

DAVIS BOTANICAL SOCIETY CALENDAR UPDATE

SPRING 2004 EVENTS - NOTE DATE CHANGES

- Saturday, Feb. 14* *Conservatory Open House*
- Saturday, Feb. 28* *Lichen Identification Workshop*
- Saturday, Mar. 20* *Plant Photography Workshop*
- Saturday, Apr. 17*** ***Picnic Day displays***
- Saturday, Apr. 24* *Coast Redwoods Field Trip*
- Thursday, May 13* *Spring Meeting*
- Saturday, June 12*** ***Grass Identification Workshop***

LASTHENIA

LASTHENIA, the Newsletter of the Davis Botanical Society, is published by the Society in collaboration with the staff of the UC Davis Herbarium and Botanical Conservatory.

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LASTHENIA

NEWSLETTER OF THE DAVIS BOTANICAL SOCIETY

HERBARIUM MOVING THIS COMING FALL

The Herbarium team is gearing up to move our specimens and library to our new facility, the “Center for Plant Diversity,” in the fall of 2004. As most of you know, the new facility will be located on the first floor of the Sciences Laboratory Building, which is under construction near Briggs Hall between Storer Way and Hutchison Drive. We have toured the new space to measure the walls and inspect for needed electrical outlets. The new cases and compact storage system are out to bid.

The move will be done in several phases. As new cases are installed, we will move collections into them. Then, the old cases will be moved and incorporated, and the collections will be rearranged yet again. We anticipate that the herbarium will be unavailable for much of the fall, and there may be a period of confusion afterward.

If you anticipate needing to use the herbarium for a project, please plan ahead. If you have collections stored with us that you will need to use during the fall, you may want to store them elsewhere during the move. Contact Jean Shepard at 752-1091 by July 15, if you have questions about how your specimens will be affected (jvshepard@ucdavis.edu).

E. Dean

THE HERBARIUM'S SIGNIFICANT COLLECTIONS: THE OAKS

Lasthenia has reported on Herbarium activities from a number of angles—visitor and graduate student use, for example, or broad scale history. We're initiating another open-ended series of articles that focus on significant strengths of the collections, starting, fittingly enough, with the towering strength of the oak tree.

The *Quercus* collection is the direct result of Prof. Emeritus John M. Tucker's lifelong research. Dr. Tucker came to the Davis campus as a teacher and curator of the Botany Department Herbarium in 1947 while still a Ph.D. student at UC Berkeley. His interest in oaks was already well established and dates from his teenage years in Santa Barbara. An oak exhibit in the botanical wing of the natural history museum there and the interest of the museum's curator led him to hitchhike to the sites of the eight or nine oak species native to the area. John's growing interest led to a part-time job at the Santa Barbara Botanic Garden, although he reports he was less than adept at a horticultural project there. But taxonomic field work locating, gathering specimens and preparing good field notes on a rare shrubby member of the heather family (*Comarostaphylis*) was another matter entirely. John was urged to pursue botany rather than his intended major of forestry at UC Berkeley, and scholarship, as well as the Davis Herbarium, is the beneficiary of his decision.

Dr. Tucker recalls finding six or seven cubbies of mostly California oaks when he arrived in Davis, from such



Director Emeritus John Tucker with Quercus john-tuckeri

eminent and familiar faculty collectors as Tracy Storer, Elliot Weier, Katherine Esau, Alden Crafts and Leonard Day, as well as the Bay Area's Mary Bowerman

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Herbarium

We are truly fortunate to have so many dedicated undergraduates working in the herbarium this year. Our NSF summer interns have continued with us for the academic year. They have identified and labeled hundreds of older collections, including the 1940s era Mexican oak collections of Alfred Kinsey (yes, the author of...). We have four new mounters working with us, all of whom are great. We are very lucky to have six returning experienced mounters as well.

Two of our mounters are now helping our wonderful volunteer, Denny Nolet, refolder the main collection. This entails separating our California collections from the North America collections, adding folders where necessary, and stapling color-coded tags to all the folders (the California specimens are coded yellow). Denny has been checking the names of all the specimens, updating nomenclature, and printing family and generic names on the tags. Thank you, crew! We are really enjoying having the

hanging color-coded tags; it is much easier for us short folks to see what the upper cabinet cubbies hold. This is going to be even more important next year, after we move, when the cases will be mounted onto compact storage carriages. Separating out the California specimens will also make it easier for us to digitize them as part of our participation in the California Digital Library project.

Jean and I have been kept busy attending Yolo County hearings on proposed management plans for Yolo County Grasslands Park, home to Crampton's Tuctoria (see update on following page). We have also been spending much of our time planning the upcoming herbarium move, including coming up with a way to cart 250,000 specimens two blocks over to the new facility, researching how to move our plant drier (which may not be feasible), and getting a handle on how many cases of what types of specimens we have currently. If you are interested in helping us move next fall, please let us know; we can use your help!

I spent several weeks this past fall working on a project for the US Forest Service, identifying plants collected from various parts of the Sierra Nevada. Kate Mawdsley and Jean Shepard helped as well. The income will be used to help us move the herbarium this coming fall. We are grateful for Kate's continued volunteer help with so many projects; thanks also to Bill McCoy for continued help with our library and to Linda Wheeler for creating the most beautiful showcase specimens we have ever seen.

E. Dean

Conservatory

Botany is the subject of concentration for the Academic Decathlon this year, and who could better help orient California teachers and students to the topic than the Conservatory's Ernesto Sandoval? At the end of summer he gave a lecture-workshop to Southern California teachers. Two weeks later he spoke to the Northern teachers and more recently to a group of the students. Secondary schools in the surrounding area from Marysville to Vacaville have been sending their teams

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SOCIETY PROFILES

Robert Avalos

Meet Robert Avalos, our new Center for Plant Diversity Campaign Director

We are very lucky to have a new development officer working with us; Robert Avalos was hired in June 2003 by the Division of Biological Sciences to successfully complete the fundraising campaign for the Center for Plant Diversity (herbarium). Robert has worked locally as a development officer for the past 15 years, first with the American Heart Association and then with Special Olympics. He is excited to be part of this campaign, because one of his first loves was agriculture and he is still an avid gardener.

Robert grew up in the Alkali Flats section of downtown Sacramento. His high school had a program to introduce city teenagers to agriculture. Robert helped the school construct a screen house for plant propagation, filled his bedroom with grow lights and flats of seedlings, and raised chickens (he constructed the coop at the school). Upon graduation, Robert majored in agriculture for his first semester at Cal Poly San Luis Obispo. However, after one semester in a program full of farm-raised students, Robert switched to a double major of political science and business. He says that he didn't enjoy a course in Swine Production and realized that no matter how hard he tried, he couldn't see the xylem and phloem (vascular system) of plants through the microscope. Agriculture's loss, our gain.

In addition to a life-long interest in growing plants, Robert is an avid fan of libraries and books. Some of the herbarium's staunchest supporters are librarians, and so it is interesting to discover that Robert supported himself as a student by working in the university's library, and his first job post-graduation was to organize a toxics library for the Department of Health in Sacramento. He bought the shelving, set up the database, etc. But once that project was done, he moved on to a totally different career. Currently, he lives in Elk Grove, with his lovely wife and two beautiful daughters.

If you haven't yet met Robert, look for him at most Botanical Society functions. He is a delightful, friendly person with a genuine curiosity about the history of agriculture and botany on the UCD campus.

E. Dean



Robert Avalos

HERBARIUM'S SIGNIFICANT COLLECTIONS (CONT FROM PAGE 1)

and John Thomas Howell. He describes the present state of the collection, with characteristic restraint, as "excellent in California oaks, quite good for the United States, pretty fair for Mexico and Central America." The Old World is "limited," except for the eastern Mediterranean, especially Turkey, and Japan. Each of these exceptions reflects one of the ways strong collections grow: student dissertation projects. But the role of the mentor can be paramount; Dr. Tucker estimates that a substantial part of today's oak specimens are his collections. *Lasthenia* readers with unusually good memories—or room to store back issues—may recall a report in 1997 about final preparation of specimens from Dr. Tucker's research in the mid-1950s on the *Quercus undulata* complex, a confusing group of oaks occurring principally in the southern Rocky Mountain states which had been described by previous experts as consisting of from one to nine distinct species. The study began with borrowing and examining hundreds of specimens of the related species from other herbaria. On the basis of this examination, Dr. Tucker formed the preliminary hypothesis that the



Intermediates of Quercus gambelii and Q. tomentella

complex was actually a series of hybrid forms between the widely distributed shrubby oaks *Q. gambelii* and *Q. grisea*, among others. A sabbatical in 1955-56 took Dr. Tucker to the University of New Mexico, his base for extensive field work searching for additional evidence. Because oak hybrids may exhibit a virtually continuous range of

gradations between the parents, he collected population samples, dozens of examples of the pure species and intermediate forms in various locations from southern Wyoming to southwestern Texas to show the range and extremes of variation. Progeny tests, which grow out the acorns of various forms of the suspected hybrids to see if the next generation reveals the expected range of morphological variation, supported the hypothesis that the *Q. undulata* complex was in fact a group of hybrids between *Q. gambelii* and other species, including *Q. grisea* (and produced additional specimens for the herbarium).

Major collections also grow by addition of specimens sent to recognized experts for determination (identification). Dr. Tucker notes that some oak specimens sent to Davis led to major studies of his own. Finally, herbaria exchange duplicates, especially of groups in which they specialize, with other strong institutions. Rancho Santa Ana Botanic Garden in Claremont, the herbarium of Brigham Young University in Utah, and the Santa Barbara Botanic Garden have been major partners for Davis.

K. Mawdsley

PROTECTING CRAMPTON'S TUCTORIA - UPDATE

In this spot in our last issue, we informed you of the plight of the grass illustrated in our Davis Botanical Society logo. Crampton's Tuctoria, *Tuctoria mucronata*, (also known as Solano Grass) was first described by Beecher Crampton in 1959. It was originally found in the large, deep vernal pool named Olcott Lake, located at Jepson Prairie Preserve; it is now known from only two locations, one on private land near Jepson Prairie and the other close to Davis at the Yolo County Grasslands Regional Park at the south end of Mace Boulevard (and adjacent Federal land). Grasslands Regional Park is used by a multitude of constituents: a model airplane club, an archery club, off-leash dog-walkers, and a group of enthusiastic

volunteers that has planted oaks and native grasses in part of the park.

To help guide the County in making decisions about how best to utilize the park land, Jean Shepard and I have attended two Yolo County public meetings over the past six months. Herbarium specimens in hand, Jean and I have spoken about the native plants of Yolo County Grasslands Regional Park, especially Crampton's Tuctoria. Since Grasslands Regional Park is home to two federally endangered vernal pool plant species, the county has to have a management plan in place to ensure the continued viability of the vernal pools. Jean's work on the flora of this park has already provided the county with much needed data. Additionally, in conjunction with six other Davis Botanical Society members, we have



scheduled a vernal pool delimitation day at Grasslands Regional Park on February 8th. Once this work is completed, we will be able to provide the county with data on the extent and location of vernal pools that are currently on county land. We will keep you posted on the outcome.

E. Dean

RECENT GIFTS

Davis Botanical Society Student Grant Fund

E. Eric Grissell
John M. Tucker

Larry Mitich Memorial Student Grant Fund

Mick Canevari
Eric E. Conn
Ellen Dean & Tom Starbuck
Charlotte Mitich
James & Catherine Murray
Warren Roberts

Jack Major Memorial Student Grant Fund

Ellen Dean & Tom Starbuck
Tena D. Farr
Roman Gankin & Jobyna
Kingsbury-Gankin
Louise Jackson & Patrick McGuire
Mary Major
Paul C. Major
Steve Matson
Stephen P. Rae
Marcel Rejmanek & Eliska
Rejmankova
Warren Roberts

Herbarium Endowment

Roman Gankin & Jobyna
Kingsbury-Gankin
William & Sandra Haley
Louise Jackson & Patrick McGuire
Betty Rivers
Ernesto Sandoval
Lisa Serafini
Kenneth & Shirley Tucker

Herbarium Building Campaign

Joseph & Emma Lin

June McCaskill Memorial Fund

Lars W. Anderson
Suzanne Armstrong
Donald & Nancy Crosby
Alva G. Day
Ellen Dean & Tom Starbuck
Joe DiTomaso
Gerald Dickinson
Lewis J. Feldman
Roman Gankin & Jobyna Kingsbury-
Gankin
Hawkins Family Trust
Franz R. Kegel
Charlotte Kimball
Douglas & Luree Ketcham
Sterling Leisz
Marjorie March
Tim Metcalf
James & Nancy Pollock
Rob Preston
Warren Roberts
Cynthia Roye
Herbert & Maxine Schmalenberger
Maureen L. Stanton
Roberta L. Stevenson
Gail Sullivan
Mandy Tu
Kenneth & Shirley Tucker
Alan T. Whittemore

McCaskill Memorial Fund In Memory of Sterling Leisz

Dorothy Brose
Karleen Darr
Ellen Dean
Donald Foster
Jane Kimball
Melvin R. Krom
Douglas Leisz
Jacquelin Leisz
Katherine Mawdsley
William McCoy
Pat Piper
Reve Rocke

Conservatory Operations Gifts

Anonymous
Ivan Buddenhagen
Carole Ludlum

Herbarium Operations Gifts

William McCoy

Gifts of Books or Slides

Joe DiTomaso
Lynn Kimsey
William McCoy
Grady L. Webster
Wesley Youngclaus

Thank you for your support!

ON THE THRESHOLD OF A ROOM OF HER OWN



June identifying plants

We are thrilled to report that we are well on the way to meeting the goal of \$150,000 to name the Plant Identification Laboratory in the new herbarium in honor of June McCaskill, curator of the herbarium for nearly forty years. Davis Botanical Society members, June's friends and colleagues, former students and participants in the trips she organized for many years for the Friends of the Davis Arboretum have contributed generously in her memory.

The Plant Identification Laboratory will contain microscopes, plant reference books and space to compare mystery plants with some of the herbarium's more than 250,000 pressed, dried and identified specimens. The room will be the main user space in the new herbarium, and will welcome members of the public, as well as student and faculty researchers.

K. Mawdsley

CONSERVATORY ENDOWMENT TO BE ESTABLISHED

The Davis Botanical Society board voted at the January 2004 meeting to establish an endowment for the Botanical Conservatory. This action became possible when Treasurer Emily Griswold reported that accrued income from Life and other memberships and undesignated gifts by renewing members had comfortably exceeded the balance required for routine Society activities.

The fund, which will be managed by the UC Davis Foundation, parallels the Herbarium endowment created in 1999. The principal in the Herbarium endowment is growing steadily from gifts from DBS members and others and from its annual interest, which is being retained in the account. When the interest reaches a useful level, it will be used to support curatorial activities in the herbarium.

Conservatory Director Tim Metcalf and Curator Ernesto Sandoval have lots of ideas for ways to use the income from the Conservatory endowment, such as display cases for orchids or cloud forest species that require special growing conditions. Gifts to the fund will appear as an option on next year's membership forms.

K. Mawdsley

PLANNING, VOLUNTEER HELP TRY TO OFFSET CONSERVATORY BUDGET CUTS



Catleya orchid
from a photo by Ernesto Sandoval

We who delight in the ferns and orchids or wonder at those bulbous-based euphorbs don't think about the fact that the conservatory staff is also responsible for extensive greenhouses used for research and production of plants for use in Plant Biology classes.

The cuts many campus units have sustained this year (and for the next two, at a minimum) are, in the case of the greenhouses, "only" 6% of the total unit budget. But that means a 73% reduction in the budget for student help and supplies (like soil and fertilizer), because permanent staff

cannot be cut below its current level of three extremely busy people. In addition, a \$7500 allocation to fund interns to give tours for visiting school children has been discontinued.

To continue to serve the teaching and research program, Conservatory staff will reduce their internship program and seek grants, which have provided an automated plant label-making system and other special equipment. Sale of plants grown by volunteers at the Arboretum Plant Faire and the Conservatory pre-sale yielded \$14,000 this year, a record amount. Income from previous plant sales, after the cost of materials is repaid, has funded the unit's computer equipment, reference books, orchid supplies, and the salary for the curatorial documentation project.

Continuing help from our volunteers and supporters and creative use of equipment innovation and task assignment will enable the conservatory to surmount this challenge.

A new giving opportunity

With the new Sciences Laboratory Building nearing completion, the Botanical Conservatory is gearing up to install a portion of the plantings around the south end of the building during the fall and winter months of 2004.

There will be no additional funds for the project, and with the budget reductions, the Conservatory would welcome financial contributions to make the plantings around the building both educational and striking. Perhaps you would like to contribute towards the purchase of educationally valuable specimen plants for classes that will be taught in the building, soil amendments, benches in honor of someone you know, or paving for paths. Please contact Ernesto Sandoval at 752-0569 with any questions you might have.

*T. Metcalf, E. Sandoval,
and K. Mawdsley*

NOVEMBER BOOK SALE A SUCCESS

Well, it was a dreary, rainy day, but on November 15, 2003, we sold two thirds of the donated books we needed to sell, and made \$1,100 for the Botanical Society. The sale books were comprised of donations from Grady Webster, Jack Major, and the estate of June McCaskill. Many donations were incorporated into the herbarium library, with duplicates sold at the

sale. We still have several boxes of books, some of which contain some botanical gems, and so we hope to turn those into gold as well. Thank you to our book donors for thinking of the Society and the herbarium library. Attendees were also treated to herbarium tours and delicious refreshments. We made new friends and renewed old acquaintances. Thank

you to the following dedicated volunteers who helped sort, move, price, and sell books, lead herbarium tours, decorate the premises, and serve refreshments: Suzanne Armstrong, Nyla Crain, Layne Huiet, Johanna Kwan, Kate Mawdsley, Bill McCoy, Tim Metcalf, Charlotte Mitich, Dan Potter, Robert Rhode, and Rosita Scherson.

E. Dean

THE MAGIC OF AMBER

Plant Resins: chemistry, evolution, ecology, ethnobotany.

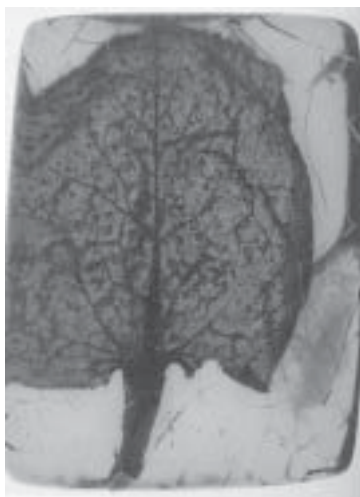
By Jean Langenheim. Timber Press, Portland, Oregon. 586 pp. Black-and-white drawings, 47 color photographs. 2003. \$50.00

Amber is defined in the *Encyclopedia Britannica* as “a fossil resin used for the manufacture of ornamental objects.” In *Plant Resins* Jean Langenheim, Professor Emerita at the University of California, Santa Cruz, shows that the study of amber unlocks the door into a garden of earthly delights: amber and other resinous exudates from trees have been prized by man since Neolithic times, and trade in amber has connected far-flung cities in Africa, Europe, and Asia since civilization began.

Jean Langenheim’s accomplishment in writing this comprehensive volume arises out of her early interests: she majored in botany with a minor in geology for both her master’s and doctoral dissertations at the University of Minnesota. Her earliest publications include articles in plant ecology and paleobotany, and she co-authored two essays on ecological concepts with Professor Herbert Mason, one of her mentors while she was a research associate at the UC Berkeley campus in the 1950s. As she explains in the preface, her interest in amber began with her expedition to Chiapas in the early 1960s. She studied her collections of amber and resins from Chiapas in the laboratory of Professor Elso Barghoorn at Harvard University, where she developed imaginative techniques for chemical analysis of resins. She had a special interest in the legume genus *Hymenaea*, the source of much Mexican amber, and in 1975 she co-authored a monograph of the genus that has provided a valuable systematic background to her studies. *Plant Resins* is the testimonial to her dedication during four decades to a research program that has culminated in this magnificent synthesis of the chemistry, ecology, ethnobotany, economics, paleontology, and biogeography of the plants that produce resins.

Resins are defined chemically as secondary metabolites occurring mainly

in conifers and flowering plants. Chemists regard them as mixtures of cyclic hydrocarbons that have increasing numbers of rings. Those compounds with one or two rings (monoterpenes and sesquiterpenes)



Hymenaea protera petal in Dominican amber

are more volatile, and those with three or four rings (diterpenes and triterpenes), more viscous. These resinous compounds have varying degrees of toxicity for animals, which has ecological consequences in defense of trees against attacks by insects. The immense variety of these resinous compounds apparently reflects the biochemical warfare that has continued between plants and insects for some 300 million years

Amber originates from resin by chemical changes (polymerization) during fossilization, which in Langenheim’s opinion requires at least 40,000 years. Paleobotanical reconstructions suggest that buried resins converted to amber typically accumulate in sediments in river estuaries. The primary source of amber for thousands of years has been the shores of the Baltic Sea from near Danzig, in northern Poland, to southern Lithuania. Paleobotanical studies show that the earliest amber in the fossil record is from the Triassic, over 200 million years ago, but the largest known deposits are those of

Baltic amber that was accumulated over 20 million years during the Tertiary. Although the Baltic amber was originally thought to be produced by pine trees, it now appears that the major amber-producing tree belonged to the conifer family Araucariaceae and was related to (if not the ancestor of) the modern kauri pines (*Agathis*).

An especially interesting aspect of amber studies is the flora and fauna—mainly flower parts and insects—trapped in the sticky resin and later fossilized. In clear amber, such as Langenheim studied in Hispaniola, the preservation of plant organs and cell structures is better than that of any other kind of fossil.

The paleoflora of Baltic amber deposits reveals flora very different from that of today, with primitive genera such as *Drimys* growing thousands of miles from where the plants now occur. George Poinar, who has written a number of books about insects fossilized in amber, speculates in the final paragraph of *Life in Amber* (1994), “the idea of cloning DNA from amber inclusions might not be a topic only for fictional studies.” He did find fossilized mosquitoes in amber, and this was the inspiration for the film *Jurassic Park*.

Amber is clearly the center of attention in *Plant Resins*, but Langenheim shows that it is only one player of a large cast. There are many variations in proportions of phenolic and terpenoid resins produced by a considerable number of different plant genera. The panorama begins with oleoresins, liquids produced by conifers and flowering plants that become fossilized as amber. Conifer oleoresins are an important source of turpentine, pitch, and what historically has been known as “naval stores.” Before fossilization, various hardened resins are referred to as copals. Kauri pine copals from New Zealand, a valuable source of varnishes, were harvested for a century in such quantities that the tree was almost exterminated.

Balsams, which are softer exudates with a high content of volatile compounds, are produced by both conifers and flowering plants. Their primary use in the past was probably for perfumes or incense; however, Canada balsam from *Abies balsamea* provides a valuable mounting medium for

YOLO COUNTY BOOKSHELVES

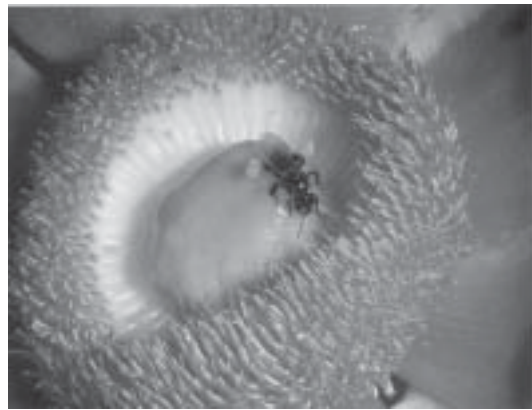
microslides. Storax, the balsam from Sweet Gum (*Liquidambar*), was used as an incense by the Aztecs. Benzoin, the phenolic resin produced by *Styrax*, is used medicinally in Asia.

The best known of the balsams are the incenses (elemis) produced by several genera of Burseraceae in the Middle East and adjacent Africa. Frankincense, which is often mentioned in the Bible, is a gum resin produced by species of *Boswellia*. Myrrh, produced from species of *Commiphora*, was highly valued by the Romans. The incense currently used in Catholic services is said to be a mixture of frankincense, myrrh, and storax. Other resins are used to obtain varnishes and lacquers rather than incenses. These include dammars and gamboges (from Dipterocarpaceae as well as Burseraceae); sandaracs from the conifers *Callitris* and *Tetraclinis* (Cupressaceae); mastics from *Pistacia* (Anacardiaceae); and the varnishes used for Japanese lacquers from relatives of poison oak (*Toxicodendron*). Add to those the medicinal resins from the carrot family (Apiaceae): ammoniacum from *Dorema*, asafoetida and galbanum from fennel (*Ferula*), silphium (from an African species of *Ferula* that became extinct from over-exploitation), plus resins from other families: the purgatives jalap and scamony from morning glories (*Ipomoea* and *Convolvulus*), labdanum perfume from rockrose (*Cistus*), the medicinal salve

dragon's blood (sangre de drago) from Socotra and the Canary Islands, and finally the most lucrative resin in today's economy—hashish and marijuana from the hemp genus (*Cannabis*). It is a staggering biochemical palette from the plant kingdom.

The utilization of all these exotic resins, especially amber, by humans appears to have begun in the Neolithic (at least 5,000 years ago). There is some evidence that amber, perhaps because of its brilliance, was prized for its magical and religious associations, although it became most popular for necklaces and other items of jewelry. Langenheim recounts the fascinating history in the records of the trade routes by which amber and incenses were transported between Europe, Africa, and Asia, beginning with the expedition of Queen Hatshepsut to the land of Punt in 1500 BC (the world's first recorded botanical expedition!).

The appendices in *Plant Resins* are a great help in keeping track of all this information, with summaries of the families and genera of resiniferous plants, locations and source plants of



Bee balling up resin from male Clusia grandiflora

amber deposits, and the exotic plants producing the resins. The depth of scholarship revealed in *Plant Resins* is indicated by the exhaustive bibliography that runs 67 pages! The 47 excellent photographs and the line drawings add greatly to the reader's enjoyment and comprehension of the world's resin-producing plants. The enthusiasm and dedication of Jean Langenheim to her topic has been matched by Timber Press in the meticulous production of a volume that is surely the definitive, and most interesting, work on the subject of plant resins.

G. L. Webster

DIRECTORS' CORNER (CONT FROM PG 2)

to the Conservatory for in-depth exploration of the subject. It is a delight to work with students who don't want to leave after two hours of discussion and illustrations. The extra enrichment for the teams in this area may challenge the usual dominance of Southern California in the finals.

On his last trip to Southern California, Ernesto took large specimens of East African Aloes to several botanical gardens and has requests for more. The Aloes are spin-offs from Elizabeth King's research project (aided by a DBS student grant in 2002-3) investigating growth rates and secondary compound production

of various species, factors influencing the feasibility of establishing sustainable Aloe production for commerce by East African indigenous groups.

Ted, the star of last June's *Amorphophallus* exhibit, has reappeared in vegetative guise much more quickly and vigorously than expected, giving hope he may join his three siblings in a much more odiferous and fruitful display late this spring.

It was another record-breaking year for the annual Plant Faire. With DBS and Arboretum members being given ten percent discount and entry to the sale before the general public (over 2000 customers for the day), many of

us possess new plant beauties and oddities generated by the Arboretum and Conservatory volunteers. And the Arboretum and Conservatory programs have added resources for their programs.

Linda Arnold, the purchasing agent for the Section of Evolution and Ecology who died recently after a short illness, loved plants. At the request and with the help of her friends and colleagues, Ernesto incorporated some of the plants from her yard and a *Chitalpa* tree into an attractive planting south east of Storer Hall, a beautiful reminder of her life and contributions.

T. Metcalf