportunity to speak to the entire set of attendees. This time was used to make general announcements, such as meals, when and where ticketed events were to take place, and where breaks were to be held. Announcements were necessary throughout the week requiring a strategy for getting information to all attendees. Bulletin boards, notices posted at the registration desk, emails to the participant list, and verbal announcements during the sessions were used to communicate announcements. At the opening reception, attendees were alerted about where to locate.

**5. Ticketed Events.** Be sure to anticipate last-minute requests for ticketed events. We had people request banquet tickets an hour before the banquet. Constant communication was necessary with the caterer and the absolute deadline for a head count at each event was needed. This deadline must be communicated effectively to conference participants. In addition, we had several people ask for refunds for ticketed events. Be prepared for those requests by determining in advance whether they will be granted. Also, try to anticipate creative solutions that may be offered by attendees. For example, one person could not attend a tour and asked whether the tour ticket could be substituted for a banquet ticket.

Many participants required certificates of attendance, and we spent considerable time at the registration desk typing these individually. Make a standard attendance certificate on official letterhead where you can write in the name of the person and a place to sign.

#### **Personal and Professional Benefits Of Being A Conference Organizer**

Conference organization was such a time-consuming task that it was often difficult to get volunteers. Few take on such a task a second time. The purpose of our paper is to provide future conference organizers practical experiences including possible pitfalls and lessons learned to aid them in their planning, not to discourage

volunteers. We are glad we took on this task as it was personally and professionally rewarding. Service to your community is expected and assuming that you organize a good conference and serve your registrants effectively and with respect, you have an opportunity to highlight your institution and city well, and gain recognition from your peers. You interact with hundreds of people, and initiate collaborations and friendships.

You learn how to communicate much more effectively. Repeated requests from "difficult people" who could not seem to follow directions often showed us that we were at fault through poor communication or cross-cultural miscommunications. We gained an appreciation of others' special needs, especially the financial difficulties of participants from underdeveloped countries. Finally, we learned to see conferences and volunteers in an entirely new light through the huge effort needed for the tasks involved. We recommend these tasks to anyone assuming you have access to good facilities and willing collaborators, and enjoy working with others.

Spooner, D.M., S.H. Jansky, and A.J. Bussan. 2007. Experiences of a local arrangement committee for a large scientific conference. *Acta. Hort.* 745: 513-532.

The full version of this paper is available from [http://www.horticulture.wisc.edu/faculty/faculty\\_pages/Spooner/spooner.php](http://www.horticulture.wisc.edu/faculty/faculty_pages/Spooner/spooner.php).

David M. Spooner and Shelley Jansky  
USDA, Agricultural Research Service  
Department of Horticulture  
University of Wisconsin  
1575 Linden Drive  
Madison, Wisconsin, 53706-1590 U.S.A.

Alvin J. Bussan  
Department of Horticulture  
University of Wisconsin  
1575 Linden Drive  
Madison, Wisconsin, 53706-1590 U.S.A.



## The Three C's: Early Botanical Leaders at the University of Chicago

There was a University of Chicago (1858-1886) before the present one. It was non-sectarian although founded, and mostly financed, by wealthy Chicago Baptist business and community leaders. Funding was never adequate, however, and continued borrowing, along with local (Chicago fire of 1871) and national (financial depressions, Civil War) disasters eventually forced it to close after 28 years.

Baptist leaders immediately began soliciting prospective donors for a new University. They were able to interest the richest Baptist in the nation, John D. Rockefeller. His several contributions eventually totaled \$10.5 million, a phenomenal sum for that time, which ensured financial stability and funds to attract a first class cadre of faculty members. The site of the new University of Chicago, also non-sectarian, was determined by a donation of 10 acres of mostly swampy land in the village of Hyde Park, a suburb (soon annexed) immediately southeast of Chicago that fronted on Lake Michigan. Additional acres were purchased, construction proceeded apace, and the first students entered in October of 1892, chanting praise to Mr. Rockefeller ("Hooray for John D., he gave all his loose change to the U. of C.!) as they passed through the portals.

A School of Biology was part of the original 1892 academic plan, but it soon proved to be unwieldy, and in 1894 it was divided into six Biology departments. One of these was Botany, although it had neither a permanent home nor a faculty except for one part-time instructor (John Coulter). Within four years, however, Botany would include among its small faculty three people who would be largely responsible for the university's national and international botanical reputation during its first four decades. By coincidence, all three had surnames beginning with C, hence the "Three C's" of the title. Before describing their accomplishments, the fortunate event that provided a home for Botany should be mentioned.

In 1895 Miss Helen Culver, a wealthy Chicagoan, contributed slightly more than one million dollars to construct a Biology quadrangle delimited by four buildings designed to provide permanent quarters for departments split from the original School of Biology. She named the quadrangle for her cousin Charles J. Hull, a trustee of the first U of C, but who is best remembered today because his Chicago mansion became Jane Addams' Hull House. Thus in 1897 Botany gained an elegant home, the three-

storied Hull Botanical Laboratory, complete with rooftop greenhouse.



### The first "C": John Merle Coulter (1851-1928)

Coulter was born in China of missionary parents, but his father died shortly after John's birth, and his widow moved back to her home state of Indiana to raise John and his brother. In due course Coulter attended nearby Hanover College, later served on its faculty, and later at Wabash College, also in Indiana. By the early 1870's he was also doing graduate work at Harvard University. Through his Harvard connection, he was chosen to be assistant Geologist on the important 1870's Hayden Survey of the Yellowstone region of the western USA. In the field his superior botanical expertise was soon recognized, and he was appointed as the Survey's Botanist. His Hayden experience and the plant specimens collected during it contributed much to the floristic studies Coulter concentrated on early in his career.

Coulter returned afterwards to Wabash college, where he founded the Biological Bulletin in 1875, which he renamed Botanical Gazette in 1876. He also acquired a PhD from Harvard. In the late 1870s and during the 1880s, while still at Wabash, he published floristic and monographic works, a phase of his career capped in 1890 by his co-authorship (with Serena Watson) of the 6<sup>th</sup> edition of Gray's Manual of Botany of eastern North America.

In the 1890's Coulter's interests shifted toward morphology and evolution (he became a lifelong strong advocate for Darwinian evolution), and his reputation grew as a dynamic teacher and speaker. He was appointed President of Indiana University in 1891 at age 40. In 1893, however, he left to



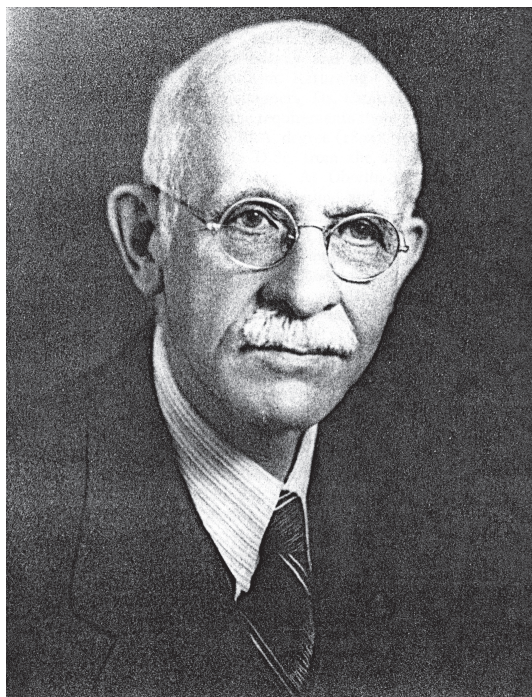
become President of the much smaller Lake Forest College, just north of Chicago, because its governing board convinced him that Lake Forest intended to become the “Great University” of the Chicago region. The plan was greatly exaggerated, as he soon realized, but he stayed as President until 1896.

During his time at Lake Forest he did something unusual for a college President. He commuted south to the fledgling University of Chicago on Saturdays to serve as the part-time sole instructor in the new Department of Botany, 1894-96. His Saturday lectures soon attracted scores of enthusiastic students, two of whom would later become the other “Cs.” It was inevitable that Coulter would be asked to join the U of C full-time, and he was appointed Head Professor of Botany in 1896, a position he held for 29 years! The trajectory of his career was truly unusual, perhaps even unique.

The highlights of Coulter’s career at U of C can be presented most efficiently in outline form, including only his major scholarly contributions while there. It should be emphasized that throughout his career he was in great demand as a dynamic teacher and as a speaker before both professional and lay audiences, and he was elected several times to high office in professional organizations. His most important scholarly endeavors while at U of C were co-authorships with the other two “Cs”, as indicated in the following career outline.

- 1894-96—Part-time lecturer as sole Botany department faculty member
- 1896—Appointed Head Professor, U of C Botany department
- 1896-97—Elected President of the first Botanical Society of America
- 1901—Led the unsuccessful first attempt to preserve 1500 acres of Indiana Dunes as a U of C Biological Station.
- 1901—Book: “Morphology of Spermatophytes” co-authored with Chamberlain
- 1903—Book: “Morphology of Angiosperms” co-authored with Chamberlain  
(Includes 250-page first synthesis of what is now called angiosperm embryology)
- 1909—Elected to membership in the National Academy of Science
- 1910—Book: “Morphology of Gymnosperms” co-authored with Chamberlain  
(Revised and co-authored second edition published in 1917)
- 1910-11—Book: “Textbook of Botany for Colleges and Universities”  
(Co-authored with Cowles and Barnes; the leading Botany text for many years)
- 1915-1921—Served as President of the Chicago Academy of Sciences
- 1916—Elected President of the present Botanical

- Society of America
- 1918—Elected President, American Association of University Professors
- 1922—Appointed Chief Scientific Advisor of newly founded Boyce Thompson Institute  
(He attempted, unsuccessfully, to locate it at U of C)
- 1925—Retired as Head of U of C Botany Dept. after 29 years, but remained on faculty
- 1927—Retired from U of C, moved to New York to Boyce Thompson Institute  
(Served as Chief Scientific Advisor)
- 1928—Died of a heart attack



**The second “C”: Charles Joseph Chamberlain (1863-1943)**

Chamberlain was born and raised in Ohio, where he attended Oberlin College. After graduation he became a high school teacher, and later a high school Principal, in Minnesota. He did return to Oberlin during summers, where he taught Zoology, and earned a Master’s degree. He enrolled as a PhD student at the new U of C in 1893, intending to pursue work in zoological microtechnique and histology, but after attending Botany lectures by the charismatic Coulter, he switched to Botany and did his dissertation research on the embryology of *Salix*. In 1897 he received the first PhD in Botany at U of C and was immediately appointed to the teaching staff, in charge of laboratory instruction. His subsequent published work on embryology, gymnosperms, and botanical microtechnique set the standards for those disciplines for decades. A brief outline of his career highlights follows.

1893-1897—Graduate student in Botany at U of C  
1897—Received first PhD in Botany at U of C, and appointed to Botany faculty

1901—Book: "Morphology of Spermatophytes" co-authored with Coulter

1901—Book: "Methods in Plant Histology", revised five times, last edition in 1932

(This was the standard work for almost 40 years)

1901-1902—A research year spent with Eduard Strasburger in Germany

1903—Book: "Morphology of Angiosperms" co-authored with Coulter

(Includes 250 page book-within-a book first synthesis of angiosperm embryology)

1910—Book: "Morphology of Gymnosperms" co-authored with Coulter

(The standard work, revised by them in 1917, and by Chamberlain alone in 1935)

1904-1917—Made several trips globally to study and collect cycads

(Assembled the world's largest living cycad collection in a U of C greenhouse)

1919—Book: "The living cycads" about his travels and observations on cycads

1927-1941—taught summers and semesters at US Biological Stations and Universities

1929—retired from U of C at age 66 but remained professionally active

1930—Book: "Elements of plant science," a general botany textbook

1931—Elected President of the Botanical Society of America

1935—Book: "Gymnosperms, structure and evolution"

(A thoroughly rewritten edition of Chamberlain and Coulter's 1917 edition)

1943—Died of a heart attack

(Left behind unpublished monograph of cycads)

### The third "C": Henry Chandler Cowles (1869-1939)

Cowles was born and raised in Connecticut. He attended Oberlin College in Ohio, developed interests in both Botany and Geology, and became acquainted with Chamberlain when the latter came back to Oberlin to teach summer courses. After graduation, Cowles taught Biology at Gates College in Nebraska for one year, then accepted a graduate fellowship at U of C in 1895 to study ice age geology and plant fossils. Like Chamberlain, Cowles attended Coulter's Botany lectures, which at that time included an enthusiastic discussion of Warming's recent book on Ecology. Cowles was influenced by Coulter to switch his research to a study of plant communities in relation to the dynamic physiography of the nearby Indiana Dunes along the south end of Lake Michigan. In 1898 his PhD dissertation: "An ecological study of the sand dune flora of Northern Indiana," followed by three major papers published from it during 1899-1901, established the principles of physiographic ecology and ecological plant succession tending toward climax formation. This work established his national and international reputation early on, and he continued to study dunes around the world throughout his career. His important achievements are outlined as follows.

1898—Received PhD, U of C, and appointed to U of C Botany department faculty

1898-1901—Published three influential papers on dune ecology from his dissertation

1901 et seq—Advocated, helped found County Forest Preserves, State Parks in Illinois

1901 to 1930's—visited dune formations worldwide on many field expeditions

1904-06—3-volume tome: "Geology" co-authored with two U of C geology professors

1910-11—Book: "Textbook of botany for colleges and universities" co-authored with

Coulter, and Barnes (U of C Botanist); the leading text for many years

1913—Organized and led 10 European ecologists on extended International

Phytogeographic excursion coast to coast from July to October

1914—One of the founders of Ecological Society of America; elected secy-treasurer

1916—Organized movement to create an Indiana Dunes National Park

(World War I postponed action; Indiana created a state park there in 1925)

1917—Elected President of the Ecological Society of America

1922—Elected President of the Botanical Society of America

1925—Became Chairman of U of C Botany Department, succeeding Coulter





1934—Retired, age 65, due to Parkinson's disease  
1935—A Special Issue of the journal Ecology dedicated to Cowles  
1939—Cowles dies of complications of Parkinson's disease

### Final thoughts

The U of C Botany department never had a large faculty, but an extraordinary number of graduate students passed through it (more than 300) during the careers of the three Cs, in less than four decades. Many of these students later became Botanists of note during their own careers. It is also noteworthy that each of the three C's served as President of the Botanical Society of America (1896, 1916, 1922, 1931). A 1982 book on the history and establishment of the Indiana Dunes National Lakeshore says that U of C botanists were instrumental in championing preservation of the dunes as a national park. More laudatory space could be devoted to each of these individuals, but enough has been included here to show that they led Botany at U of C through its early glory days, decades during which it competed equally with larger, long-established eastern University Botany departments.

{Note: Adapted from a talk on the "Three C's" presented at a symposium on "Chicago Area Botany" sponsored by the Historical Section of the Botanical Society of America at its July, 2007 meeting in Chicago.}

-Nels R. Lersten, professor emeritus, Department of Ecology, Evolution and Organismal Biology (formerly Department of Botany), Iowa State University, Ames, Iowa (BA, U of C, 1958; MS Botany, U of C, 1960)



## News from the Society

### Picturing the Past

We are preparing a film detailing the history of the Botanical Society of America, which will be available online via the BSA website when finished. In preparation for making this film, we are gathering electronic images of all past presidents. We have managed to locate pictures for most of the BSA presidents. However, we still lack images for

Byron D. Halstead 1900  
F. C. Newcombe 1917  
G. J. Peirce 1932  
John Buchholz 1941  
Ivey F. Lewis 1949  
Oswald Tippo 1955

We are asking all of the BSA membership to search their files for images of these individuals and to pass them on to us, either as prints or electronic files. Naturally, we will return prints once they have been scanned and we will happily acknowledge the source of each.

Please send your images or electronic files to

Karl J. Niklas or Edward D. Cobb  
[kjn2@cornell.edu](mailto:kjn2@cornell.edu) [ec38@cornell.edu](mailto:ec38@cornell.edu)

Department of Plant Biology  
Cornell University  
Ithaca NY 14853 (USA)

### Report from the Office

As Dr. Sundberg pointed out early in the Bulletin, in 2007 the BSA had a pretty good year. Our overall member numbers reached a new high since the staff team began operations in St. Louis. I pleased to report that by the end of the year we had 2,969 members (2,222 just a few years ago). More importantly, student memberships over the same period went from 359 to 715. Students are taking on important roles throughout the BSA. This bodes well for botany, the plant sciences, and for the Botanical Society of America.

Accompanying this growth, we trust you'll have seen a number of positive changes in recent times. If you've had the pleasure of submitting a manuscript to the *American Journal of Botany*, we are pleased to report this process just became easier! We have moved to Aries' "Editorial Manager" as a manuscript submission system. We think you'll find this a much more user-friendly process.

## American Journal of Botany

You will also notice another significant change – we are continually working to reduce the time from submission to decision, and the time from acceptance to publication has been **drastically reduced**. We are working with a much faster production schedule—“eGalley,” or page proofs are generated within about 24 hours. And we have further developments in process that will move papers live online weeks ahead of print. This will provide you with unprecedented timeliness when publishing research.

Couple these new developments with your member benefits to publish and we trust that if you are not currently publishing in the *AJB*, you will want to do so now!

*Plant Science Bulletin* itself is undergoing changes. We are in the process of moving to a new format in presenting *PSB* on the Society web site. As with the *AJB*, a major consideration is to improve our ability to provide timely information and better serve the needs of the botanical/plant science community. We've long been known for a speedy job and research opportunity site and see this moving out across all types of plant-related information normally found in the *Bulletin*.

We'd like to make sure we are able to reach you via email if possible. A monthly newsletter and a limited number of special notices are the extent of what we will use to communicate. In the main, this isn't a problem. However, we are having trouble with some account types, AOL being an example. Please check with your email service if we don't seem to be getting through to you. Please also contact us if we can be of any help in this area.

Thanks for your time. We look forward to seeing you all in Vancouver!

Submit a manuscript to the *AJB*

- <http://www.edmgr.com/>

BSA Member Benefits

- <http://www.botany.org/membership/benefits.php>

New online Plant Science Bulletin

- <http://www.botany.org/plantsciencebulletin/>

Update your Member Information

- <https://secure.botany.org/secure/default.asp?IType=1>

Join the Botanical Society of America

- <https://payments.botany.org/joinbsa/>

Bill

The only thing constant is change, right? And so it is with the *American Journal of Botany*. Over the past year we have gone through several changes that we hope strengthen the journal and benefit the members of the Botanical Society of America and the world of Botany as a whole. OK, we have big dreams.

The changes began about a year ago when we started assessing the journal's printing and manuscript tracking needs. We wanted a printer that kept abreast of trends and technology and could help move the journal forward in the competitive publication world. We wanted excellent quality, excellent service, and fast, efficient turnarounds. We also wanted to be as “paperless” as possible. For our manuscript submission system, we wanted the process to be simple and straightforward for our authors, reviewers, and editors. Our aim is to move papers through the peer-review process as thoughtfully yet efficiently as possible, and then make the research available as quickly as possible.

To achieve these goals, we selected Sheridan Press as our new printer and Aries' Editorial Manager as our new manuscript submission and tracking system. Sheridan Press is one of the leading printers of scientific-technical-medical (STM) journals, and they were a good match for the journal. They, along with their composition partner, Dartmouth Journal Services, have allowed us to reduce the production cycle to about half of what it was before. Authors receive page proofs within ca. 24 hours after their copyedited manuscript has been submitted. The entire process is paperless, with authors and editors receiving all proofs electronically. The “eGalley” proofs, as they are called, include tools built into the pdf so authors can annotate them electronically, even if they do not have the full version of Adobe Acrobat. The final article files are transmitted to HighWire Press, our online journal host, in an XML format that will allow us to publish online ahead of print later this year. The process is fast and efficient and will allow us to maintain an on-time, first-of-the-month schedule. So far, so good!

Editorial Manager is our new manuscript submission system. We studied our options, consulted with other journal editors who were happy with their systems, ran a test, and chose EM for many reasons, but the main reason is that the process for authors, reviewers, and editors is streamlined, efficient, and fairly self-explanatory. It's not necessary to read through tons of instructions to submit your paper. The hard work should have gone into composing the paper, not submitting it to

the journal! The system is flexible, so we can tailor it our needs, and we welcome feedback. We encourage you to check it out and submit your next research article to <http://ajb.edmgr.com>.

Along with these major changes, we are pleased to announce a new member of the editorial team: Richard Hund, formerly of Elsevier, joined the St. Louis office as production editor for the journal on 9 January 2008. We are delighted to have him onboard, and also to retain Beth Hazen's considerable skills and talents as our lead manuscript editor for the journal.

We look forward to bringing you more news about exciting developments at the AJB—so stay tuned, and don't forget to bookmark <http://www.amjbot.org/>!

Respectfully submitted by Amy McPherson, Managing Editor, American Journal of Botany; [ajb@botany.org](mailto:ajb@botany.org) or [amcpherson@botany.org](mailto:amcpherson@botany.org)

## BSA Science Education News and Notes

BSA Science Education News and Notes is a quarterly update about the BSA's education efforts and the broader education scene. We invite you to submit news items or ideas for future features. Contact: Claire Hemingway, BSA Education Director, at [chemingway@botany.org](mailto:chemingway@botany.org) or Marshall Sundberg, PSB Editor, at [psb@botany.org](mailto:psb@botany.org).

### PlantingScience—BSA-led student research and science mentoring program

*"This was a fun and exciting experience. Botany Rules!!!"* That is what one student had to say about taking part in the Fall 2007 PlantingScience session. Feedback from teachers about the impact of the PlantingScience program in science classrooms is also positive:

Betty Indriolo of St. Sebastian School (middle school-Akron, OH) says, *"This is a great program! I did not expect the level of student excitement and participation that I have observed."*

Toni Lafferty of C.H. Yoe High School (Cameron, TX) says, *"Their round table discussions were amazing...I wish you could have heard them defending their projects!!!!!!!!!!!!!!"*

Your contributions as an online scientist mentor can make a difference. **Thank You.**

### New Professional Development Opportunities for High School Teachers

We are delighted to announce summer institutes for high school teachers as part of BSA-led education initiatives. We invite high school teachers to apply for two NSF-funded Summer Institutes held at Texas A&M University. Brochures and applications are available online at the links below.

**PlantingScience Summer Institutes** (August 4-13) are designed especially for high school teachers to explore plant biology content while learning to incorporate online mentored inquiries in to their classrooms. Participants have opportunities to work with **Beverly Brown** and **Marshall Sundberg**, who authored PlantingScience germination and photosynthesis units. <http://www.plantingscience.org/>

**Plant IT Careers, Cases and Collaborations Summer Institutes** (July 7-25) provide extended opportunities to explore contemporary plant biology problems and career connections featuring the technology that support modern plant science and practice new investigative case skills with students who participate in summer camps. <http://www.myplantit.org/>

### Spotlight on Upcoming Undergraduate Education Events and BSA Member Contributions to Science Education

*AIBS and AAAS co-host NSF Conversation in Undergraduate Biology /AIBS Biology Education Summit*— This meeting (May 15 and 16) at AAAS in Washington, DC, will focus on the role of scientific societies in promoting and supporting undergraduate biology and will include **examining how professional societies can stimulate, support, and disseminate information about undergraduate biological sciences education reform**. To this end, the meeting is divided into two segments the NSF Conversation taking place on May 15th and the AIBS/AAAS Biology Education Summit starting on the evening of the 15th and continuing until the afternoon of the May 16th.

**Gordon Uno**, Department Chair and David Ross Boyd Professor, University of Oklahoma, ( Richard O'Grady, Executive Director AIBS, and ( Carol Brewer, Associate Dean, College of Arts and Sciences University of Montana, kick off the Education Summit with a dynamic session on The Role of Scientific Societies in Undergraduate Biology Education Reform. Sessions on the 16<sup>th</sup> cover issues such as Increasing the Pipeline, Teaching Evolution, The Need for National Standards, and Using E-Science Resources. Further information and the draft agenda is available online. <http://www.aibs.org/special-symposia/>

[aibs\\_biology\\_education\\_summit.html](#)

*BioQUEST Curriculum Consortium 2008 Workshop, Co-sponsored by Botanical Society of America and Missouri Botanical Garden — Problem Solving in Biology: Data, Tools and Resources from Plant Science* is the theme of this 8-day workshop (June 14-21). Faculty interested in incorporating resources from contemporary plant research into undergraduate curricula are invited. Join us at the Missouri Botanical Garden and Southeast Missouri State University as we explore a subset of the tools, data, and resources used in plant science with a special emphasis on quantitative reasoning, visualization and inquiry-based learning. Introductory workshops held at the Missouri Botanical Garden will include: (1) GIS Research and Education, (2) Evolution of Resurrection Plants, (3) Plant Genomics-lead by BSA member **Ken Olsen**, and (4) Modeling Plant Growth Data. **Barbara Schaal**, Professor of Biology, Washington University in St. Louis, vice President of the National Academy of Sciences, will deliver the keynote address.

Additional collaborative workshops held at Southeast Missouri State University include OER Commons: Web-based Collaboration and Multidisciplinary Resources, Introducing Case-Based Learning with Plant Science and much more. Preliminary schedules and application forms are available online. <http://bioquest.org/summer2008/>

*Building Upon the Legacy of Botanical Education and Traditional Knowledge* — This day-long special symposium is a highlight of the 49th Annual Meeting of the Society for Economic Botany will be held at Duke University in Durham, NC, June 1-5, 2008. The symposium will focus on the diverse roles gardens currently play in botanical education. We will look at how they can become more involved in classes and programs to preserve the future of botanical knowledge and research, and how they can better communicate the importance of plants in all aspects of human activities to a wide range of audiences from university and K-12 students to life-long learners. **Peter Raven**, Director of Missouri Botanical Garden, is keynote speaker.

[http://www.econbot.org/\\_organization\\_/index.php?sm=07|meetings\\_by\\_year/2008](http://www.econbot.org/_organization_/index.php?sm=07|meetings_by_year/2008)

### Education Bits and Bobs

*Is the career pipeline selectively leaky?* — A forthcoming report published by the National Academies Press, *Assessing Gender Differences in the Careers of Science, Engineering, and Mathematics Faculty*, presents results of congressionally mandated survey of differences between female and male full time, tenure-track and tenured faculty in almost 500 biology, chemistry,

engineering, math, and physics departments. [http://books.nap.edu/catalog.php?record\\_id=12062](http://books.nap.edu/catalog.php?record_id=12062)

*What does student success look like in community college?* — Indicators to track student performance and evaluate intervention effectiveness are outlined in *Power Tools: Designing State Community College Data and Performance Measurement Systems to Increase Student Success*. This policy brief was prepared by participants in Achieving the Dream: Community Colleges Count, a seven-state collaboration. <http://www.achievingthedream.org/>

[PUBLICPOLICY/POLICYBRIEFSPUBS/default.tp](#)  
*Want to connect to a K12 outreach community?* — Feel free to join the conversation on a new listserv open to individuals interested in science outreach. This listserv evolved as an outcome of the 2007 National Association of Biology Teachers K-12 Outreach Symposium, organized by the Four-Year College Section. <https://mailman.stanford.edu/mailman/listinfo/k12outreach>

### Evolution Education Literature

Evolution Education and Outreach Vol 1, Issue 1 available from Springer in January 2008 includes original scientific articles, lesson plans, essays, interviews, reviews of evolution in culture and society, and reports on evolution across the world.

Committee on Revising Science and Creationism: A View from the National Academy of Sciences, National Academy of Sciences and Institute of Medicine of the National Academies. 2008. **Science, Evolution, and Creationism, 3<sup>rd</sup> Edition**. National Academies Press. The updated version provides a comprehensive and up-to-date picture of the current scientific understanding of evolution and its importance in the science classroom. [http://www.nap.edu/catalog.php?record\\_id=11876-toc](http://www.nap.edu/catalog.php?record_id=11876-toc)

**McFadden, B.J., Dunckle, B.A., Ellis, S., Dierking, L.D., Abraham-Silver, L., Kisiel, J., and Koke, J.** 2007. Natural History Museum Visitors' Understanding of Evolution. *BioScience* 57: 875-882. The authors report on museum visitors' understanding of geological time and microevolution as well as their personal beliefs. The survey includes visitors to six U.S. natural history museums.



## Editor's Choice

**Bergwerff, Ken and David Warners.** 2007. Multiple objectives achieved with a germination experiment in a science education biology class. *The American Biology Teacher* 69:552-556.

-The similarity of the title to our Planting Science "Wonder of Seeds" project is what first drew me to this article. The main objectives of the project are to compare germination and growth rates of a variety of native plants with a non-native invasive, in this case purple loosestrife (*Lythrum salicaria*). Native seedlings are transplanted and eventually used to establish a native plants garden in the local community. The design is for a spring class, but seeds are collected in the fall by a different (Plant Taxonomy) class and stored outside for natural vernalization.

**Carlson, J.** 2008. Thinking Like an Ecologist. *The Science Teacher* 75: 51-57.

-The author brings data from the Aspen FACE (free-air carbon dioxide enrichment experiment) research site to her high school biology classroom through an inquiry into the relations among CO<sub>2</sub>, O<sub>3</sub>, and photosynthesis.

**Fogleman, T. and Curran, M.C.** 2007. Making and Measuring a Model of a Salt Marsh. *Science Scope* 31: 36-41.

-Hands-on activities allow 4-9<sup>th</sup> graders to model the *Spartina* and snail components of a salt marsh ecosystem and learn about accuracy and precision as they conduct "surveys" of each other's models.

**Marshall, Pamela A.** 2007. Using *Saccharomyces cerevisiae* to test the mutagenicity of household compounds: An open ended hypothesis-driven teaching lab. *CBE-Life Sciences Education* 6:307-315. <http://www.lifescied.org/cgi/reprint/6/4/307>

-Students are required to read primary literature, propose a testable hypothesis, and design and carry out appropriate experiments to analyze dose/response relationships of a test strain of yeast treated with a variety of compounds students bring from home.

**Porter, Jess.** 2008. Detecting landscape change: The view from above. *Journal of College Science Teaching* 37: 45-49.

-The "Map Detective" activity described in this article makes use of readily available resources, such as aerial photographs, Google Earth, Microsoft's Terra Server, etc. as opposed to higher resolution GIS software, to introduce concepts of landscape change in the introductory course. This article is worth looking at just for the resources.

## Preview of Botany 2008- - University of British Columbia Botanical Garden

The University of British Columbia Botanical Garden and the Virtual Museum of Canada are pleased to announce the launch of *John Davidson: The Legacy of a Canadian Botanist* <<http://www.botanyjohn.org>>. -submitted by David Brownstein



John Davidson on Skwoach, ca 1915. Hand-tinted lantern slide. University of British Columbia Botanical Garden and Centre for Plant Research, John Davidson Lantern Slide 251.

This digital resource tells the story of a remarkable Canadian. "Botany John" (1878–1970) was born in Aberdeen, Scotland, and he emigrated to Vancouver, Canada, in 1911. Davidson popularized nature study through illustrated public lectures. He created the Vancouver Natural History Society and the University of British Columbia's herbarium and botanical garden. Today, many consider Davidson an environmental folk hero for his conservation efforts.

The website houses over 5000 digitized objects, including Davidson's herbarium sheets, lantern slide collection, field notes and speech texts, as well as oral history interviews and contextual narratives. Botanyjohn.org is an invaluable resource for any researcher interested in the botany of northwestern North America.



## Announcements

### *In Memoriam:*

#### Donald Robert Kaplan (1938-2007)

Donald R. Kaplan, professor emeritus of plant biology, University of California, Berkeley died on Monday, December 17 of complications of pneumonia at Alta Bates Medical Center in Berkeley, California.

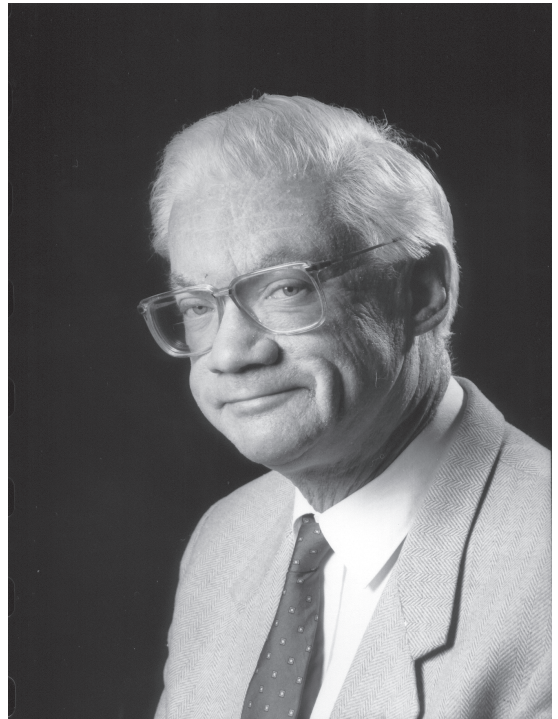
Don Kaplan was born in Chicago on January 17, 1938. His father was a jazz musician and his mother was a psychiatric nurse. Kaplan attended Northwestern University and graduated Phi Beta Kappa with a bachelor's degree in biology in 1960. He continued his education at the University of California, Berkeley and studied with Adriance Foster for his Ph.D. which he earned in 1965. After NSF-sponsored postdoctoral work at the Royal Botanic Gardens, Kew, England, Kaplan joined the newly established UC Irvine campus as an assistant professor of organismic biology in 1965 and was one of its founding faculty members. After the retirement of his major professor, Dr. Foster, he returned to UC Berkeley in 1968 as an associate professor in the Botany Department. Kaplan was promoted to full professor in 1978, and moved to the Department of Plant and Microbial Biology during reorganization of the biological sciences. He retired in 2004.

As a plant morphologist, Don Kaplan had a unique, European perspective on plant form. Using key concepts and first principles, he approached his research in a strictly analytical way. He was most interested in fundamental structural and developmental commonalities that underpin plant form across different major taxa. Kaplan's publications spanned the algae, bryophytes, ferns, gymnosperms, and angiosperms.

Don Kaplan's research accomplishments are too many to enumerate. He maintained a long standing interest in mechanisms of leaf development. Highlights of this interest include: dispelling the "phyllode" theory of leaf development in monocotyledons (Kaplan 1973, 1975), analyzing development of true phyllodes of *Acacia* (Kaplan, 1980), studying development of the "rachis" leaves in the Apiaceae (Kaplan 1970), determining the mechanism of plication in palm leaves (Kaplan, Dengler and Dengler, 1982a,b; Kaplan, 1983), and the mechanism of perforation in *Monstera* leaves (Kaplan, 1983). A second major research focus was the relationship of cell and organism in vascular plants (Kaplan and Hagemann, 1991; Kaplan, 1992). Kaplan's concepts in this arena have major

impacts on studies in molecular biology/genetics (Kaplan and Cooke, 1997). The mechanisms underlying his ideas are not yet completely understood. Finally, he was also interested in the history of plant morphology, especially in the people who established the basic principles and concepts of the field as he practiced it, such as Goethe (Kaplan and Hagemann, 1992), Hofmeister (Kaplan and Cooke, 1996) Goebel, and Troll.

Don Kaplan's research accomplishments were well recognized by his peers and resulted in many awards. Among these were: the Alexander von Humboldt Distinguished Senior U.S. Scientist Award (1988-89), a Guggenheim Fellowship (1987-88), Fellow of the California Academy of Sciences (1982), the Botanical Society Merit Award (1984), the BSA Jeanette Siron Pelton Award (1989) and Centennial Award (2006), Miller Research Professorship (1975-76), and Sigma Xi National Lecturer (1995-97).



Don Kaplan, 1976 recipient of the Distinguished Teaching Award, courtesy of University of California, Berkeley

Don Kaplan approached teaching with the same energy and dedication that he used for research. During his years at UC Berkeley, he taught a number of different undergraduate courses including General Botany and Plant Anatomy, but his great love was his Principles of Plant Morphology course. In the first half of this course, he presented his

unique perspectives on commonalities and divergences of plant form across all taxa, and in the second half of the course he showed the students many unusual plants (parasitic, epiphytic, aquatic, desert, salt marsh, etc.) and described how their morphological adaptations and divergent life strategies were adaptive in these extreme environments. Don Kaplan sparked strong botanical interests in generations of Berkeley undergraduates who took the class. UCB recognized him by awarding him the Distinguished Teaching Award in 1976. The BSA awarded him the Charles Edwin Bessey Award in 2005.

Don Kaplan's approach to graduate education was novel, especially compared to modern practices. He allowed students to pick their own projects that were not directly related to his own research projects. His graduate students thus determined their own approach and techniques to investigate their hypotheses. Moreover, Kaplan did not require his students to co-publish with him. As a result, the dissertations of his students were as different and unique as the personalities and interests of the students themselves. He had many Ph.D. students over the years, including: Dan Franck, Ann Hirsch, Dan Walker, Judith Croxdale (deceased), Darleen DeMason, Jennifer Richards, George Ellmore, Richard Mueller, Jeffrey White, Pam Diggle, Cynthia Jones, Ned Friedman, Paul Groff, William Sanders and Carol Wilson.

In addition to botany, Don Kaplan had many other interests, which he pursued with as much intensity. Among them were photography, railroads, classical music, and movies. Kaplan enjoyed doing all his own photography and commonly used large format, sheet film and Ansel Adam's zone system. He authored several articles on railroads, and a book entitled, *Duneland Electric* about the electric railway that ran from Chicago along the South Shore of Lake Michigan. Kaplan and his wife, Dorothy, had season tickets to the San Francisco Opera for 30 years and had an extensive music library. Among his favorite movies were all the Marx brothers' movies and George Lucas' Star Wars series.

Don Kaplan is survived by his wife, Dorothy of Kensington, California; two sons, Andrew, a children's librarian in Las Vegas, Nevada and Timothy, Pleasant Hill, California, a Berkeley police officer; and a sister, Barbara Goldstein of Salt Lake City, Utah.

#### References

Kaplan DR. 1970. Comparative development and morphological interpretation of 'rachis-leaves' in Umbelliferae. *Botanical Journal of the Linnean Society* 63 (Suppl 1): 101–125.

Kaplan DR. 1973. The monocotyledons: their evolution and comparative biology. VII. The problem of leaf morphology and evolution in the monocotyledons. *Quarterly Review of Biology* 48: 437–457.

Kaplan DR. 1975. Comparative developmental evaluation of the morphology of unifacial leaves in the monocotyledons. *Botanische Jahrbuch Syst* 95: 1–105.

Kaplan DR. 1980. Heteroblastic leaf development in *Acacia*: morphological and morphogenetic implications. *La Cellule* 73: 137–203.

Kaplan DR. 1983. The development of palm leaves. *Scientific American* 249: 98–105.

Kaplan DR. 1992. The relationship of cells to organisms in plants: problem and implications of an organismal perspective. *International Journal of Plant Science* 153: S28–S37.

Kaplan DR, Cooke TJ. 1996. The genius of Wilhelm Hofmeister: the origin of causal-analytical research in plant development. *American Journal of Botany* 83: 1647–1660.

Kaplan DR, Cooke TJ. 1997. Fundamental concepts in the embryogenesis of dicotyledons: a morphological interpretation of embryo mutants. *Plant Cell* 9: 1903–1911.

Kaplan DR, Dengler NG, Dengler RE. 1982a. The mechanism of plication inception in palm leaves: problem and developmental morphology. *Canadian Journal of Botany* 60: 2939–2975.

Kaplan DR, Dengler NG, Dengler RE. 1982b. The mechanism of plication inception in palm leaves: histogenetic observations on the palmate leaf of *Rhapis excelsa*. *Canadian Journal of Botany* 60: 2999–3016.

Kaplan DR, Hagemann W. 1991. The relationship of cell and organism in vascular plants. *Bioscience* 41: 693–703.

Kaplan DR, Hagemann W. 1992. The organism and plant cells in light of Goethe's comparative morphological method. In: Mann G, Mollenhauer D, Peters S, eds. *In Der Mitte Zwischen Natur und Subjekt Johann Wolfgang Goethes Versuch, die Metamorphose der Pflanzen zu erklären, 179–1990. Sachverhalte, Gedanken, Wirkungen.* Senckenberg-Buch 66. Frankfurt am Main: Verlag Waldemar Kraemer, 93–117.

Darleen A. DeMason  
Botany and Plant Sciences  
University of California, Riverside

Ann M. Hirsch  
Molecular, Cell and Developmental Biology  
University of California, Los Angeles

## Richard Goodwin (1910 – 2007)

Richard H. Goodwin, Katharine Blunt Professor Emeritus of Botany at Connecticut College, died on July 6, 2007 at the age of 96. He earned his BA, MA, and PhD degrees from Harvard University. Goodwin was appointed Professor of Botany, Department Chair, and Arboretum Director in 1944, having been lured away from the University of Rochester where, as an Assistant Professor, he was recognized as an exciting teacher and a creative young scholar in the field of experimental plant development. In the two decades following his appointment, Goodwin expanded the breadth of his research on the physiology of root growth, and published nearly twenty scientific papers. He had collaborators from California to Denmark, and his work was widely recognized for its technical ingenuity and scientific elegance.

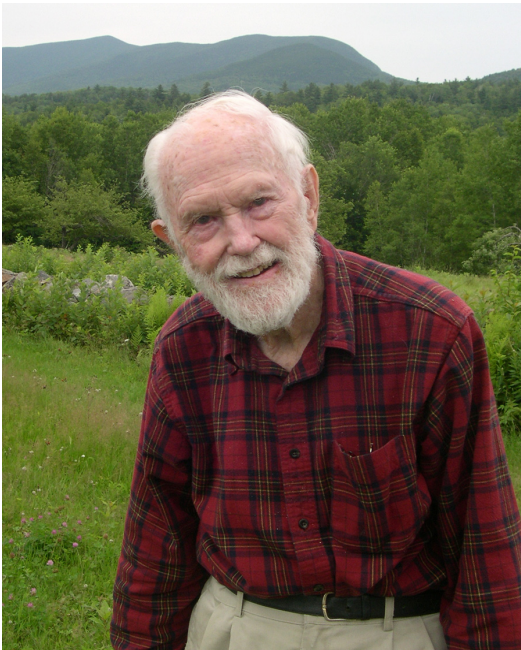


Photo by Edward Marshall

At Connecticut College his interest in conservation flourished. He recognized land ownership was often the most effective method of preservation. His approach was to identify important pieces of land, solicit potential donors for part of the purchase price (and frequently contributing his own funds), then bring the package to the President and Board, convincing both to pick up the difference and take title. During his 30-year tenure, the Connecticut College Arboretum expanded from 90 acres to more than 450. The diverse landscapes protected by the Arboretum have been a key factor in the development of the College's programs in botany, biology and environmental studies.

During this time, Goodwin also became increasingly active in conservation and land preservation beyond Connecticut College. In the late 1940's he had pulled together half a dozen colleagues from across the U.S. who shared his concerns about natural area preservation and management. These scientists were the foundation of what was to become the Nature Conservancy. When elected for his first term as Conservancy president in 1956, there were just 2,000 members and two state chapters – Connecticut and New York. An underpaid executive director with a home office was the only full time employee; the annual budget was less than \$10,000, and there were no holdings outside the Northeast. By 1958, at the end of his term, an Ohio chapter had been established, and the number of reserves had more than doubled. In 1960, he negotiated the then-largest deal in the organization's history, protecting 6,500 forested acres on the California coast

The big turn for both the Nature Conservancy and Goodwin came in 1964 when he was again elected national president. In accepting that office he made a "life decision"; conservation through land preservation replaced botanical research as the focus of his non-teaching professional efforts. Under his leadership, as its last unpaid president, the Nature Conservancy developed and adopted innovative business models and tactics for conservation that revolutionized the practice of preserving open spaces. At the same time, he organized a \$550,000 Ford Foundation grant to support the transition of the Nature Conservancy's staff from all volunteer to paid professional. This was a task requiring persistence, vision and considerable political skill.

Up to his retirement in 1976, Goodwin remained an enthusiastic, dedicated, and imaginative teacher. His most lasting academic legacy was the establishment in 1969 of the major in Human Ecology. In the 1960's he and William Niering concluded that the complex problems revolving around issues of conservation and environmental protection could not be solved by science alone; effective policy and action required people with a strong knowledge base in both natural and social sciences. They also saw that American higher education did not have the interdisciplinary vision to address this deficiency – so why not break the mold and start such a program at Connecticut College? In the spring of 1968, the faculty approved the new interdisciplinary Program in Human Ecology. The Program changed its name to Environmental Studies fifteen years ago and is one of the most heavily elected interdisciplinary majors at the College.



"He led an incredibly rich and diverse life, and he made some incredible contributions," said David Foster '77, Professor of Biology and Director of the Harvard Forest, who studied under Goodwin.

Goodwin led the effort to create and then expand the 1,200 acre Burnham Brook Preserve in East Haddam, CT, donating his home and property to the preserve for research uses. Goodwin is survived by Esther, his wife of 71 years, a daughter, Mary Linder Wetzell, and a son, Richard Goodwin, Jr.

T. Page Owen, Jr.  
Associate Professor and Chair  
Department of Botany  
Connecticut College  
<http://botany.conncoll.edu>

and

R. Scott Warren  
Jean C. Tempel '65 Professor Emeritus of Botany,  
Connecticut College

## *Personalia*

### **Crop Science Society Honors Missouri Botanical Garden's Peter Raven**

Dr. Peter Raven, president of the Missouri Botanical Garden, received the Crop Science Society of America's (CSSA) Presidential Award at its annual meeting on Nov. 6 in New Orleans. CSSA presents annual awards for outstanding contributions to crop science through education, national and international service, and research.

Raven has served as president of the Garden and the George Engelmann Professor of Botany at Washington University in St. Louis for over 36 years. A past president of the American Association for the Advancement of Science and recipient of the National Medal of Science, he is a world leader in the conservation of biodiversity, a member of the National Academy of Science since 1977, and has been elected to more than 20 foreign academies of science. His early work concerned the systematics and evolution of the evening primrose family of plants, Onagraceae. He subsequently worked with folk taxonomy, coevolution, biogeography, and conservation.

## **Symposia, Conferences, Meetings**

### **Student Research in Plant Biology and Conservation Symposium**

Saturday, April 26  
8 a.m.-5:30 p.m.

The Chicago Botanic Garden

The Chicago Botanic Garden is pleased to host the second annual Plant Biology and Conservation Symposium especially for graduate and undergraduate students. This will be a daylong event that is focused on providing students with an early opportunity to present their research to colleagues. This event will close with an invited keynote speaker who is distinguished in the field of plant biology and conservation. We are accepting abstracts for either posters or 15-minute oral presentations.

Registration is open to anyone interested in plant ecology and evolution. Anyone interested in presenting at this symposium must submit an abstract to the Program Chair before March 14, 2008.

For abstract submission guidelines, please visit <http://www.chicagobotanic.org/school/symposia>

Registration deadline is April 18, 2008.

Cost of early bird fee postmarked by March 28, 2008 is \$74. (Chicago Botanic Garden members pay \$59.)

Fee after March 28 is \$99. (Chicago Botanic Garden members pay \$79.)

Full-time students enrolled in graduate or undergraduate program with student ID pay \$29.

### **3rd Meeting of the International Society for Phylogenetic Nomenclature**

Halifax, Nova Scotia  
July 21 – July 23, 2008

We are pleased to announce that the 3rd Meeting of the International Society for Phylogenetic Nomenclature (ISPN) will be held in conjunction with a joint meeting of the International Society of Protistologists and the International Society for Evolutionary Protistology (<https://protist2008.dal.ca/>). In addition to featuring communications on the theory and practice of phylogenetic nomenclature,

this meeting will be an opportunity to discuss the forthcoming release of the PhyloCode and publication of the Companion Volume, as well as development of the on-line registration database (REGNUM). All systematists interested in the development of phylogenetic nomenclature are welcome. Discussions and presentations at this meeting may influence the future development of the PhyloCode.

**Venue:**

The meeting and associated social gatherings will be held on the campus of Dalhousie University, in the centre of Halifax. In order to make the meeting accessible to all scientists, on-campus dormitory-style accommodation will be available, in addition to nearby hotels. Note that U.S. Citizens traveling to Canada will be required to carry passports.

**Conference Language:**  
English

**The Fourth International  
Conference:  
Comparative Biology of the  
Monocotyledons**

**The Fifth International Symposium:  
Grass Systematics and Evolution**

**Copenhagen, Denmark  
11-15 August, 2008**

[www.monocots4.org](http://www.monocots4.org)

**Courses/Workshops**

**A Short-Course in  
Tropical Field Phycology**

Dates: July 9-23, 2008

Location: Bocas Research Station, Bocas del Toro, Panama

Registration Fee: \$500.00 (fellowships are available)

Instructors: Drs. Brian Wysor, Roger Williams College; Wilson Freshwater, University of North Carolina, Wilmington; Suzanne Fredericq, University of Louisiana in Lafayette.  
Organizer: Rachel Collin, STRI

Application: This course is directed towards graduate students and advanced Licenciado candidates and will be conducted in English. Please e-mail your CV, 1 letter of recommendation, and a 1-2 page statement explaining your background and reasons for taking the course, to Rebecca Rissanen at [RissanenJ@si.edu](mailto:RissanenJ@si.edu) before March 1, 2008. Limit 12 students.

For more information see <http://striweb.si.edu/taxonomy/>

**Award Opportunities  
Colorado Native Plant Society**

**The John W. Marr and Myrna P.  
Steinkamp Funds**

The Colorado Native Plant Society supports research projects in plant biology from the John W. Marr and Myrna P. Steinkamp funds. These separate funds honor the late Dr. John Marr, Professor at the University of Colorado and the first President of the CONPS, and Dr. Myrna Steinkamp, a founding member of CONPS who worked on behalf of the Society for many years in a variety of capacities. Both funds were established to support research on the biology and natural history of Colorado native plants by means of small grants. The Steinkamp Fund targets rare species and those of conservation concern. Both field and laboratory studies are eligible for funding. Thanks to the generous contributions of many members and supporters, a total of nearly \$3,000 is available, although individual awards will not exceed \$1,000. Recipients of the awards must agree to summarize their studies for publication in *Aquilegia* and on the CoNPS website. Awardees are highly encouraged to present the results of their research in poster or presentation format at the CoNPS annual meeting and/or a chapter meeting.

The Board of Directors is now soliciting proposals for a February 15, 2008 deadline. Information on guidelines and requirements for proposals may be obtained by contacting Board member Jan Loechell Turner at [jturner@regis.edu](mailto:jturner@regis.edu) or (303) 458-4262. Alternately, you may visit our web site at [http://www.conps.org/research\\_grants.html](http://www.conps.org/research_grants.html)



## Positions Available

### Senior Vice President of Plant Science and Conservation. The Missouri Botanical Garden

The Missouri Botanical Garden, the oldest botanical garden in the nation and a major force in field-oriented research on plants globally, seeks a new Senior Vice President of Plant Science and Conservation.

The Missouri Botanical Garden is searching for a successful leader, scholar and administrator to serve in this position. The division's work is carried out by approximately 125 staff members who conduct studies of many groups of plants throughout the world, but especially in Latin America, Africa, and Vietnam. The Garden has one of the largest and probably the most active herbarium in the world (just under 6 million specimens of vascular plants and bryophytes), one of the finest and most complete libraries in systematic botany, and a very strong program in information technology and database development. The Senior Vice President's primary responsibility is to oversee and coordinate scientific planning, to review the direction of the Garden's overall scientific research efforts, to provide leadership and support of the division's staff, and to contribute to the community of the Garden at large. The successful candidate will be expected to play a major role in fundraising for the Garden's programs in science and technology and to represent them locally and throughout the world.

The successful candidate will possess a Ph.D. in botany or plant sciences, with ten to fifteen years of leadership experience in an internationally prominent research and conservation group. Demonstrated experience in fundraising is essential. An understanding of and sensitivity to the effective management of legal and ethical issues is necessary for the successful conduct of this division. The ideal candidate also will possess a strong track record of achievement in negotiating international agreements with institutions in other countries and outstanding achievements in research, publication, and scientific outreach. Isaacson, Miller, a national executive search firm, has been engaged to assist with this important search. Inquiries, nominations, and applications should be directed in confidence to: Jackie Mildner, Senior Associate, [3558@imsearch.com](mailto:3558@imsearch.com)

### Botany Fellow - Wellesley College Botanic Gardens (WCBG)

#### Description:

Wellesley College invites applications for a Botany Fellow, to begin Fall 2008. There is a strong legacy of botany at Wellesley, and the WCBG has remarkable plant collections in 15 greenhouses and 22 acres of botanic gardens, all adjacent to the Science Center. For more information about the WCBG, including our educational mission, please see <http://www.wellesley.edu/wcbg>

The Botany Fellow is a two year full-time post-doctoral position, with an optional third year extension. The Fellow will mentor student research, conduct research relevant to the mission of the WCBG, teach one course in the first year (a sophomore-level course with lab in such areas as Ethnobotany or Field Botany) and two courses in the second year (adding a senior-level seminar on a botanical topic), and participate in the activities of the WCBG and in a seminar for new faculty, sponsored by Wellesley's Pforzheimer Learning and Teaching Center. In addition to the research resources of WCBG, the Fellow will have opportunities for research and collaboration at two premier botanical institutions nearby: Harvard's Arnold Arboretum, which includes extensive ethnobotanical collections, and Garden in the Woods, a living museum of native plants and headquarters of the New England Wild Flower Society.

The salary will be \$50,000, plus benefits, in 2008-09, with a percentage increase for the subsequent academic year. Moving expenses will be reimbursed up to \$2,000. The Fellow also will be eligible to apply for faculty research, travel, and pedagogical funds. While the Botany Fellow position is particularly well-suited to those interested in attaining faculty positions at liberal arts colleges, there should be no expectation that the Fellowship will lead to a regular faculty appointment at Wellesley.

#### Requirements:

Ph.D. in botany, ecology, or other relevant fields. Important criteria for the appointment include: evidence of outstanding scholarship, a strong commitment to undergraduate teaching, and a willingness to be an active and collegial member of the WCBG and College communities. We are looking for a person who will make good use of the WCBG's botanical resources to increase opportunities for student learning.

#### Applications:

To apply, please send a letter describing your scholarly and pedagogical interests, curriculum

vitae, and three letters of recommendation to: [BotanyFellow@wellesley.edu](mailto:BotanyFellow@wellesley.edu)

The deadline is **25 February 2008**. Note that all materials, including letters of recommendation, must be submitted electronically to the above address.

Please address all inquiries to Kristina Jones, WCBG Director, at [kjones@wellesley.edu](mailto:kjones@wellesley.edu)

## Other

### Rancho Santa Ana Botanic Garden Receives Fletcher Jones Foundation Funding

Rancho Santa Ana Botanic Garden (TSABG) recently received a scholarship grant of \$250,000 from The Fletcher Jones Foundation in support of Pre-doctoral and Post-doctoral Scholars at the Botanic Garden. The scholarship funds will be expended over three years in support of young plant scientists who are at critical career developmental stages – either immediately before or after completion of the Ph.D. degree. Funds over the three-year grant will be allocated each year toward stipend and supplies for a pre-doctoral student in his or her final dissertation year and for salary and research supplies for a post-doctoral scholar conducting innovative research.

“We are extremely excited about the support of The Fletcher Jones Foundation for graduate and post-graduate education at RSABG,” stated Dr. Lucinda McDane, Judith B. Friend Director of Research at RSABG and Chair of Claremont Graduate University Botany Program. Dr. McDade directs research and graduate education at the 86-acre native plant garden in Claremont. The Botanic Garden’s research department facilities include a world-class botanical library, an herbarium of more than 1 million specimens, and two research laboratories.

MaDade further explained the importance of the grant by saying, “In the sciences, recently minted PhDs usually spend one to several years in a post-doctoral position. The experience these young scientists will receive at RSABG will position them well to compete for permanent positions in academia and industry and to be successful in those positions.” The Fletcher Jones Post-doctoral Scholars will spend one or more years at RSABG pursuing innovative research as they further develop their curriculum vitae toward securing a permanent job in a professional scientific or academic position.

## Botanic Gardens Conservation

International, (BGCI) a global conservation organization that networks 800 botanic gardens in 120 countries around the world, has named the Chicago Botanic Garden as its United States headquarters. Effective November 1st, the Chicago Botanic Garden will host the office of BGCI in the US and play a key role in helping coordinate the network’s regional conservation programs. This will build on The Chicago Botanic Garden’s well established association with the American Public Garden Association, the Center for Plant Conservation and the Plant Conservation Alliance, and plant conservation networks in Canada and Mexico.

BGCI’s mission is to mobilize and engage botanic gardens in securing plant diversity for the well-being of people and the planet. The Chicago Botanic Garden has never been in a better position to take on this leadership role in the United States<sup>2</sup>, said Dr. Kayri Havens, Director of Plant Science and Conservation.

In the past ten years, the Chicago Botanic Garden’s plant conservation and science efforts have grown exponentially, from two scientists to a staff of 22 scientists and hundreds of graduate students, interns and volunteers.

Programs have local, regional and global impact, as scientists study threats to native plants, seek to preserve endangered species, examine the impact of air pollution to soil and native plants, and are collecting to contribute 30 million tall grass prairie seeds to the international Millennium Seed Banking initiative by 2010.

In the next five years, the Botanic Gardens Conservation International will take on three initiatives:

- \* Lead global efforts to reverse the impending extinction crisis to secure world-wide plant diversity.
- \* Enable people and botanic gardens to strengthen as centers of expertise, horticultural knowledge and environmental education.
- \* Maintain its position as the leading advocate for plant conservation.

The opening of our US headquarters at the Chicago Botanic Garden marks an exciting milestone in BGCI’s development. Combining our global reach with the Garden’s incomparable regional expertise is undoubtedly one of our most exciting partnerships, creating a major force of plant conservation in the diverse, varied continent,<sup>2</sup> said Sara Oldfield, Secretary General of the BGCI.

## Lenhardt Library Schedule of Exhibits

In addition to being the primary research tool for students of the Joseph Regenstein, Jr. School of the Chicago Botanic Garden, the Lenhardt Library in the Regenstein Center displays portions of its rare book collection in exhibits throughout the year. Hours are from 9 a.m. to 4 p.m., Monday, Wednesday, Thursday, Friday and Saturday. Tuesday hours are from 9 a.m. to 7 p.m. Sunday hours are from noon to 4 p.m. Closed holidays. Members have borrowing privileges.

The 2008 Lenhardt Library Exhibit Schedule Includes:

**The Language of Flowers** - Thursday, Feb. 14 through Sunday, May 18, 2008

Floral symbolism has inspired gardeners, artists and poets through the ages. Charming examples of the Victorian fascination with language of flowers are featured in this exhibit, which opens on Valentine's Day.

**Temple of Flora** - Friday, May 23 through Sunday, Aug. 17, 2008

The Lenhardt Library's latest acquisition, *Temple of Flora*, an exceedingly rare book from 1799, will be on view. This gorgeous edition, considered "the single most famous of all florilegia" represents both the fulfillment of a dream and the cause of the financial ruin for England's Dr. Robert John Thornton (1768-1837).

**Mushrooms** - Friday, Aug. 22 through Sunday, Nov. 23, 2008

Mushroom enthusiasts have always prized accurate and well-illustrated descriptions of fungi. Beautifully illustrated color plates selected from the Rare Book Collection show the amazing range of species of mushrooms.

**Children's Books** - Friday, Nov. 28 through Sunday, Feb. 1, 2009

Plants and gardens have played an important role in story telling. Children's books selected from the rare book collection provide a glimpse into the ways this genre has charmed young readers for generations.

Admission to the Chicago Botanic Garden is free. Select event fees apply. Parking is \$15; free for members.

For more information and to search the library collections, visit <http://www.chicagobotanic.org/library> .

## The New York Botanical Garden Announces Collaborative Campaign to Barcode all 100,000 Trees of the World

*Tree-BOL Project to Jump-start Global Plant DNA Barcoding*

The New York Botanical Garden has received funding from the Alfred P. Sloan Foundation to launch "Tree-BOL," a new DNA barcode of life (BOL) initiative to sample all the species of trees of the world. The \$572,000 grant for a 24-month project launches a large-scale, focused campaign to DNA barcode all 100,000 species of trees of the world. A major multi-national effort, Tree-BOL will significantly advance plant DNA barcoding in general. (DNA barcoding uses a short DNA sequence from a standardized position in the genome as the unique molecular identifier for each species.)

Trees constitute 25 percent of all plants. They were selected as the focus for this project for their economic value as sources of fuel, fiber, food, flowers, and medicine; as well as for their ecological value as carbon sinks, producers of nearly half of the oxygen necessary for life on Earth, influencers of weather patterns through transpiration and gas exchange, and definers of many of the biomes and habitats on land. In addition, certain tree species can be invasive, while many others are critically threatened or endangered (e.g., teak, mahogany, balsa, etc.) Finally, trees have public appeal. Since the dawn of mankind, trees have inspired the imaginations of scientists and artists alike.

The first Tree-BOL workshop for all interested project participants from around the world is planned to take place early in 2008 and will launch the data-gathering phase of the project. Among the anticipated goals for the first phase of research are barcoding all the trees of Europe, half of the trees of North America, and all threatened or endangered trees protected by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Phases 2 & 3 of the campaign are expected to target tropical species. Regular workshops, spaced approximately once every six months, are planned to share data, assess progress, and refine goals for the next phase.

Tree-BOL is modeled on similar DNA barcoding projects already underway to document all the fish and birds of the world. However, its scale is quite different; while there are perhaps 10,000 different species of birds and up to 30,000 species of fish in the world, it is estimated that there are more than 100,000 species of trees.

## Books Reviewed

**Ecology**

- 100 Years of Change in the Distribution of Common Indiana Weeds.** Overlease, William and Edith Overlease- Douglas Darnowski.....29
- Hawai'i the Fires of Life: Rebirth in Volcano Land.** Smathers, Garrett A. and Dieter Mueller-Dombois - John Z. Kiss.....29
- Neotropical Savannas and Seasonally Dry Forests - Plant Diversity, Biogeography, and Conservation.** Pennington, R. T., G.P. Lewis & J.A. Ratter (eds.)-Marcel Rejmanek.....29
- The Ribbon of Green: Change in Riparian Vegetation in the Southwestern United States.** Robert H. Webb, Stanley A. Leake, and Raymond M. Turner- Root Gorelick.....31

**Economic Botany**

- Botanical Progress, Horticultural Innovations and Cultural Changes.** Conan, Michael and W. John Kress (eds.)- Winfried S. Peters.....32
- Ethnic Aphrodisiac Plants.** Sood, S.K., Sarita Rana, and T.N. Lakhanpal. - Dorothea Bedigian.....32
- Mint: The Genus *Mentha*.** Lawrence, Brian M. (ed.)- Donald Less.....33
- Sacred Gardens and Landscapes: Ritual and Agency.** Conan, Michel (ed). - Dorothea Bedigian.....35
- Tumeric: the Genus *Curcuma*.** Ravindran, P.N., K. Nirmal Babu and K. Sivaraman (eds)- Dorothea Bedigian.....36

**Genetics**

- Principles of Population Genetics, Fourth Edition.** Hartl, Daniel L. and Andrew G. Clark. - Tyler Smith.....38

**Historical**

- Benjamin Smith Barton: Naturalist and Physician in Jeffersonian America.** Ewan, Joseph and Nesta Dunn Ewan - Marshall D. Sundberg.....38

**Physiological**

- Light and Plant Development(Annual Plant Reviews) Volume 30.** Whitelam, Garry C. and Karen J. Halliday (eds). - Beronda L. Montgomery.....39
- Plant Growth and Climate Change.** Morison, James I.L. and Michael D. Morecroft (eds)- Nina L. Baghai-Riding.....41
- Plant Solute Transport.** Yeo, Anthony R. and Timothy J. Flowers (eds). - Winfried S. Peters.....43

**Structural**

- Anatomy of Flowering Plants: An Introduction to Structure and Development, 3rd ed.** Rudall, Paula. - Joyce Phillips Hardy.....44

**Systematics**

- The Mountain Flora of Java.** van Stennis, C.G.G.J (author) Hamzah, A. & Toha, M (illustrators)- Ranier Bussmann.....45
- Wild Orchids of the Northeast: New England, New York, Pennsylvania, and New Jersey.** Brown, Paul Martin. - Linda M.K. Johnson.....46



**100 Years of Change in the Distribution of Common Indiana Weeds.** Overlease, William, and Edith Overlease. 2007. ISBN 1-55753-419-5 (Cloth, US\$92.95) 270 pp. Purdue University Press, South Campus Courts, Building E, 509 Harrison Street, West Lafayette, IN 47907.

100 Years of Change in the Distribution of Common Indiana Weeds by William and Edith Overlease presents a fascinating study of hundreds of angiosperms. Beginning with two previous statewide botanical surveys (by Coulter in 1899 and Deam in 1940), the authors examined every county in Indiana for over 200 species of aggressive plants, whether native or non-native, which they define as "weeds."

Their two page introduction is followed by several hundred pages of distribution maps, marked to the county level. The first group of weed species each receive a page with one map per survey (i.e. the two previous surveys plus the current one). About half of the species are in this group, while the other half were newly addressed as weeds by the authors and thus are shown more compactly at one map per species, four species per page. Brief suggestions are offered throughout for possible reasons for the changes in species distribution over the past 100 years.

This work would be useful to most botanists in Indiana, both those teaching and those working on land management issues. Moreover, this work is useful for many others outside the state of Indiana for the clearly illustrated picture of various plant migrations presented. There are species invading from the north over the past century (e.g. Norway Maple, *Acer platanoides*), others from the south (e.g. *Amaranthus*, *Amaranthus tuberculatus*). While most are new invaders (e.g. Garlic Mustard, *Alliaria petiolata*; Silk Tree, *Albizia julibrissin*), some older weeds are disappearing due to changes in agricultural practices (e.g. the lovely Corn Cockle, *Agrostemma githago*, eliminated by the use of modern harvesters, preventing self-seeding).

Buy a copy today, for your classes, if nothing else.

-Douglas Darnowski, Department of Biology, Indiana University Southeast, New Albany, IN.



**Hawai'i the Fires of Life: Rebirth in Volcano Land.** Smathers, Garrett A. and Dieter Mueller-Dombois. 2007. ISBN 1-56647-818-9. (Paper US\$14.95) 141 pp. Mutual Publishing, LLC, 1215 Center Street, Suite 210, Honolulu, Hawaii 96816.

The active volcanism of the Hawaiian Islands is one of the most fascinating aspects of their natural history. The Kilauea volcano is the youngest and southeastern most volcano on the Big Island of Hawaii and has had a continuous eruption since 1983. However, the book begins with the November 1959 eruption of Kilauea which lasted for 36 days and left a devastation area of about 1,250 acres. The authors have studied ecological succession in this devastation area. The plants in the area were severely damaged or completely destroyed as a result of the 1959 eruption.

The authors are plant ecologists, and Smathers worked for the National Park Service as a naturalist while Mueller-Dombois is professor emeritus at the University of Hawaii. The book is light on quantitative data but consists mainly of a photographic atlas to illustrate ecological succession in the area following the volcanic eruption. The mostly color photographs are informative and many of them are quite dramatic. The authors divide the succession area into six different habitats and illustrate recovery in each habitat. Also included is a checklist of plants.

While primary ecological succession in the study site of the Hawaiian montane rain forest system is estimated to take about 200 years, the authors provide a glimpse into the first 50 years. This book is written more in a popular format rather than providing a detailed scientific analysis. Nevertheless, it can be useful for students as a clear illustration of ecological succession of plants.

-John Z. Kiss, Department of Botany, Miami University, Oxford OH 45056 USA

**Neotropical Savannas and Seasonally Dry Forests – Plant Diversity, Biogeography, and Conservation.** R. T. Pennington, G. P. Lewis & J. A. Ratter (eds.) 2006. ISBN 0-8493-2987-6 (Hardcover US\$119.95) 484 pp. CRC Press, Taylor & Francis Group, Boca Raton, FL.

During the last 30 years, over 50 volumes have been published on vegetation and ecology of tropical rain forests and at least 20 on tropical, namely African, savannas. Books on tropical dry forests still remain disproportionately scarce (Bullock et al., 1995,

Ganzhorn & Sorg 1996, Robichaux & Yetman 2000, Leal et al. 2003, Frankie et al. 2004). This imbalance is even more striking when we realize how threatened are the remnants of tropical dry forests. The volume under review, the newest addition to the Systematics Association Special Volumes Series, is the result of a plant diversity symposium that formed part of a conference on tropical savannas and seasonally dry forests held in Edinburgh in 2003. Fifty-eight researchers from 11 countries contributed to this volume. Thirteen out of 20 chapters deal explicitly with seasonally dry tropical forests (SDTF). The volume focuses on plant diversity and reviews fossil data and molecular phylogenetic approaches to biogeographical history of neotropical dry forests and savannas.

The focus on the Neotropics is fully justified. About 50% of the world's remaining SDTFs are contained in South America, and 12% in Central America. The Neotropical SDTFs are found in scattered areas, with the most species-rich in Mexico, Peru, and Bolivia. Levels of floristic similarity between areas are often low, and some areas (Brazilian caatingas, Peruvian inter-Andean valleys, Mexican Pacific coast) are rich in endemic species. By far the largest savannas are the cerrados of Brazil and Llanos of Venezuela and Colombia. Pennington et al. (Chapter 1) conclude that the fossil record and dated phylogenetic trees suggest that SDTFs are at least as old as the Miocene, but that savannas dominated by C4 grasses may not have risen to dominance until the late Pliocene.

Authors of this volume address three main questions: (1) what are the patterns of diversity and endemism of the floras of SDTFs and savannas? (2) How and why did endemism and diversity arise? (3) Are these ecosystems adequately protected, and if not, which areas should be elevated into priorities for conservation? The volume is packed with badly needed data on composition, endemism, similarity, phylogenies, and conservation status in 16 neotropical areas. Moreover, Lavin (Chapter 19) deals with floristic and geographical stability of SDTFs in general and concludes that the geographical phylogenetic structure of dry forest clades can be explained by low dispersal rates among isolated forest patches. Based on comparison of taxon-area cladograms for *Inga* (rain forest genus) and *Coursetia* (dry forest genus), he suggests that the rain forests rather than dry forests are floristically and geographically more dynamic. Comparisons of the seasonally dry vegetation of Africa with the Neotropics are made by Michael Lock (Chapter 20). Key differences include longer history of human occupation and animal domestication, as well as greater frequency of fires in Africa. However, in South America, huge areas of seasonal tropical vegetation are being

converted into industrial agriculture, a process that has hardly started in Africa.

Aspects of deforestation and conservation are considered in the chapters of Ratter et al. (Chapter 2), Durigan (Chapter 3), and Felfili et al. (Chapter 4) in the Brazilian Cerrado Biome, while Huber et al. (Chapter 5) deal with the same subject in the Venezuelan Llanos. Because of its higher diversity (6429 recorded vascular plant species) and endemism (35%), the cerrado is considered the highest conservation priority at a global scale. The situation is critical since the destruction of natural savanna vegetation is enormous, far exceeding both in absolute and relative terms that of Amazon rain forest. Obviously, only a relatively small part of the Cerrado Biome could be maintained as reserves, and the promotion of an environmentally friendly agriculture is the only hope for some parts of the region.

What are the reasons for the relative neglect of SDTF by conservationists? The perception of low biological importance of SDTF biome, in comparison with tropical rain forest, may be paramount (Gillespie, Chapter 16). Lugo et al. (Chapter 15) stress that one fundamental difficulty for the conservation of neotropical SDTF has been the failure to consider it as a single biome, with a consistent name. Neotropical SDTF have been virtually entirely destroyed except in the Bolivian Chiquitano, which was estimated as 85% intact in 2001 (Killen et al., Chapter 9). Less than 4% of the vegetation of caatinga biome in eastern Brazil is unaltered (Queiroz, Chapter 6) and only about 2% of Mesoamerican dry forests are intact (Janzen 1988). Conservation strategies failed to take account of floristic patterns across the Neotropics, and some areas rich in endemic species lack protection entirely (e.g. Peruvian inter-Andean valleys; Linares-Palomino, Chapter 11). However, given the urgent need to protect the few remaining areas of SDTF, a pragmatic approach, protecting any areas where social and political opportunities permit, is also necessary (Gordon et al., Chapter 14).

Editors and contributors should be congratulated for putting this exciting interdisciplinary synthesis together. This volume is a must have for anyone who is interested in ecology, floristics, phylogeny, and conservation of dry neotropical biomes.

– Marcel Rejmánek, Section of Evolution and Ecology, University of California, Davis, CA, 95616.

#### Literature Cited

Bullock, S. H., Mooney, H. A. & E. Medina (eds.) 1995. *Seasonally dry tropical forests*. Cambridge University Press, Cambridge, UK.

Frankie, G. W., Mata, A. & S. B. Vinson (eds.) 2004. *Biodiversity conservation in Costa Rica, learning the lessons in a seasonal dry forest*. University of California Press, Berkeley.

Ganzhorn, J. U. & J.P. Sorg (eds.) 1996. *Ecology and economy of a tropical dry forest in Madagascar*. E. Goltze, Göttingen.

Janzen, D. 1988. Tropical dry forests. In E. O. Wilson & F. M. Peter (eds.) *Biodiversity*. National Academy Press, Washington, DC.

Leal, I. R., Tabarelli, M. & J. M. C. Silva (eds.) 2003. *Ecologia e Conservação da Catinga*. Universidade Federal de Pernambuco, Recife.

Robichaux, R. H. & D. A. Yetman (eds.) 2000. *The tropical deciduous forests of Alamos*. The University of Arizona Press, Tucson, Arizona.

making the hypotheses about causes of changes in species abundances and compositions much more interesting and credible. It also makes the ultimate moral much messier: Differing riparian areas have changed in different ways due to anthropogenic influences. Rivers and even their reaches are more idiosyncratic than many of us currently suspect. In retrospect, though, maybe this is what we should have expected because of the diversity of damage that people have inflicted on rivers in the past century – from small to gargantuan dams, from small to large diversions of both surface and ground water, to introduction of both innocuous and highly invasive plants. Humans have certainly changed the ecology and hydrology of desert riparian areas, but this book shows us that the exact nature of those changes is often multi-dimensional and not so predictable. Sometimes the actions we have taken seem to facilitate greater biological diversity, at least of large woody plants.

Not only is desert riparian biology idiosyncratic, but so is the style of this volume. Common names of plants are used throughout, with no attempt to provide a list of binomials. Imperial (English) units are used instead of metric units. The maps on individual rivers were each apparently constructed *de novo*, resulting in some mislabeling, such as Lake Powell being labeled as Lake Mead at the downstream end of the Upper Colorado River. The all important maps in the synthesis section show each important woody tree or shrub species and whether they have increased or decreased in abundance at each place where repeat photographs have been taken. This forms a phenomenal dataset, except that the authors have so much data that map symbols overwrite one another, to the point where one cannot discern the data. Colour map symbols were not used in their synthesis, but would have gone a long way to making these maps more readable and useable.

*The Ribbon of Green* demonstrates how rich the comparative method can be. Comparing vegetation and hydrology across both space and time gives a gorgeous picture of human-induced impacts. Although the hydrologic data is quantitative, the vegetation data from these repeated photographs can only be qualitative. But this is partly compensated for by the fascinating sample of repeat photographs reproduced. The large format of this volume, 31 x 23 cm, truly helps bring out this richness of detail. This is a book that any botanist, ecologist, geographer, or natural historian who works in or even just occasionally travels through Arizona or Utah should have on their shelf.

**The Ribbon of Green: Change in Riparian Vegetation in the Southwestern United States** by Robert H. Webb, Stanley A. Leake, and Raymond M. Turner (2007) University of Arizona Press: Tucson, 480 pages, ISBN 0-8165-2588-9, US\$75.

*The Ribbon of Green* is an extraordinary and most unusual book, very much in the tradition of Bob Humphrey's 1987 classic *90 years and 535 miles: Vegetation changes along the Mexican border*. Forty-three years ago, one of the authors, Ray Turner, along with Rod Hastings, published a similar book titled *The Changing Mile*. All three books attempt to infer vegetation and ecological changes during an intervening century by comparing repeat photographs. Repeat photography is the art of trying to exactly as possible duplicate an earlier photograph. Because of the panoramic nature of these photos, usually taken for the purpose of surveys, one can usually only discern the identities of woody trees and large shrubs. *The Ribbon of Green* covers rivers in Arizona and Utah, with some limited coverage of neighboring states. Most of the book is comprised of 23 chapters covering 21 rivers (the Colorado River justifiably gets three chapters), using elegant parallel structure between chapters. For each chapter, the authors provide a subset of their enormous collection of repeat photographs and their interpretations of vegetational and hydrological changes. This is a data intensive volume. The final pair of chapters provides a superb synthesis.

What makes this an especially interesting volume is that it is written by two hydrologists and a botanist,

– Root Gorelick, Department of Biology, Carleton University, Ottawa, Ontario K1S 5B6 Canada

**Botanical Progress, Horticultural Innovations and Cultural Changes.** Conan, Michael and W. John Kress (eds.). 2007. ISBN 0-88402-327-3. 278 pp. Published by Dumbarton Oaks Research Library and Collection and Spacemaker Press, distributed by Harvard University Press. \$ 40.00.

The present book does not look like what it really is, namely a conference proceedings volume. The fact is not mentioned on the publisher's website and is so well hidden in the book itself (there's a note on the second page, but that is about all there is; the symposium had been held at Dumbarton Oaks in 2004) that it had escaped my attention until I had finished reading. By that time, however, it had become clear that the book actually shares the character of most proceedings volumes. The essays in this collection differ very much in style and form, some have the character of a review, some that of a case study. Topics cover a diverse range, from an analysis of roses and scents as metaphors in medieval Persian poetry and mysticism (M.E. Subtelny) to an attempt to define what a "truly sustainable landscape design" can be in the economic realities of the 21<sup>st</sup> century (P. del Tredici). I personally was most impressed by A. Touwaide's reconstruction of the structure of private gardens in the Roman empire, M. Ambrosoli's essay on the role of peasant's gardens in the northern Italy of the renaissance, and M. Conan's multifaceted analysis of gardening, agriculture, science, and social progress in the revolutionary France of the late 18<sup>th</sup> century.

However, a broad range of topics in a book is not necessarily a virtue by itself, especially if a central thread is hard to identify. None of the essays in this compilation makes more than cursory references to any of the other, and neither is there a summary chapter that would make an attempt to highlight common or general conclusions. In the Introduction, the editors state that "there is no tentative conclusion to this volume" which is intended to "invite further discussions and research, before some fruitful questions can be raised". Fair enough, but as a consequence, the book presents itself as a somewhat arbitrary collection of basically disconnected papers that are more or less exciting depending on the particular reader's interests. I found the few general remarks in the editors' Introduction of little help in finding connections between the individual contributions; maybe this is because the introductory essay has partly "been adapted" from a chapter of a different book (footnote 1, p. 11).

At times it seems that not all of the texts have been edited as thoroughly as desirable. S.T. Evans refers to a table which does not seem to exist (p. 88) and presents legends which define features that are not

shown in the corresponding figures (e.g. p. 85); on p. 94 the reader is referred to a map to see what the "Land of Food" may be, but the map doesn't show it. W. Kuitert shows a variant of *Prunus serrulata* to demonstrate its "particularly [sic] deep-red coloring of young sprouts" - which isn't visible on the black-and-white image provided (p.134).

This collection will probably disappoint readers looking for a coherent treatment of the interplay between botanical progress, horticultural innovations, and cultural changes. It certainly will be useful for readers with a special interest in one (or more) of the topics covered by individual papers. The identification of such papers of special interest might be difficult, though, because no abstracts are provided.

- Winfried S. Peters, Department of Biology, Indiana/Purdue University Fort Wayne, Fort Wayne IN 46805-1599, [petersw@ipfw.edu](mailto:petersw@ipfw.edu)

**Ethnic Aphrodisiac Plants.** Sood, S.K., Sarita Rana, and T.N. Lakhanpal. 2005. ISBN 81-7233-395-1 (Cloth US\$39.00) 190 pp. Scientific Publishers (India) 5-A, New Pali Road, P.O. Box 91, Jodhpur, 342 001.

The opening sentence of the Preface to *Ethnic Aphrodisiac Plants* declares that "knowledge of aphrodisiac plants is necessary for everyone to lead a healthy and psychologically contented life." The first chapter, 'Introduction and Previous Work,' just slightly more than 2 pages long, is the only narrative text in this book, aside from a few sentences in the discussion at the end. The authors from the Department of Biosciences, Himachal Pradesh University, Shimla, India, are well-informed about ethnobotany, since they define and raise the history of this interdisciplinary field on their first page, naming some significant forerunners, and marvel at the wealth of ethnobotanical knowledge in India. Yet astonishingly, this plant inventory includes no scriptures or citations from those ancient Vedic archives! Their book would be far richer had they included illustrations from those sources (Rig Veda, Atharva Veda, Upnishada, Charka, Sushruta) as applicable, to every species listed. Here, they have prepared a listing of plants having some record of aphrodisiac use, citing only recent (20<sup>th</sup> century) Indian sources, primarily regional floras.

The authors' summary states that this book is a compilation of botanical names, English, Hindi and



Sanskrit, synonyms, family, distribution, parts used, and active constituents of 456 aphrodisiac plants belonging to 331 genera in 116 families, of which 2 species (2 genera) are fungi, 2 species (one genus) are lichens, 6 species (5 genera) are Pteridophytes, 6 species (3 genera) are Gymnosperms and the remaining 456 species (320 genera) are Angiosperms. The arrangement of taxa is alphabetical by genus name. There are several appendices; one contains a list of plant families represented. The others give English, Hindi and Sanskrit names, and Latin binomials. The References (six pp) consist primarily of [1] Indian floras and works about Indian medicinal plants, or [2] Western, non-scholarly, popular literature having some general content about aphrodisiacs. The book opens with color plates of plants. Some of these photographs are of limited helpfulness, since they are over-exposed or out of focus.

This volume fails to provide much insight about the wealth of ethnobotanical information from India, which the authors assert, because they have not linked folklore or the ancient Vedas, and 16<sup>th</sup> and 19<sup>th</sup> century Catalogs and Materia Medicas, with each plant registered. Plant descriptions lack any explanation of the method of use of each species or in explicit combinations of taxa, beyond name of plant part, with list of 'active constituents,' usually from a single cited source. To illustrate, a "decoction of pulverized seed and root" is all that defines aphrodisiac preparation of *Sesamum indicum* L. Here and elsewhere, the catalog of named constituents is incomplete or incorrect. Active constituents listed are: sesamolol, sesamol [sic!] and  $\alpha$ -tocopherol. Concerning this and all species in their record, there is disconnect, because the active constituents mentioned are not necessarily those that would provoke aphrodisiac responses. The authors offer no classic formulations, or guidelines for administration in mixtures with other plant taxa, although the literature holds plentiful references.

Dorothea Bedigian, Research Associate, Missouri Botanical Garden.



**Mint: The Genus *Mentha*.** Brian M. Lawrence (ed.). 2006. ISBN13: 978-0-8493-0779-9; ISBN10: 0-8493-0779-1 (hardcover, US \$129.95). 576 pp. CRC Press, Boca Raton, Florida.

This text represents the 44th volume in the series: Medicinal and Aromatic Plants - Industrial Profiles, which endeavors to synthesize the published academic, health-related and industrial information pertaining to this economically important flora.

First, I have some comments on a few technical issues. I have seen this book referenced with two dates: 2006 and 2007. The confusion exists because the copyright date of the book is 2007, yet the actual publication date (provided by the publisher) is 12/13/2006. Consequently, I have opted to cite the date as 2006. The book is available only in hardcover binding, which appeared to be sound except for a slight flaw (wrinkle) in the corner of the front flyleaf in my copy. When laid flat, my copy remained open approximately from pages 100 through 500, despite the fact that the quires are glued, not sewn, which is a bit surprising given a book of this price. Some disappointing features included the rather drab, dark green cover (yuk!), the poor quality of the three color figures included, and fairly thin paper that resulted in a distracting bleed-through of text. The print quality was subpar. In many places the text was surrounded by nearly microscopic dots, which imparted a "smudged" appearance. Most of the figures were fairly sharp, although resolution was inconsistent among the various contributed chapters. There seemed to be no real effort by the editor to standardize the format of text figures, which reduced the level of continuity between chapters and made it fairly apparent that this was a collection of independently contributed chapters. On the other hand, some degree of standardization was achieved by the inclusion of a separate contents listing at the head of each chapter. Notable peculiarities included the color figures (Fig. 6.11; Figs. 10.3; 10.4), which are printed on two sides of a single page placed between pages 397 and 399. Oddly, Figure 6.11 is assigned to p. 398; whereas, Figs. 10.3 and 10.4 (on the other side) are assigned to "the color plate following page 398." Obviously there are not enough pages here and one gets the impression of entering a literary worm-hole trying to make sense of the strange notation. Moreover, all the color figures have black and white counterparts in the text, rendering one set redundant. Surely the color photos should have appeared in the proper position in the text in lieu of the black and white photos, or been eliminated entirely. It is surprising that such abnormalities exist, given that there is both a series and a volume editor.

Regarding a more substantial evaluation of the contents, this monograph contains 14 chapters written by 17 contributors representing six

countries (eight are from the USA). According to the publisher, this book provides information on the “history, production, chemical constituents, market trends, and medicinal and nutritional uses” of the genus. There is one chapter devoted to taxonomy, three chapters on cultivation, three chapters on economic uses, with the remaining seven chapters on phytochemistry and production. Due to its rather narrow focus, this treatment would not be very useful as a textbook, but is most suitable for a specialist audience with a specific interest in the phytochemistry of essential oils in *Mentha* and their commercial production.

According to the publisher’s promotional information, all mint taxonomists should be relieved to hear that the book begins with “a review of the correct taxonomy.” This statement might be a bit optimistic. The chapter authors recognize 18 *Mentha* species (excluding *Mentha cunninghamii* as a possible member of *Micromeria*) based on their study of 27 morphological, cytological and phytochemical characters, which were analyzed using unweighted maximum parsimony (MP) and Neighbor-Joining (NJ) approaches. Actually, neither result was conclusive regarding the position of *M. cunninghamii*, given that the placement of the taxon was unresolved by both the MP and NJ trees (the latter labeled incorrectly as a phylogram), and not necessarily “outside the ingroup” as argued. Furthermore, the observation that only three nodes received internal support (i.e., bootstrap values) above 50% (51-66%) in the MP analysis should make anyone reluctant to accept that result as definitive in any case. The MP and NJ trees differed in topology as well, which is not surprising given the different models of analysis. Interestingly, the authors did not compare their result with the study by Bunsawat et al. (*Syst. Bot.* 29: 959-964. 2004), which is included among the references cited in their chapter. The Bunsawat study, which incorporated combined cpDNA sequence data, clearly resolved *M. cunninghamii* within *Mentha* (in a clade with *M. australis*, *M. diemenica*, and *M. satuireioides* [which, incidentally is misspelled as *satureioides* in the book figures]), with 96% bootstrap support (and that clade was included within a monophyletic *Mentha* with bootstrap support of 98%). Consequently, I’m more inclined to accept the results of the molecular analysis, given the much better support associated with the MP results. There are a number of other disagreements between the morphological and molecular trees as well, but none is addressed. Also, the morphological analyses contained no provision for examining the status of the numerous infraspecific taxa recognized in *Mentha*, but evaluated characters only for 20 OTUs, which represented the accepted taxa. For example, two subspecies of *M. arvensis* are accepted in the text, but only *M. arvensis* (no subspecies indicated) is

included in the numerical analysis. Similarly, four infraspecific taxa are recognized for *M. spicata* despite only one “*M. spicata*” OTU in their analysis. It still sounds as though there might be a bit more study needed before the “correct taxonomy” can be ascertained. Another problem involves the characterization of the numerous hybrids that occur in the genus. The authors recognize 11 named hybrids, based on quite diverse data in each case, with some supported by a plethora of genetic data and others based only on phenotype or “resynthesis”. Undoubtedly there still is a great deal of genetic work to be done on these hybrids before their parentages can be understood definitively. This chapter does provide an excellent overview of the characters and states used taxonomically in the genus and includes extensive lists of synonymy and holotype repositories for the taxa accepted.

Chapter 2 is an interesting account of the biochemistry and physiology of essential oil production and micropropagation techniques. Here one can find comprehensive information on such factors such as the biochemical pathways relating to pulegone (which is a liver toxin in humans when metabolized to menthofuran), or the subtle chemical factors responsible for the different scents of spearmint and peppermint. The summary of micropropagation methods would be useful to those interested in commercial production. Chapters 3-5 summarize the commercial cultivation of *Mentha* taxa in the United States, India, and China respectively, and include useful information on production history as well as planting and fertilization methods, pest and disease management, and harvesting techniques. An entire chapter (chapter 6) is devoted to distillation of mint oil, but I found it odd that it included roughly nine pages of photographs of various distillation apparatus – one or two examples would have sufficed! One-hundred thirty pages in two chapters (nearly 23% of the book) are devoted to an exhaustive summary of the various chemical constituents of commercially important and other mints and their hybrids. There’s not much prose here, but you will find an impressive, well-referenced, page-by-page listing of the various substances that have been found in these plants. The also is an entire chapter dedicated to the commercially ubiquitous menthol, which is found in numerous products.

Readers with an interest in medical or therapeutic applications of mint oils will find pertinent information in chapter 12, which focuses on their biological and toxicological properties. In fact, anybody who has ever taken or considered taking herbal supplements would be advised to read this section. There are two pages listing plant species that contain pulegone, which can have serious human health effects (see above). Notably, the American pennyroyal (*Hedeoma pulegioides*) has

been used extensively as an herbal folk medicine, and contains large quantities of this substance.

The final chapter on the economic uses of mints was a letdown; it comprised only three pages of text (with six pages of references!) and focused mainly on peppermint, menthol, spearmint and pennyroyal. By this time the reader has been bombarded by repeated references to those commercial products and it would have been nice to see this section expanded to present other examples of lesser-known uses of the plants (what about mint juleps, mojitos, teas, toothpastes, etc.?), economic summaries of mint-related products, or at least some novel information that hadn't already been covered. Also, this section focused much on the physiology and biochemistry of the products and really didn't address the economic aspects of the products very well at all. The book concludes with both a species and a subject index.

If you have an intense interest in mints, then you'll certainly find it to be a useful reference, even though it will cost you "a mint". Despite an unimaginative production that is like so many edited volumes, i.e., with poor continuity and structure among chapters, there is plenty of information with numerous references provided. On the other hand, if you have just a passing interest in the group, it might be better to look for it in the University library.—Don Les, University of Connecticut, Storrs, CT 06269-3043.

**Sacred Gardens and Landscapes: Ritual and Agency.** Conan, Michel, editor. 2007. ISBN 0-88402-305-2 (Paper US\$35.00) 314 pp. Harvard University Press, 79 Garden Street, Cambridge, MA 02138.

Gardens reveal the relationship between culture and nature, yet within the substantial library of garden literature, *Sacred Gardens and Landscapes* is among the few to focus on what the garden means in the spirit realm. *Sacred Gardens and Landscapes* registers how various world cultures historically perceived, designed, used, and valued gardens. It probes the social and philosophical importance of the garden to individual lives and societies. It brings together essays from a variety of perspectives, organized around the metaphor that sacred gardens and landscapes engage their visitors into three circumscribed modes of activity: [1] as anterooms spurring encounters with the netherworld; [2] as journeys through mystical lands; and [3] as a means of establishing a sense of locality, metaphorically rooting the dweller's identity in part of the material world. Each suggests specific motivations for garden and landscape design.

Undeniably, *Sacred Gardens and Landscapes* is a magnificent compendium about a subject addressed by few writers: the mystical dimension

of gardens. Editor Michel Conan is Director of Garden and Landscape Studies, Dumbarton Oaks. Author of ten scholarly books about gardens, he is well-positioned to solicit manuscripts from erudite authors working in assorted sub-disciplines, each an expert in their field. Thirteen contributing authors from Canada, Europe, Japan and the U.S. are among the world's principal thinkers and writers on the culture of gardens and bring years of critical assessment to the question of what the garden means. Their articles offer exquisite detail about narrowly defined subjects: surveys of rites in sacred gardens and landscapes, offering meaningful insights into the significance of plantings and their settings in the societies of India, ancient Greece, Pre-Columbian Mexico, medieval Japan, post-Renaissance Europe, and to some extent, America. Superb illustrations enliven each chapter with photographs of serene natural landscapes, ethnographic spectacles, and historic maps, details from ancient manuscripts, codices and cosmological works. Together these essays reveal the profound cultural significance of gardens previously overlooked by architectural studies of garden styles. They provide unique context to the fields of ethnobotany and economic botany. This exceptional compilation brings together sources that are not readily available to many readers, such as a much-cited 1982 PhD dissertation by D.E. Birge, University of California at Berkeley: *Sacred Groves in the Ancient Greek World*, in Bonnechere's article: 'The place of the sacred grove (*Alsos*) in the mantic rituals of Greece.'

Having asserted my intense admiration of this volume, as I examine *Sacred Gardens and Landscapes* carefully in search of coverage about one of my personally preferred subjects, I observe that despite its wide scope, it is not entirely comprehensive. One omitted subject that would be good companion piece to García-Zambrano's 'Ancestral rituals of landscape exploration and appropriation among indigenous communities of early colonial Mexico,' and that deserves meaningful consideration, is African sacred groves. Volunteer experience with Sacred Forests in western Kenya motivates this reviewer's investigation of that literature. Many published studies contribute to that subject, e.g., Prussin (1999), an overview of African sacred sites, with particular focus on the Cosmic Tree, Amoako-Atta (1998), details about sacred forests of Ghana, de Maret (2002) about the Congo, and Rodgers (1996) and Ylhäisi (2006) about Tanzania.

Sacred groves are present in Nigerian mythology too. The Osun-Osogbo Sacred Grove, containing dense forests, is located just outside the city of Osogbo, and is one of the last virgin high forests in Nigeria. It is dedicated to the fertility god in Yoruba mythology, and is dotted with shrines and sculptures. The grove was designated an UNESCO World Heritage Site (2005). The Osun Grove is

a tangible expression of Yoruba divinatory and cosmological systems; its annual festival is a living thriving and evolving response to Yoruba beliefs in the bond between people, their ruler and the Osun goddess. Falade's (1990) description of the place of the sacred in historic Yoruba palace gardens, gives indication to changing royal tastes in trees, and shrinking forests, referencing early observations by Clapperton (1828) and Frobenius' 1910-1912 expeditions.

Similarly, it would be an interesting comparison to juxtapose Bernal-García's 'Mexico-Tenochtitlan's Desert Garden' that blends garden, ritual, myth and history, with a chapter about analogous themes celebrating the African earthly paradise. Inspiration is available for example, in William Wenk's utterly transcendental photograph, 'A garden in the Sahara' in Faith, the section opening *The Meaning of Gardens* (Francis and Hester, eds. 1990: 23). Westermarck's outstanding *Ritual and Belief in Morocco* (1926) is another indispensable source that provides numerous local examples of landscapes that offer *Baraka*, blessing.

Another big drawback of this book frustrates this reviewer. The arrangement makes it extremely cumbersome to search bibliographic information. Literature cited never appears at end of a chapter as is customary in scientific publications. Since sources are not summarized anywhere, it is difficult to evaluate what references are included and which are missing, in addition to making it nearly impossible find a citation again without creating an index of one's own! The reader must hunt through the small font size footnotes at the bottom of each page, to unearth the sources cited.

-Dorothea Bedigian, Research Associate, Missouri Botanical Garden, St. Louis, MO

#### Literature Cited

Amoako-Atta, B. 1998. Preservation of Sacred Groves in Ghana: Esukawkaw Forest Reserve and its Anweam Sacred Grove. Working Papers, South-South Co-operation Programme for Environmentally Sound Socio-Economic Development in the Humid Tropics, UNESCO, Paris.

de Maret, P. 2002. Urban origins in central Africa: the case of Kongo. Pages 1-13 In: P. Sinclair, ed., *The Development of Urbanism in Africa*, Uppsala Universitet, Inst f arkeologi och antik historia, Afrikansk och jämförande arkeologi, Uppsala.

Falade, J.B. 1990. **Yoruba Palace Gardens**. *Garden History* 18(1): 47-56.

Francis, M. and R.T. Hester, eds. 1990. *The Meaning of Gardens: Idea, Place, and Action*. MIT Press, Cambridge, MA.

Prussin, L. 1999. Non-Western sacred sites: African models. *Journal of the Society of Architectural Historians* 58(3): 424-433.

Rodgers, W.A. 1996. Miombo woodlands. Pages 299-325 In: T.R. McClanahan and T.P. Young, eds., *East African Ecosystems and their Conservation*. Oxford University Press, Oxford, UK.

UNESCO World Heritage Sites. <http://whc.unesco.org/en/list/1118>; <http://www.worldheritagesite.org/sites/osunosogbo.html>

Westermarck, E. 1926. *Ritual and Belief in Morocco*. Vol. 1. Macmillan & Co., London.

Ylhäisi, J. 2006. *Traditionally Protected Forests and Sacred Forests of Zigua and Gweno Ethnic Groups in Tanzania*. Ph.D. dissertation, University of Helsinki, Faculty of Science, Department of Geography and University of Helsinki, Institute of Development Studies. University of Helsinki, Helsinki.

**Turmeric: the Genus *Curcuma***. Ravindran, P.N., K. Nirmal Babu and K. Sivaraman, eds. 2007. ISBN:0-8483-7034-5 (cloth US\$149.95) 484 p. CRC Press, Taylor & Francis Group, 6000 Broken Sound Parkway NW, Suite 300, Boca Raton, FL 33487-2743.

*Turmeric: the genus Curcuma* is a comprehensive monographic treatment that delves into many aspects about turmeric: botany, genetic resources, crop improvement, processing, biotechnology, pharmacology, medicinal and traditional uses, and its service as a spice and flavoring. Experts from India, Japan, U.K. and U.S.A. offer a thorough examination of turmeric's cultivation, market trends, processing, products and medicinal properties. Ayurveda has taught for millennia that turmeric cleanses the body, alleviates pain, balances digestion, purifies body and mind, clears skin diseases, expels phlegm, and invigorates the blood; modern science now shows that it produces glutathione-s-transferase that detoxifies the body and strengthens the liver, heart and immune system. Today, turmeric has acquired great importance for its anti-aging, anti-cancer, anti-Alzheimer, antioxidant and other medicinal properties. It has potential in preventing and treating conditions including ulcers, infections and arthritis.

Comparing traditional uses with advanced scientific investigations, the book provides a wide-ranging view of the medicinal value and health benefits of turmeric, and explores turmeric's decorative and food qualities. Coverage includes turmeric's history, diversity, production, and chemical constituents.

Publicity about this book states that senior editor P.N. Ravindran is a foremost spice scientist for the Indian Council for Agricultural Research, Project Coordinator (Spices) and Director, Indian Institute of Spices Research, Calicut, the founding coordinating director of the Centre for Medicinal Plants Research, Kottakkal, Kerala and the Indian Society for Spices. He was chief editor of the *Journal of Spices and Aromatic Crops*. He is a veteran editor of monographic volumes on spices in this series: *Black pepper* (2000), *Cardamom-the genus Elettaria* (2002), *Cinnamon & Cassia-the genus Cinnamomum* (2004) and *Ginger-the genus Zingiber* (2005).

Ravindran contributed the concise introductory chapter of this volume: *Turmeric - The Golden Spice of Life*. He indicates that turmeric has 6000 years of documented history of use as medicine, and strong associations with the socio-cultural life of people of the Indian subcontinent. Its yellow-orange rhizome led to its association with the sun, during the Vedic period. A wild turmeric progenitor has not yet been identified. It is cultivated extensively in India, followed



by Bangladesh, China, Thailand, Cambodia, Malaysia, Indonesia and Philippines (although the source and date of these statistics was not stated). Ravindran includes lists of common names of turmeric and related species in different languages, describes its historic use as dye plant in combination with lemon or lime juice, indigo or rind of pomegranate, and with various mordents. Unfortunately, none of these terms is included in the Index; hence, a researcher could not find that information easily, unless given to dedicated, careful reading of every chapter. Turmeric is employed to impart yellow coloration to clothes in Kerala, and in Tamil Nadu, cleanses the body of the deceased. Ravindran indicates that India is the only country where there is a strong research and development base for turmeric.

Turmeric is associated intimately with many daily customs. Ravindran relates several lush illustrations of marriage customs involving turmeric: "the parents of the bride and bridegroom pour turmeric water from a conch shell or from a leaf over their hands seven times, thereby concluding the marriage ceremony," and details about the nuptial bath: "married women rub their heads [of bride and groom] with sesame oil followed by smearing the exposed parts of their bodies with powdered *kumkum* (turmeric powder mixed with lime)."

Editors Ravindran and Nirmal Babu with Shiva are authors of the second chapter, Botany and Crop Improvement of Turmeric. Enriched with line drawings of plant, floral and rhizome structure, and photographs, species and cultivar diversity, anatomy, floral biology, selection and crop improvement receive attention.

Central to the subject of this series, is Phytochemistry of the Genus *Curcuma*, by Nahar and Sarkar. We learn that the name of the genus *Curcuma* came from the Arabic word 'kurkum,' which originally meant saffron, but now is used for turmeric only. Diphenylalkanooids are the prominent constituents. Structures shown here are scrutinized pharmacologically in the same authors' subsequent chapter: Bioactivity of Turmeric. Those activities are extensive: crude extracts treat a multitude of disorders - digestive, osteoarthritis, atherosclerosis and cardiac diseases, cancer and tumors, antioxidant/radical scavenging property, liver disease, antimicrobial, wound healing, eye disorders, anti-fertility, anti-inflammatory, hypoglycemic effect and diabetes. Isolated compounds in addition, have nematicidal and mosquitocidal activity.

Editor K. Nirmal Babu is first author of another focal chapter, Biotechnology of Turmeric and Related Species. Senior Scientist and head of the

biotechnology group at the Indian Institute of Spices Research, Calicut he has 20 years experience in the area of spice research, and has produced in collaboration, six spice varieties and has developed tissue culture protocols for over 35 species of spices. He co-edited (with P.N. Ravindran) the CRC monographs on *Cinnamon & Cassia*, *Ginger* and this volume. Micropropagation, field evaluation, induced variation and RAPD characterization of somaclones, isolation of protoplasts, synthetic seeds, conservation of genetic resources, and molecular characterization are considered.

Agronomy of Turmeric, by co-editor Sivaraman, addresses conventional practices: time of planting, planting material, depth of planting, seed rate, planting methods, mulching, nutrition and micronutrients, cropping systems, irrigation, weed management, harvesting and seed preservation. Diseases of Turmeric, Insect Pests of Turmeric, Post-harvest Technology and Processing of Turmeric, expand the coverage of crop husbandry.

Curcumin - Biological and Medicinal Properties, written by an international team of nine authors, covers physiological and biochemical expression, and appears to be the heart of this volume. It combines an exhaustive 20 page literature review with detailed analysis of the medicinal properties of turmeric. This chapter is particularly well written and well-organized, with a useful summary table, Chemopreventive Effects of Curcumin that lists each specific effect with a corresponding citation to literature referenced. Their Conclusion is especially reassuring: curcumin protects against cancer, cardiovascular disease and diabetes, and shows preventive as well as therapeutic effects against Alzheimer's, MS, cataract formation, AIDS, and drug-induced nonspecific toxicity in the heart, lung and kidney.

*Turmeric: the Genus Curcuma*, the first reference work about turmeric, provides exhaustive coverage, and will interest botanists and professionals in the perfumery and food industries and to those interested in alternative and conventional medicine. It will enrich library collections of universities and medical schools. As this is the twelfth volume in the Medicinal and Aromatic Plants series that I have perused, there is one variance from other works in this superb series: the Index of *Turmeric* is very incomplete. It omits countless essential search terms that readers would benefit from reaching, such as areca nut, indigo, neem, Onam festival, sesame, and names of all disease-causing organisms. An observant reader can find a few typographical errors, and in places, grammatically awkward phrases, e.g., "biological effects are being researched upon during the past 50 yr or so" (p 12). Nevertheless, this volume in the splendid Medicinal

and Aromatic Plants - Industrial Profiles series, is an essential guide to the spice.

-Dorothea Bedigian, Research Associate, Missouri Botanical Garden.

**Principles of Population Genetics, Fourth Edition,** Daniel L. Hartl and Andrew G. Clark. 2007. 565 pp. ISBN

0-87893-308-5. \$93.95 (hbk). Sinauer Associates, Sunderland, MA.

Now in its fourth edition, Hartl and Clark's *Principles of Population Genetics* provides a comprehensive introduction to the discipline. While the target audience is advanced undergraduate and graduate students, the depth and breadth of the material covered will also serve as a reference for researchers in related fields.

The book starts with a surprisingly weak introduction. The first 40 pages provide a disjointed overview of basic univariate statistics, Mendelian genetics, molecular lab methods, and various applications of genetic markers. I was left with the impression that bits and pieces of several different essays had been pasted together. Brief descriptions of the mechanics of assessing RFLPs and AFLPs are given. However, the methods used to assess SNPs, which feature prominently in later chapters, are not presented at all. Given the variety of molecular markers currently in use, a more detailed introduction is warranted. On the other hand, any student with sufficient mathematical background to cope with the formulas developed in later chapters will not need an introduction to concepts of mean and variance.

Thankfully, subsequent chapters provide coherent, detailed treatments of their respective topics. Separate chapters deal with genetic variation, drift, mutation, selection, population subdivision, molecular population genetics, and quantitative genetics. Each chapter starts with an introduction to basic principles and assumptions, which serve as the basis for increasingly sophisticated models. The discussion is frequently illustrated with worked examples, and each chapter concludes with a list of additional problems, with solutions at the end of the book. This will be a great benefit to students working with the text, but may be distracting to researchers looking for a reference book.

The final two chapters are entirely new in the fourth edition, reflecting the dramatic expansion in the field

that has occurred in the decade since the previous edition was released. Chapter 9 addresses population genomics and the possibilities that arise from our increasing access to the entire genome of study organisms. The final chapter, devoted to human population genetics, is the only part of the book that focuses on application rather than theory. This is a shortcoming, as the book would be of greater interest, and appeal to a broader audience, with more applied examples to balance the presentation of abstract concepts. There is a conspicuous absence of any discussion of conservation genetics.

The pace of the presentation is brisk but not overwhelming. This will not be an easy read for students, but careful readers who take advantage of the problems will gain a sound foundation. Most of the text should be accessible to those without a strong math background, but some familiarity with calculus and probability will be necessary to fully grasp all of the material. The cited references include both classic works and recent papers, making this a valuable point of entry for graduate students. The theoretical focus is, for the most part, taxon-neutral. However, while this book will provide a fine introduction to the discipline, I hope that future editions will include more examples of applications to plants (and animals) to round out the presentation.

-Tyler Smith, McGill University

**Benjamin Smith Barton: Naturalist and Physician in Jeffersonian America.** 2007. Ewan, Joseph and Nesta Dunn Ewan (edited by Victoria C. Hollowell, Eileen P. Dugan, and Marshall R. Crosby). ISBN 978-1-930723-35-1 (Cloth US\$55.00) 1127pp. Missouri Botanical Garden Press, P.O. Box 299, St. Louis, Missouri.

The names that frequently come to mind when thinking about early American botanists are the Bartrams, John and William, who lived and worked in the Philadelphia area, and who are mentioned 10 times in the "Calendar of Events of Botany in the United States" in Ewan's (1969) *A short history of botany in the United States*. Benjamin Smith Barton, also of Philadelphia and a colleague and friend of William and John, Jr., has a single entry. With the current volume, Joe and Nesta have made up for this "slight." This is an imposing, yet surprisingly readable, biography of the first professional naturalist in the United States.

The basic arrangement of chapters is chronological beginning with “Antecedents and Contemporaries” in Chapter one and ending with dispersal of his estate 30 chapters later. The great volume of the text is due primarily to the extensive use of full quotations of his extensive correspondence with friends, colleagues, naturalists and physicians in Europe and Latin America as well as throughout the United States. While these block quotations tend to interrupt the flow of the narrative story (they can be skipped), they often provide insights and interesting factoids of both historical and botanical interest. For instance, at President Jefferson’s request Barton instructed Meriwether Lewis on Natural History following ratification of the Louisiana Purchase (he was a frequent correspondent and visitor with Jefferson and provided a letter of introduction to Jefferson for Humboldt upon his visit to the U.S. in 1804) and was one of those responsible for the scientific disposition of the collected specimens. In 1805 Jefferson wrote: “...I send you drawings & specimens of the seed, cotton, & leaf of the Cotton Tree of the Western country, received from Genl. Wilkinson at St. Louis. To these I must add that it appears from the journals of Lewis & Clarke that the boughs of this tree are the sole food of the horses up the Missouri during the winter.” (p 543).

Botanists will find many of the chapters to be of particular interest. Chapter 13, America’s first Textbook of Botany not only describes Barton’s “Elements of Botany, first published in 1803, but connects it with contemporary European works and subsequent texts by Nuttall, Eaton, and Gray. Biogeography, Humboldt, and Economic Botany is the subject of chapter 14. Humboldt spent some time with Barton discussing plant geography and makes several citations to Barton in at least two of his books. Humboldt also noted the economic advantage of his new American acquaintances; “I am sure that my friends Messrs. Jefferson, Madison, Gallatin, Wistar, Barton and others will be able to obtain a large number [of subscriptions]. An English edition, therefore, ought to consist of a least 4,000 copies.” (p. 447)

It is curious that Humboldt saw Barton as one of the keys to successful sales of his book because monetary problems seemed to haunt Barton throughout his life, beginning with the alleged theft of funds from the Edinburgh Natural History Society, of which he was an officer while a student at the university, through the resolution of his estate upon his death. The book also makes clear that while Barton had many notable successes in botany, natural history, and as a medical instructor, he also had disappointments. He made heavy use of Bartram’s Botanical Garden but was unsuccessful in establishing his own at the university (Chapter 18). He also was enthusiastic about the usefulness

of a herbarium, but although he had a substantial personal collection he was not able to follow through on building it through exchanges with other collectors. As a result he was not able to publish the definitive Flora he envisioned for years.

Appendix I is a chronological compilation of Barton’s writings, 180 of which have definite attribution and another two dozen included as “Some unaccomplished publications” – projects which he wrote about but apparently never produced. The references are extensive and there are separate indices of Flora, Fauna, and People mentioned in the text. This title is number 100 in the Garden’s Monographs in Systematic Botany. It is a tribute to the authors and a tribute to the subject of their work. If you have any interest in the history of botany in the United States, this book belongs on your book shelf; it should be in every College and University library.

–Marshall D. Sundberg, Department of Biology, Emporia State University, Emporia, KS.

#### Reference

Ewan, Joseph. 1969. *A short history of botany in the United States*. New York: Hafner Publishing Co.



**Light and Plant Development (Annual Plant Reviews), Volume 30.** Garry C. Whitelam and Karen J. Halliday (eds). Blackwell Publishing, Oxford, UK. 2007.

“Light and Plant Development”, a new volume in the Annual Plant Reviews series by Blackwell Publishing, provides a comprehensive review of the relationship between light and the developmental plasticity of plants in a series of complementary chapters. The text progresses from initial discussions of the photoreceptors that perceive light in plants through considerations of the signal transduction pathways that connect light perception to plant morphogenic changes. Finally, a brief treatment of the implications of applied photobiology is also presented.

The opening chapters of the text that comprise Part I review the photoreceptor families in plants extensively. For each class of light-absorbing receptors, details are provided about the

identification and characterization, subcellular localization, photoreceptor photochemistry, biochemical mechanisms, downstream signaling components and structural analyses. Phytochromes, the most well-studied of the plant photoreceptors are discussed first (Chapter 1). The authors provide a brief, yet thorough, history of phytochrome discovery and isolation and review data on phytochrome functions in plants. The chapter covers early studies implicating the involvement of a unique pigment in photomorphogenesis, *in vitro* and *in vivo* studies of the individual members of the phytochrome family in plants, the role of phytochrome-interacting factors, as well as recent breakthroughs in phytochrome biology that include crystallization of a bacterial-derived phytochrome.

Cryptochromes, one class of blue/UV-A photoreceptors, are covered in sufficient detail including discussions of the relationship of these photoreceptors to class I DNA photolyases and individual families of cryptochromes found in plants and their distinct roles in the regulation of photomorphogenesis (Chapter 2). Phototropins are also blue/UV-A receptors and are involved in plant movement responses. The basic discussion of plant phototropins is expanded to encompass related proteins in other organisms, including fungi and bacteria (Chapter 3).

Having introduced the distinct families of photoreceptors found in plants, succeeding chapters contain reviews of the current base of knowledge about photoreceptor signal transduction in Part II. Again the discussion is initiated with the phytochrome pathway. Phytochrome-interacting factors (Chapter 4) are covered with regards to the methods by which they were isolated. The discussion extends from the deeply studied PIF3 to other factors also associated with phytochromes. Subsequent chapters contain detailed information about the roles of protein modification in light signaling pathways in plants. A thorough discussion of the impact of phosphorylation and dephosphorylation on the regulation of protein activity, and thus signal transduction, is included (Chapter 5). Also included is information about the central role of ubiquitination and proteasome-mediated protein degradation in the regulation of light-dependent transduction and modulation of gene expression in response to light (Chapter 6).

Part II concludes with a review of an area of plant photoreception about which much is still to be discovered. In addition to UV-B light inducing stress and damage responses in plants, low levels of UV-B have been shown to induce photomorphogenic response in plants through a UV-B receptor that has not been identified. These responses and our

current understanding of UV-B signal transduction in plants are reviewed, including the isolation and characterization of UV-B signaling mutants (Chapter 7).

The third part of this volume delves into physiological responses of plants to light. The photocontrol of flowering is discussed first (Chapter 8). The authors incorporate into their discussion information about the role of light in the induction of flowering, including photoperiodic induction of flowering, and the acceleration of flowering that occurs during shade avoidance. The regulation of shade avoidance and the perception of red:far-red ratio by phytochromes are further detailed in a separate chapter (Chapter 9). Photoreceptors interact with other environmental signals in complex networks that allow plants to integrate information about the external environment and result in coordinated developmental responses. Such interactions include light and the circadian clock, light and hormones and light and temperature and are discussed in suitable detail with specific examples of each (Chapter 10).

The final section of this volume (Part IV) features applied photobiology in discussions of photoreceptor biotechnology (Chapter 11) and light-quality manipulation of plant development in horticulture (Chapter 12). Topics covered include photoreceptor regulation as related to the control of agronomic plant traits. Much of the work that has been completed centers on phytochromes and phytochrome-dependent photomorphogenesis. In addition to work related to controlling plant size and plant responses such as shade avoidance and the regulation of flowering, other non-crop related studies are discussed that take advantage of current knowledge of photoreceptors, including successful efforts to use photoreceptors as fluorescent probes and to impart photoregulation of gene expression. Also included is an insightful discussion about practical applications of knowledge about plant responses to distinct wavelengths of light by horticulturalists to impact plant growth and development through the use of specialized lighting or utilization of optimized spectral filters or colored mulch products.

In summary, this volume fully achieves its goal of providing an overview of the latest developments in our understanding of plant photoreceptors and related signal transduction cascades, in addition to covering applied photobiology. Designed for researchers and professionals in plant biology and related disciplines, this text is an extremely valuable edition for those working in plant photobiology and intersecting research areas. Beronda L. Montgomery, Michigan State University, East Lansing, MI 48824



**Plant Growth and Climate Change** edited by James I. L. Morison and Michael D. Morecroft, 2006, ISBN 1-4051-3192-6, 213 pages, (hardcover US \$199.99), Blackwell Publishing Ltd. Oxford, United Kingdom

Volcanic eruptions, continental drift, meteoritic impacts, mountain building processes, solar output, variations in earth's orbital axis, and changes in atmospheric gases have contributed to global climate change throughout the Earth's geologic history. The Earth is presently in an interglacial interval. Scientific challenges such as rising temperatures, melting of glaciers and ice sheets, and increasing level of atmospheric gases have sparked many political debates in recent years. However, in spite of the politics, the scientific data are irrefutable. Most of these changes are believed to be the result of anthropogenic industrialization, pollution and habitat destruction. Ecologists and conservational biologists recognize that many species are confined to specific ecological niches and environments. Minor changes in climate, such as even slight increases in global temperatures, may disrupt natural community composition and food availability that could lead to major ecological upsets. By affecting plant growth and development, global climate changes also could alter farming practices and forestry production.

"Plant Growth and Climate Change" is a compilation of nine papers/chapters written by researchers working primarily in the United Kingdom, Portugal, Australia, Germany, Switzerland, and the United States. The major theme of this book addresses climate change and several key factors that affect plant performance: carbon dioxide, temperature, water supply, nitrogen, light, and soil. Plant physiological and ecological limitations are addressed in both controlled environments and longitudinal field studies. Each paper contains a long list of references for readers who wish to acquire additional information more thoroughly. Each paper also has appropriate, high quality tables and figures; six color plates are inserted into Chapter 3.

Chapter 1 provides a synopsis of processes that affect climate changes. Past, recent, and projected future changes pertaining to temperature, precipitation, solar radiation, and greenhouse gas emissions on global and regional scales are discussed and scenarios from the Intergovernmental Panel on Climate Change (IPCC) are outlined. Final sections of this chapter, for example, addresses how rising temperatures, increased precipitation, and the influx of freshwater from ice-melt could decrease the strength of thermohaline circulation by 50% during the next

100 years in the North Atlantic. This situation would likely enhance the maritime climatic influence in Europe and cause a warming influence throughout the entire continent, dramatically affecting plant species composition and potentially collapse some ecosystems. Concluding remarks in this chapter address that changing agricultural practices could help reduce greenhouse gas emissions that may mitigate warming trends. Shifting to rice varieties that can grow in drier conditions, for example, may help rectify methane gas emissions (a major greenhouse component) and replacing inorganic nitrogen fertilizers with organic manures may reduce nitrous oxides emissions.

Chapter 2, written by Ziska, L. H. and Bunce, J. A. reviews plant responses to increased atmospheric CO<sub>2</sub>, one of the four abiotic factors that pertain to plant growth along with light, nutrients, and water. Gene expression for photosynthetic regulation, cellular processes of C3, C4 and CAM photosynthetic pathways, whole plant responses to increased CO<sub>2</sub> accumulation, and managed and unmanaged plant communities and ecosystems regarding the impact of CO<sub>2</sub> concentrations are addressed. These authors emphasized, however, that understanding changes in CO<sub>2</sub> conditions are difficult and that future experiments need to address other abiotic variables including tropospheric ozone, nitrogen deposition, and other land use patterns when looking at changes in CO<sub>2</sub> levels.

How temperature influences plant metabolism (net photosynthesis, dark cell respiration, and plant development) over defined timescales is the major theme of Chapter 3 written by Körner, C. This study explored field and controlled environmental procedures. Körner discusses how plant tissues vary in their response to series of temperatures that range over a few hours to several days up to a full growing season. He noted that temperature has a minor influence on photosynthesis compared to photoperiodism although temperature does exert a significant influence on the induction of flower buds, general growth activity, and respiration on plant populations. Körner added that it is difficult to bridge the gap for a single species physiology growing along a thermal gradient compared to ecosystems. Interactions of other variables including altitudinal gradients, soil heat flux, plant stature, and water supply complicate the influence of temperature in natural settings.

Chapter 4, written by Menzel, A. and Sparks, T., reviews how plant phenology has been impacted by warming temperatures and seasonality. First leafing, flowering, and fruiting vary among flowering plant species. Many deciduous plants ranging from cultivated (dates, grapes, lilacs, and daffodils) cereal

crops (winter wheat) and native plants (oaks and ash) are discussed. This chapter begins as to how flowers impact traditional days set aside for religious and folklore festivals and tourism throughout Europe and Asia: snowdrop flowering on Candlemas (February 2<sup>nd</sup>), daffodil flowering for St. David's Day (March 1<sup>st</sup>), and peach flowering in Shanghai. Throughout the chapter they highlight how phenology change could cause some negative and positive consequences: reduced tourism; longer period of suffering from "hay fever" allergies; changes in native species, communities, and ecosystems; and improved agricultural and forestry yields as long as moisture is adequate.

Unpredictable rainfall patterns and fluctuations in soil moisture availability commonly reduces water uptake in plants. In Chapter 5 Davies, W. J. examines how plant cells cope with water scarcity. Some of the most sensitive limitations on plant growth are emphasized including the number, size, and transpiration effectiveness of stomata in leaves, water movement through roots, and chemical signaling responses that plant stress hormones generate. Understanding these plant physiological processes and mechanisms are important in optimizing crop production and on the composition and function of natural plant communities.

In Chapter 6, Pereira and colleagues further address worldwide water shortages and its impacts on plant communities and crop production. Currently 7% of the world's population lives in areas where water is scarce but that value may rise to 67% by 2050. These authors review how longer timescales of water scarcity and severe drought may cause the mortality of woody perennial plants and alter plant community boundaries. They note that these conditions are already occurring in semi-arid environments throughout the Mediterranean: lauroid sclerophyllous trees like *Arbutus* and *Myrtus* are on the decline and tall trees such as *Quercus ilex* are being replaced by shrubs and grasses due to an increase in wildfires, deterioration of soil structure, and xylem cavitation.

Field experiments, emphasizing how plant community compositions are likely to be affected by climate change, particularly temperature, precipitation and nutrient cycling, are further explored by Morecroft and Paterson in Chapter 7. They assess information that has been published in temperate, boreal, and polar zones and state that plant communities are experiencing boundary shifts in high-latitude and high-altitude areas: 1) treelines and alpine European plants are shifting to higher altitudes, 2) shrubs are expanding into areas designated as tundra, and 3) Antarctic plants are colonizing formerly bare ground areas. Low-

temperature alpine plants are particularly vulnerable to rising temperatures and are likely to disappear if they already occupy the highest regions of mountains. Morecroft and Paterson concluded that better monitoring and further research is required to accurately predict future consequences of vegetation composition; few studies have monitored vegetation composition at high latitudes for long periods of time.

The final two chapters describe credible models that can be used to make predictions about global climatic patterns on temporal and spatial scales. In Chapter 8, Wang and colleagues demonstrated that increases in atmospheric CO<sub>2</sub> need to be correlated to soil decomposition, mineral cycling and nutrient availability in modeling plant productivity by terrestrial ecosystems over decades. Emphasis was placed on nitrogen because this element is commonly a limiting factor with regards to plant growth and soil organic matter. Chapter 9 addresses how climate change influences plant productivity and the carbon cycle. Grace and Zhang report how increasing levels of CO<sub>2</sub> and rising temperatures may generate negative effects on photosynthesis and plant respiration. For example, they noted that photosynthesis becomes saturated at high CO<sub>2</sub> levels irrespective of light levels. Chloroplastic CO<sub>2</sub> plateaus when the partial pressure reaches 500 mbar and recent experiments show that trees did not increase in growth when CO<sub>2</sub> was doubled in northern forests. In tropical biomes, they added that photosynthesis will likely drop due to more intense water stress and evaporation.

The field of climate change is a dynamic field. This book provides a basis of understanding plant growth that is affected by abiotic and biotic variables. Throughout the book there are overlaps in content but specialists will appreciate the reappearance of major themes addressed by different experts for greater understanding. Data contained in this book also will remain pertinent for years to follow. This book is an excellent reference for professionals, researchers, and advanced students that are interested in plant science, soil science, and ecology.

-Nina L. Baghai-Riding, Division of Biological and Physical Sciences, Delta State University.



**Plant Solute Transport.** Yeo, Anthony R. and Timothy J. Flowers (eds.). 2007. ISBN 978-14051-3995-3. 424 pp. Blackwell Publishing, Oxford. \$ 199.99.

Sixteen years ago, Flowers and Yeo (1992) authored a very useful book on "Solute Transport in Plants". The current volume has a marginally modified title but still covers the same vast range of topics - solute transport over distances ranging from nanometers to tens of meters, from the molecular mechanisms of ion channels to phloem flux regulation and whole plant level responses to salt stress. There also are chapters on the basic physics of water and solute movement, as well as on methodologies for the determination of solute contents and transport (for a complete list of contents, go the publishers website at <http://www.blackwellpublishing.com/> and perform a search for 'Plant Solute Transport'). The size of the book has more than doubled, and the progress which was particularly rapid in the molecular field is reflected by the fact that all chapters on molecular aspects as well as on xylem and phloem transport are now contributed by specialists in those areas. Flowers and Yeo have retained responsibility for the chapters dealing with general physicochemical properties of solutes and with ecophysiological matters. Given this division of labor, it surprised me how homogenous this well written multi-author work appears - in almost all of its parts.

As stated in their preface, the editors aimed to close the gap between the large general textbooks and the highly detailed monographs or reviews for the specialist working in the field. The targeted audience includes research workers and graduate students, but it was attempted to design the chapters in a way that makes them useful for third year students. This is a potentially problematic approach, but it worked amazingly well (only the chapter on the "Regulation of Ion Transporters", while certainly being an excellent review, seems a bit too demanding for third year students as I know them). Most chapters include definitions of basic terminology, often with a critical appraisal of the concepts behind those key terms in the context of recent findings. Additional figures might have helped in some cases (there are not more than 48 illustrations on 400+ pages), but in general, the book is a highly accessible source of more-than-textbook information for upper level students. However, the chapters are "snapshots that provide guidance to students and researchers alike" (in the words of M. Gilliam, author of the chapter on "Membrane Structure and the Study of Solute Transport Across Plant Membranes"), and this is achieved through the adequate and stimulating discussion of current research foci. In the chapters dealing with molecular mechanisms, roughly 50% of the references cited have been

published after 2001, that is, within 5 years before the publication of the book. One hopes that the timeliness expressed in this figure will be maintained by regularly appearing new editions.

A particularly strong point of the book is the connection of molecular and ecophysiological aspects, even though, or rather: because it remains completely unclear in many cases how molecular mechanisms are integrated to make physiological sense and mediate ecologically meaningful responses. It will be enlightening to many students (and maybe also to some researchers) to learn why even a much advanced knowledge of cellular ion transport mechanisms does not imply an understanding, for example, of what makes a plant a halophyte. In his chapters on water-limited conditions and salinity, A. Yeo stresses this problem of a reductionistic lack of integrative thinking to a point where it almost hurts, when he criticizes his (and my) trade for continuing to "make the seemingly obligatory nod in the direction of 'crop improvement' to justify its existence", although the relevance for agriculture of much of our work is unclear at best. This critique is discomfoting but constructive, as it is based on case studies (such as e.g. phosphorus acquisition) which explain why the causal links between the activity of a membrane transport protein and whole plant behavior cannot be considered to be arranged in straight lines. Such discussion is not only stimulating for the researcher, but also can be very useful for educators intending to teach plant science following a 'critical thinking' approach.

What I miss most in this book is an introduction to growth and its analysis, both classical and kinematic. This would appear especially welcome because solute uptake and accumulation as a driving force for growth is repeatedly discussed, and specialist terms such as 'RGR' or concepts such as the simplified Lockhart equation are used without further explanation. There are a few errors which certainly will be corrected in a future edition; for example, the two versions of the Goldman equation (3.22 and 5.7) cannot possibly both be correct. But those are minor inaccuracies; a teacher using the book in an advanced class easily will be capable of making up for them. The only serious shortcomings in this otherwise excellent book are found in the chapter on xylem transport ('Transport from Root to Shoot') which contains factual errors that will confuse student readers. A few examples: it is not generally "typical" of vessel elements that they are strengthened by ring- or spiral-shaped wall thickenings (p. 215). Figure 9.2 C shows embolized vessels next to apparently functional tracheids and therefore seems an odd choice to demonstrate what happens around embolized tracheids (compare the original source of the micrograph,

McCully et al., 2000). “The *cohesion-tension theory* implies that the tension gradient between the root and leaf xylem is *the only* driving force for hydraulic water lift in the xylem” (p. 222; emphasis in the original) - how could it possibly do that? The author appears to assume that bordered pits generally have a torus-margo structure (p. 219 and Figure 9.3), which may explain why recent insights into the function and evolution of xylem conduits (e.g. Pittermann et al., 2005; Rabaey et al., 2006) are ignored.

In conclusion, this book is an excellent source of information for plant scientists on all steps of the academic ladder from upper level undergraduates upwards, which provides a multitude of access points to more specific literature. What probably will restrict its popularity among students is its price (about US \$ 200), which could have been lower without the eight color plates which do not really seem indispensable; black-and-white figures would provide the same information. Unfortunately, the publisher’s website does not indicate any plans to produce a paperback version at this stage.

-Winfried S. Peters, Department of Biology, Indiana/Purdue University Fort Wayne, Fort Wayne IN 46805-1599, [petersw@ipfw.edu](mailto:petersw@ipfw.edu)

## Famous Movies Starring Plants

Little Shop of Horrors (1960, 1986)

Invasion of the Body Snatchers (1956, 1978)

Day of the Triffids (1962)

Killer Tomatoes (1978)

Return of the Killer Tomatoes! (1988)

Killer Tomatoes Strike Back (1990)

Killer Tomatoes Eat France! (1991)

Adaptation (2002)

from <http://plantsinmotion.bio.indiana.edu>

**Anatomy of Flowering Plants: An Introduction to Structure and Development, 3<sup>rd</sup> ed.** Rudall, Paula. 2007. ISBN 978-0-521-69245-8. Paper. US \$39.99. 145 pp. Cambridge University Press, 32 Avenue of the Americas, New York, NY 10013.

Dr. Rudall’s textbook has been thoroughly revised in this third edition, including changing the order of some topics, re-writing and expanding some sections, incorporating results of molecular studies in understanding the phylogenetic relationship of monocotyledon and dicotyledon classes, and expanding other areas where new research provides additional understanding. Changes in the text formatting include additional section labels to guide reader comprehension and restructuring the topic order. Dr. Rudall has expanded the discussion of ground tissue, the discussion of the arrangement of the vascular system in a stem, pollen and pistil structure, for example. New sections on stomata and transfer cells are included. She is careful to include information that answers the “so what?” question – that is, why is this particular structure important? In what group of plants do we find this structure? How does this structure influence function?

Cells, organs, and tissues are clearly defined and described in the introductory chapter. Specific chapters on stem, root, leaf, flower, and seed and fruit anatomy then follow. Each chapter builds upon the knowledge of the first chapter, but the subsequent chapters can be read and understood independent from one another. Thus, the reader can selectively read the section of interest without experiencing frustration of assumed knowledge from earlier in the book.

According to the preface, the book is focused toward serving as a plant anatomy textbook as well as a resource for professionals in the field. However, the reader is expected to have fundamental knowledge of plant anatomy, although the third edition assumes less prior knowledge than did the 2<sup>nd</sup> edition. Technical terms are used without description (although the glossary is mostly complete). Many concepts are not diagrammed or are discussed in a cursory manner. Some diagrams were removed from the second edition, while other illustrations were added. I found the diagram on the vessel element ontogeny in the 2<sup>nd</sup> edition to be clear and precise and regret that it wasn’t retained for the third edition. However, an excellent micrograph replaced an adequate diagram on root-microorganismal interactions. The author is inconsistent on the use of common and scientific names, and occasionally the common name is used several pages prior to the reference to the scientific epithet. These minor features may frustrate a beginning botanist.



*Anatomy of Flowering Plants* is an invaluable reference for finding those precise, unambiguous terms used to describe key features in plant structure. The revision results in an edition that incorporates current understandings with historical knowledge, has good “flow” in the text, and supports reader comprehension. The contained information is fascinating, the images are superb and appropriately selected, and the reference to original literature is most helpful. I finished the book wishing it were twice as long. Most of the topics could warrant expanded discussion.....but that would yield a less succinct text. The terseness of Dr. Rudall’s writing, indeed, is one of the strengths of this book. The textbook is pithy. As a result, the book would be of limited usefulness for beginning botany students or individuals who have not studied the fundamentals of plant structure. For the upper division or graduate student in botany or a professional in the field, this is an excellent review and shelf reference.

-Joyce Phillips Hardy, Dept. of Physical and Life Science, Chadron State College



**The Mountain Flora of Java.** van Steenis, C.G.G.J. (Author), Hamzah, A. & Toha, M. (Illustrations). 2007 (2. edition). Brill, Leiden & Boston, xii + 240pp., with 57 full color plates (hardcover). US\$ 195.00; ISBN-13: 978-9004153479; ISBN-10: 9004153470.

The Indonesian islands have long drawn the attention of Botanists, and their flora has been comparatively well studied. The location of Java in-between Asia and Australia gives its flora high phytogeographical importance, and makes it a top priority for global conservation. Van Steenis realized this already in the 1930s, decades before the Convention of Biological Diversity. His original idea was to publish a well-illustrated pocket-size field guide to Java’s breathtaking mountain flora. It was however not until 1972, that the “*Mountain Flora of*

*Java*” was published in folio-format, really doing justice to the incredible life-size drawings by Amir Hamzah and Moehamad Toha. The initial print was an immediate success, and sold out almost instantly. The *Mountain Flora of Java* has remained the only comprehensive flora of the region ever since, and a new edition was eagerly awaited by botanists and nature lovers alike.

The second edition of the “*Mountain Flora of Java*” is a facsimile reproduction of the first edition, only amended with a short preface by Pieter Baas. The introductory chapters provide an overview on the botanical exploration of the Indonesian archipelago, and Java in particular, followed by carefully drafted descriptions of geology and climate of the islands, the altitudinal zonation of its vegetation, and mass elevation effects and phenology of important genera. In addition, van Steenis gives a short overview on regeneration cycles in Javanese mountain ecosystems, and outlines the potential influence of invasive species.

The majority of the introductory text focuses however on the various plant communities that a casual hiker might encounter on a trip to Java’s mountains. Steenis adds some information on indigenous plant names and uses in these chapters, and illustrates his vegetation transect with 71 black and white photographs. These are however mostly taken in the 1930s, and the print quality does not live up to the quality of the remainder of the book. The introductory text concludes with remarks on distribution and biogeography of the Javanese flora, and bibliographic references to every single mountain on Java. This, from the perspective of the 21<sup>st</sup> century, is definitely the most outdated part of the flora, because scientific knowledge has increased tremendously since the original publication, and a large amount of new literature is available. Nevertheless, van Steenis’ descriptions are still a classic treatment of plant ecology in Java and there is still no other flora available that would combine this information in one volume.

The most convincing reason to buy the reprint of *Mountain Flora of Java* lies in the 57 wonderful plant plates. The quality of these life-size illustrations is magnificent, and any botanist can only appreciate the detail of these botanical drawings. Altogether 459 species are illustrated in life size with their most important details. The illustration of each species is accompanied by its scientific name, reference for the original description, a short botanical description, as well as data on the distribution and ecology of the species, and additional remarks. It does make sense that the text is an exact reproduction of the original edition, but the flora would have benefited from an annex that would

bring the taxonomy of the species illustrated to a modern level.

Van Steenis *Mountain Flora of Java* is a fascinating botanical classic that as such has lost nothing of its original importance and appeal, despite the mentioned increase in scientific knowledge. It is still the only comprehensive illustrated flora on the mountains of Java, and BRILL is to be congratulated to making this reprint possible. Moreover, a version in Indonesian is now available too, which makes the wealth of information finally available in a local language.

With the excellent print quality of the unsurpassed color plates, the book remains a wonderful example of classic botanical work, and is an inspiration to anybody interested in Botany. The flora comes with an expectedly high price tag, but it is no doubt worth the investment.

-Rainer Bussmann, Ph.D.  
Head and William L. Brown Curator of Economic Botany  
Wm. L. Brown Center  
Missouri Botanical Garden  
P.O. Box 299  
St. Louis, MO 63166-0299  
USA  
Office phone: +1-314-577-9503  
Fax: +1-314-577-0800  
Email: rainer.bussmann@mobot.org  
www.wlbcenter.org

**Wild Orchids of the Northeast: New England, New York, Pennsylvania, and New Jersey.** Brown, Paul Martin. 2007. ISBN-13:978-0-8130-3034-0 (alk. paper, US \$29.95). 368 pp. University Press of Florida. Gainesville, Florida, USA.

In his **Wild Orchids of the Northeast**, Paul Brown accomplishes exactly what he set out to do, and then some. His vision encompassed a handy-sized field guide that included sufficient illustrative material to help an amateur identify the orchids found in nine northeastern states.

Brown starts the book with a few brief introductory sections on the Northeastern US and the previous orchid field guides for this region. A short primer on the use of dichotomous keys is followed by a key to the nearly two dozen orchid genera covered in this guide. His overview of orchid flower architecture

serves well for novices, but his depiction of orchids as “consumers” of fungi goes against classic terminology describing the mutualistic relationship between orchids and the mycorrhizae that associate with them. I would have preferred to see that mutualism explained more precisely to the reader including the idea that the fungi benefit from the association as well.

Nearly 200 pages of the book, dedicated to the descriptions of the species, are focused on identification and include some additional information about geographic range, rarity, taxonomic authority and flowering phenology. The numerous photographs accompanying the species descriptions are clear, crisp and informative, as are the line drawings by Stan Folsom. Range maps indicate both local populations and areas of widespread distribution. Some species carry additional information about their protected status in certain areas. In all, the identification section is so well-presented that most orchid novices should have no problem getting a name for whichever orchid they are viewing.

The references and resources presented are extensive. Brown provides a checklist down to forma and including hybrids, and then breaks it down by state. Regional statistics on orchids are given and, for those interested in the conservation status of a species, lists (by state) of rare, threatened and endangered species precede a few pages on taxonomic challenges and confusions.

In the last major section, Brown gives hints on orchid hunting for each state – where and when to look, and what you might be seeking at that time. Most of the hunting grounds are public lands or private reserves; some are roadside ditches. Even though the guide covers a fairly large geographic area, these welcome suggestions seem to stem from intimate explorations of the region and make it seem like the reader is truly relying on a local authority.

Not being an orchid expert, I was very pleased to see an appendix that showed the flowering phenology of the included species and, even more so, that a well-written glossary was included. Through his list of the sighting possibilities, his choice of photographs, and his hints on where to explore, Brown entices one to pack up the camera, the maps, and his field guide and head out on an orchid-seeking adventure.

- Linda MK Johnson, Department of Biology, Chemistry and Environmental Science, Christopher Newport University, Newport News, VA, 23606, USA.

## Books Received

If you would like to review a book or books for PSB, contact the Editor, stating the book of interest and the date by which it would be reviewed (15 January, 15 April, 15 July or 15 October). E-mail

[psb@botany.org](mailto:psb@botany.org), call, or write as soon as you notice the book of interest in this list because they go quickly! - Editor

**Cycads of Vietnam.** Osborne, Roy, Ken D. Hill, Hiệp T. Nguyen, an16 pp. Roy Osborne, Brisbane, Australia and Wynand van Eeden, Cape Town, South Africa.

**Ecology of Weeds and Invasive Plants: Relationship to Agriculture and Natural Resources Management, 3<sup>rd</sup> ed.** Radosevich, Steven R., Jodie S. Holt and Claudio M. Ghersa. ISBN 0-471-76779-4 (Cloth US\$75.00) 454 pp. John Wiley and Sons, Inc. 111 River St., Hoboken, New Jersey 07030-5774

**Evolutionary Genomics and Proteomics.** Pagel, Mark, Andrew Pomiankowski (eds.) 2007. ISBN 978-0-87893-654-0 (Paper US\$54.95) 295 pp. Sinauer Associates, Inc. P.O. Box 407, Sunderland, MA 01375-0407.

**Handbook of Plant Science, Volume 1.** (Functional Plant Anatomy, Plant Tissues and Cells, Plant Cell Biology, Plant Growth and Development, Molecular Genetics and Biotechnology) **Handbook of Plant Science, Volume 2** (Evolution, Plant Primary Metabolism, Plant Secondary Metabolism, Photosynthesis, Plants and their Environment, Plants and Other Organisms) Roberts, Keith (ed.). 2007. ISBN 978-0-470-05723-0 (Cloth US\$590) 1599 pp. John Wiley & Sons Ltd., The Atrium, Southern Gate, Chichester, West Sussex, PO19 8SQ, England.

**Herbal Medicines, 3<sup>rd</sup> ed.** Barnes, Joanne, Linda A. Anderson and J. David Phillipson. 2007. ISBN 978-0-85369-623-0 (Cloth US\$150.00) 710 pp. Pharmaceutical Press, 100 South Atkinson Road, Suite 200, Grayslake, IL 60030-7820.

**Mountain Wildflowers of the Southern Rockies: Revealing Their Natural History.** Dodson, Caroly, and William W. Dunmire. 2007. ISBN 978-0-8263-4244-7 (Paper US\$19.85) 192 pp. University of New Mexico Press, MSC04 2820 1 University of New Mexico, Albuquerque, NM 87131-0001.

**Plant Desiccation Tolerance.** Jenks, Matthew A. and Andrew J. Wood (eds.). 2007. ISBN 0813812631 (Cloth US\$200.00) 311 pp. Blackwell Publishing Professional, 2121 State Avenue, Ames, IA, 50014.

**Plant Tropisms.** Gilroy, Sinom and Patrick H. Masson (eds.). 2007. ISBN 0813823234 (Cloth US\$20.00) 207 pp. Blackwell Publishing Professional, 2121 State Avenue, Ames, IA, 50014.

**Weeds in South Texas and Northern Mexico: A Guide to Identification.** Everitt, James H., Robert I. Lonard, and Christopher R. Little. 2007. ISBN 0-89672-614-2 (paper US\$19.95) 222 pp. Texas Tech University Press, 2903 4<sup>th</sup> Street Box 41037. Lubbock, TX 79409-1037.



## BSA Contact Information

All inquiries for the BSA Business Office should be directed to:

Executive Director: William Dahl and / or  
Administrative Coordinator: Wanda Lovan

BSA Business Office  
Botanical Society of America, Inc.  
4475 Castleman Avenue  
P.O. Box 299  
St. Louis, MO 63166-0299

Voice: 314-577-9566  
FAX: 314-577-9515  
E-mail: [bsa-manager@botany.org](mailto:bsa-manager@botany.org)  
Office hours are 7:30 am to 4:30 pm Central Time  
<http://www.botany.org/>

President: Pamela Soltis  
[psoltis@flmnh.ufl.edu](mailto:psoltis@flmnh.ufl.edu)

All inquiries about the Botany 2004 meeting (and any other future meeting) should be directed to:

Mrs. Johanne Stogran, Meetings Manager.  
Email: [johanne@botany.org](mailto:johanne@botany.org) or  
[meetings@botany.org](mailto:meetings@botany.org)  
Voice: 614-292-3519 Fax: 614-247-6444  
<http://www.botanyconference.org/>





**Join us at the  
University of British Columbia  
for Botany 2008:  
Botany Without Borders**

**The annual meeting of four premier scientific societies Symposia, Scientific Sessions, Poster Presentations, Botanical Field Trips, Workshops, Exhibits and several Social events to connect and reconnect with the leaders of Botany.**

