DAVIS BOTANICAL SOCIETY

Upcoming Botanical Conservatory Plant Sales in Conjunction with the UC Davis Arboretum:

Saturdays from 9 a.m. to 1 p.m. on:

April 2
April 23
May 14

To receive your 10% member discount, bring the members-only plant sale postcard that was mailed to you in March or the membership acknowledgement letter that was mailed to you at the time you paid your dues! Sales are held at the Arboretum Nursery on La Rue Rd. opposite the Recreation Hall.

LASTHENIA

LASTHENIA, the Newsletter of the Davis Botanical Society, is published by the Society in collaboration with the staff of the UC Davis Botanical Conservatory and Center for Plant Diversity.

DAVIS BOTANICAL SOCIETY

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LASTHENIA

NEWSLETTER OF THE DAVIS BOTANICAL SOCIETY

CENTER FOR PLANT DIVERSITY OPENS ITS DOORS

The herbarium has finally moved! And many well-wishers have celebrated the more efficient and spacious facilities. Over 200 people attended our Center for Plant Diversity open houses on January 28 and 29, 2005. Docents Kate Mawdsley, Don Crosby, Mark Bibbo, Savann Hok, Barry Rice, and Tom Starbuck led visitors through the new herbarium and showed off some of our more beautiful and interesting specimens. Mounters Sarah Thrasher and Nancy Trejo demonstrated mounting technique in our new processing area, drawing visitors into "our world of pressed plants" as soon as they entered the Center. The June McCaskill Plant Identification Laboratory had refreshments replenished under the careful eye of Nancy Crosby, and visitors mingled, looked at specimens, and admired photos of June in the Robbins Hall herbarium. The big hit for children was using the cranks to turn the moveable aisle storage system in the collections room – 10,000 pounds of cases and specimens moved with a turn of the wrist.

John Tucker in the new collections

Volunteers and students began helping us organize our move early in 2004. In preparation, specimens were placed in new genus folders where needed, and new hanging tags were added with family and genus name written clearly. We separated the California specimens from the North American folders throughout the collection, placing them in folders with yellow tags. This process had begun in 1998 when we curated the grass collection. In 2004 we finished the job. Volunteer Denny Nolet was responsible for much of this work over the past two years. Layne Huiet curated the ferns several years ago.

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ENDOWMENT CONTRIBUTIONS PROVIDE LONG-TERM SUPPORT FOR COLLECTIONS

Eric Conn in the new herbarium

In December 2004, Davis Botanical Society charter member Eric Conn single-handedly doubled the Herbarium Endowment fund with a generous contribution of $17,000. Over the past three years, other members have also made contributions, usually along with their membership renewals, so that the endowment has grown by several thousand dollars each year since it was established by the society in 2000. At $35,000, the Herbarium Endowment principal will generate interest sufficient to provide a meaningful annual contribution of about $2,000 to the Herbarium's yearly budget. Although this amount may not seem like much to some, it will pay for an undergraduate student mounter for 300 hours, which will help us mount 1200 specimens. This new and continuing source of support will be a big help in offsetting budget cuts we received in 2003 and 2004.

This past year, the Society established the Conservatory Endowment, and giving to the Conservatory is now an option on your membership renewal form. The Conservatory budget was also cut in 2003 and 2004, resulting in decreased staffing levels for a facility that requires intensive human effort to keep its wonderful living plant collection alive and well. Although a portion of your membership dues is being allocated this year to provide a small grant directly to the Conservatory, we hope that one day the Conservatory Endowment will also provide a yearly contribution to the Conservatory's budget. Director Tim Metcalf can see many uses for such a contribution, such as improving displays and student training.

We thank Eric for his very generous and forward-thinking contribution and encourage others who believe in the importance of the Conservatory and Herbarium at UC Davis to think about endowment contributions in 2005.

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SLB GREENHOUSE ELEVATES CLASS PLANT PROJECTS

Tim Metcalf in the new SLB teaching greenhouse

Based of the first group of trial plants, the highest greenhouse on campus is going to be a great growing space!

Literally a beacon on winter evenings for the life sciences district, the greenhouse on south end of the top floor of the Science Lab Building will be in full production by spring quarter. It replaces the Weier Greenhouse in the courtyard of Robbins Hall that has been the site for undergraduate class lab plant production and projects for the past twenty-five years. At 2,500 square feet, the SLB greenhouse has twice the floor area of the Weier Greenhouse. Rolling bench systems add half again as much plant-growing space.

More space was desperately needed for many reasons. Enrollment in the biological sciences continues to increase. Space constraints in recent years, especially during the heavy winter and spring quarters, have made fitting plants and projects for the various classes a tense juggling act. And there has been no room for new lab exercises involving growing plants or independent student projects that at one time had been part of the curriculum.

But size alone doesn't tell the full story. The south side, third floor of a building is an enviable position for a greenhouse. In contrast to the Weier Greenhouse and the Conservatory, at SLB there are no trees or buildings to block the sun. This is a great advantage since light intensity is the limiting variable during much of the academic year in Davis. In addition to the great location, 28 one-thousand-watt high-pressure sodium lamps will be a second line of defense against the debilitating winter lack of light that affects plant health even more than people. Also, the greenhouse glass is patterned much like traditional glass shower doors; even in winter, plants will receive light from all sides and thus will grow symmetrical and full rather than leaning toward the sun. Even when light is intense, plants will not burn as they would if the panes were clear. In our present greenhouses, every spring we whitewash the top and sides of the greenhouses to diffuse and reduce the light getting into the greenhouse. But this greenhouse is equipped with top and side shade curtains activated automatically if light levels rise above useful levels.

The ridge is thirty feet above the floor. With that much rise and full sets of side and roof vents, much of the cooling in the spring and fall will be passive vents opening and closing to maintain the desired temperature. When heat increases faster than natural airflow can handle, there are eleven variable-speed induction fans at the base of the periphery; and when yet more cooling is needed, two large air handlers on the building roof force evaporative-chilled air from elevated vents on the north wall of the greenhouse. Seven vertical airflow fans keep the air mixed and moving.

Precise, versatile controls will greatly increase our ability to grow plants consistently to just the right stage of development for the lab exercises. Commercial bottom heat and mist benches will speed seed germination and cutting propagation. Ebb and flow benches with recirculating water will uniformly water the numerous small pots grown for the hundreds of students each quarter. Irrigation will be fully computer controlled, increasing when temperature and light intensity increases. Fertilizer will be automatically injected and monitored. Each bench will be controlled individually with those devoted to non-vascular plants, fern allies, and carnivorous plants receiving little or no fertilizer.

There are nine large environmental control panels all coordinated by a dedicated PC that is networked so with the right password, present and past greenhouse environmental conditions can be viewed and settings modified from off-site. If something goes wrong and conditions become extreme enough to threaten damage to the plants, the computer will phone each of the greenhouse staff until the crisis is resolved.

The greenhouse is just down the hall from the Plant Biology labs so students will be able to check their projects several times a week. There is an adjacent planting room large enough for a whole class to work. The plants the students start in the lab or planting room, some with tiny insects on them for the insect interaction trials, will not be excessively jostled or subjected to rain and wind in route to the greenhouse as they are presently.

New SLB planting room

On the basis of evidence so far, the investment of effort, planning, and funds in the Science Laboratory Building Greenhouse has resulted in a tremendous tool that will help present and future generations of students to understand, encounter, and be captivated with plants.

T. Metcalf

BOTANICAL CONSERVATORY RECEIVES SECOND SLOSSON GRANT

Araucaria bidwellii ready for planting outside of SLB. The new teaching greenhouse can be seen in the background.

Have you ever visited the plantings around the Botanical Conservatory or Robbins Hall and wished the uncommon plants you were looking at were labeled? Thanks to a second grant from the Elvina J. Slosson Horticultural Fund, your plant labeling wishes will soon be fulfilled. In the Fall 2004 *Lasthenia* we reported the first grant from the Slosson Fund for labeling drought-tolerant plants around the Conservatory and other buildings in the life sciences district.

The new grant will fund plant labels and interpretive signage for many of the non-drought-tolerant plants already in the ground or to be planted before the official dedication ceremony for the Sciences Laboratory Building, scheduled for June 2. In all, over 400 plants will be labeled with information such as family, scientific and common name, and native range. The two grants will also fund the curatorial work of Eva Bayon (see profile) and several students who are hard at work developing interpretive signage for the site.

These grants may be used only for the development, production, and installation of the labels and signage. The Botanical Conservatory will have to absorb the cost of the installation of these new plantings. We are looking for support to help to maintain and develop these outdoor extensions of the plant biology curriculum into the future. An exciting project related to this grant is a cycad planting on the south side of Storer Hall in honor of Botany professor emeritus Dr. Ernest Gifford.

As we work toward developing an endowment for the Conservatory and its outdoor plantings, we ask that you consider us in your gift giving. We will continue to involve students in many steps of the process, both as an educational and work-related experience; and your continued support will make that possible.
If you would like more information or have any questions please contact at me at jesandoval@ucdavis.edu or 530-752-0569.

E. Sandoval (including photo)

SOCIETY PROFILES — *Eva Bayon*

After three years of general coursework at the Facultad de Biología Universidad de León, Spain, Eva Bayon had to choose among genetics, botany, and zoology. As she puts it, she decided that plants needed more work than the easier-to-identify animals and opted for the more challenging kingdom, "which is not typical for me." Perhaps Eva thinks she typically avoids challenges, but after 4 years of part-time curation at the Conservatory she seems very well suited for the taxonomic challenges found in our holdings. While in León she would go out on day trips to collect herbarium specimens. She recalls the final exam at the end of her second year where she had to identify species from herbarium specimens and key out fresh material.

She then went on to the Real Jardín Botánico de Madrid for advanced study. In 1984 she received a German scholarship to study at the University of Munich. A four-month intensive language program was necessary to make the mental move from Spanish and a bit of French to German. During the language program she met her husband Kevin, who was on a six-month leave from work, and they were married in 1989. From '84 to '92 they would speak to each other only in German! Today it's their secret language used to decide whether to veto or grant requests from their two teenagers, Ellen and Lucas.

For her master's thesis work she performed a bibliographical check of the plant names published by the botanist Carlos Vicioso as part of the *Flora Iberica*. Of course she listed the herbaria where the holotypes or lectotypes were to be found. Her work was published in 1986. For her dissertation, she worked on 21 species of the genus *Teucrium* from Spain, Portugal and related islands, with the exception of the well-studied section Polium.

In 1991 Eva and Kevin moved from Munich to Evansville, Indiana, bordering the Ohio River. Raising the kids left little time for much else, but she remembers the dogwoods vividly. Next stop was El Paso, Texas. Life was now more conducive to rediscovering and working with plants. The children were attending school, and they lived in the middle of the Chihuahuan desert. Familiar only with the genus *Opuntia*, she decided to attend meetings of the El Paso Cactus and Succulent Society after buying a *Euphorbia* at a Home Depot thinking it was a cactus!

In 1999 Kevin's work led them to Northern California. Eva soon found the UC Davis Herbarium and volunteered there for a couple of years. Armed with Dr. Michael Barbour's name from a contact back in Spain, she looked him up for more botany-related work. He led her to the Botanical Conservatory where we needed someone to work on a Genetic Resource Conservation Grant to re-label many of the Conservatory collections with accurate names and native ranges. She continues her focused taxonomic work to verify and identify the names of many plants in the collection and assists with new acquisitions. Look for her detailed work in the plant labels throughout the Conservatory holdings.

E. Sandoval (including photo)

RECENT GIFTS TO BUILD THE CENTER FOR PLANT DIVERSITY

Herbarium Building Campaign

Anonymous
Robert Avalos
Nanci Bristow
Peter Chesson
Cheryl Coates
Sharon Harrison
Bo Liu
Tom Mezzanares
Donna Olsson
Ernesto Sandoval

June McCaskill Memorial Fund

Lars W. Anderson
Michael Barbour
& Valerie Whitworth
John Brittnacher
& Marta Marthas
California Native Plant Society
Ellen Dean & Tom Starbuck
Bijan Dehgan
Lewis J. Feldman
Michael D. Fleschner
Louis and Georgette Grivetti
Judith A. Jernstedt
Julie D. Knorr
Marjorie March
Roswita & Robert Norris
Rob Preston
Frederick J. Ryan
Lisa L. Serafini
Gail Sullivan
Toshimasa Yutani

Thank you for your support!

CENTER FOR PLANT DIVERSITY (CONT. FROM PAGE 1)

Kate Mawdsley did the legumes and the snapdragon family. Jean Shepard curated a number of cabinets of Asteraceae. Yours truly curated several sections of the collection, preserving my unruly handwriting for posterity. Student Assistants Savann Hok, Mithona Seng, Margot Munzel, Sarah Thrasher, and Nancy Trejo, and volunteers Don and Nancy Crosby, were recruited to refolder, and tag the rest of the collection. In addition, Savann curated the Cyperaceae, bringing the synonymy up to *Flora North America* standards; Mithona curated our California *Arctostaphylos*; Nancy our California *Phacelia*; and Sarah helped me with the Solanaceae. Kate and I also inventoried most of the genera in the herbarium, trying to ensure that they are filed under only one family.

Student Assistants Savann Hok, Margot Munzel, Nancy Trejo, and Mithona Seng

A final change added in the last few months before the move was the assignment of family numbers to all the flowering plant families. With the help of the volunteers and students mentioned above, as well as volunteers Katie Shepard, Charlotte Mitich, Shad Canington, and Roman Gankin, we wrote family numbers on the hanging tags on all folders. Then, during the move, we rearranged the flowering plant families into numerical order rather than the alphabetical order we had used in Robbins Hall. Within a family, the genera and species are still arranged alphabetically.

Many large herbaria use a family number system and have done so for decades – the first such systems were developed in the late 19th century. Our numbering system was developed recently by the University of Minnesota and is based on the families recognized in the Angiosperm Phylogeny Group classification system – a system that is currently taught in university taxonomy courses. The reason we chose a family number system is that in the next decade the system of flowering plant families currently in use is going to change substantially. The beauty of a numerical family system is that closely related families are assigned closely adjacent numbers. For example, when the next edition of the *Jepson Manual* comes out, numerous genera placed in the Scrophulariaceae may go to other families such as Orobanchaceae or Plantaginaceae. In an alphabetical family arrangement, we would have to move specimens from the "S" area of the collections room to the "O" or "P" areas, requiring shifting specimens among 100 cases. With the new numerical system, we will just move them from family number 401 to 398 or 394 which are all situated near each other in the same aisle.

To facilitate finding the family you want, we have posted lists of plant families with their assigned numbers at the ends of the aisles in the collection area. In addition, we modified the system so that for the most part we still use the family arrangement of the *Jepson Manual*, the current flora of California. One major exception to this is the monocotyledon arrangement, which is that of the Angiosperm Phylogeny Group. This system of monocotyledon families was developed largely by Rolf Dahlgren in the mid 1980s, and since it is now nearly 20 years old, I decided to make the switch. This means, for example, that if you want to find *Dichelostemma capitatum* (blue dicks), you will need to look look under Themidaceae instead of Liliaceae, which is where the *Jepson Manual* lists it..We have posted a list of monocot genera and the families to which they are assigned to

Volunteers Charlotte Mitich, Shad Canington, and Roman Gankin

serve as a reference. Student Assistant Margot Munzel arranged our Monocot genera into the new system of families.

The move began before Thanksgiving 2004. With forty volunteers, several student assistants, 9 moving men and three trucks, we moved 300,000 specimens and 180 herbarium cabinets in 7 working days. We moved the specimens in half-height herbarium cabinets on

Kate Mawdsley and Mark Bibbo with our rolling half-heights

dollies. As one group was emptying cabinets and loading specimens in Robbins, another group was unloading specimens in the new facility (and arranging them by family number). The offices and library were moved January 4-5; we were more or less set up by the following week. The library was moved by Kate Mawdsley, Bill McCoy, and Robert Rhode, as well as several moving men and one truck. Kate and Robert were our moving angels, helping extensively during both parts of our move. Denny Nolet drove 1.5 hours each way from home to help us for four days of the specimen move, and Gerald Dickinson came in almost daily during that time to help us. It was a wonderful group effort, and we are extremely grateful for all the help we received. We look forward to seeing you in our new facilities!

E. Dean

The new library is in the collections area

TOXIC EUPHORBS

by Don Crosby

Euphorbia is a familiar genus. Three popular house plants—candelabra cactus (*E. lactea)*, crown of thorns (*E. milii*), and pencilbush (*E. tirucallli*)—illustrate some typical traits: close botanical relationship; large size in their tropical homelands but modest and frost-tender in our climate; and fleshy stems with insignificant flowers and leaves. The tallest, *E. tirucalli*, indeed looks like a vertical bundle of thin, green pencils; the shorter *E. lactea* has flattened spin-edged stems up to 3 inches across and branched like a candelabra, and *E. millii*, the smallest at a foot or so, has slim, irregular, very spiny branches that bear tufts of orange or red "flowers" (modified leaves) about Christmastime.

Euphorbia canariensis

However, their danger lies in the toxic, milky sap (latex) that flows copiously from a cut or even a scratch on the plants' exterior. The latex is highly corrosive to skin, eyes, and digestive tract. Toxicologist Julia Morton recalls a housewife who endured a week of painful blisters after a broken pencilbush touched her face, and a man who briefly put a finger to his lips while planting a candelabra cactus and later suffered a swollen and inflamed mouth as well as a burned tongue and eyes.

Internally, the latex produces burning of the mouth and throat, vomiting, and prolonged diarrhea (The term "spurge" for the family comes from "purge," that is, violent emptying of the bowels). Even so, these species are sold as house plants in California, and, in pruning to control size and shape, can expose both pruner and bystander to the latex. Branches are easily broken off, especially by children at play, and the dripping "milk" holds a magical attraction for kids as well as an invitation to taste. The misery is caused by complex diterpene esters, whose levels vary by plant, growth stage, and season, and a specimen that seems harmless on one day may exact a heavy toll on another. The effect is irritant rather than immunological, so there is no "cure."

Most euphorbias are dermatotoxic (toxic to skin): 53 of 60 species tested cause inflammation. These include caper spurge (mole plant, *E. lathyris*), Canary Island spurge (*E. canariensis*), the very dangerous euphorbium (*E. resinifera*), and *E. characias* ssp *wulfenii.* Despite its toxicity, the latter is grown widely as an ornamental. Originally from the Mediterranean, the shrubby perennial may reach 4 feet in height, with large stalks of narrow bluish leaves and clusters of pale yellow-green flowers—pretty, but an old name, *E. venenata* (from Latin *venenum* or poison), reveals its true character. At least one Davis woman received a badly burned arm merely by carrying trimmings of her "wulfenii" to the trash; the burn is still visible several years later.

Euphorb toxicity can be surprising. Pulling spotted spurge (*E. maculata*, now *Chamaesyce maculata*) or petty spurge (*E. peplus)* weeds out of the garden keeps the hands of many local gardeners red and sore. However, despite their questionable reputation, poinsettias (*E. pulcherrima*) appear to have little or no effect on skin.

Familiar and spectacular as they may be, plants of the Euphorbiaceae require caution if not outright avoidance. Curiously, most books on euphorbs seem to gloss over the danger, if they mention it at all, but it is there—especially for little children. Timely washing of exposed skin with soap and water helps, as does calamine lotion afterward. But avoidance is best.

(Dr. Crosby, pictured below labeling herbarium folders with student assistant Sarah Thrasher, is author of The Poisoned Weed: plants toxic to skin, reviewed on page 6.)

RECENT GIFTS

Conservatory Endowment
Ellen Dean & Tom Starbuck
Ivan & Evelyn Buddenhaggen

Herbarium Endowment
Eric E. Conn
Deborah P. Delmer
Brenda J. Grewell & Stephen Kidner
Emily B. Griswold
Peter H. Holloran
Louise E. Jackson & Patrick E. McGuire
Judith A. Jernstedt
Charlotte A. Kimball
Valerie L. Layne
Martin Melicharek & Rosalind Pierce
Betty R. Rivers
James & Linda Sherar
Mandy Tu
Kenneth & Shirley Tucker
Genevieve Walden
Alan T. Whittemore

Herbarium Operations
William McCoy

Davis Botanical Society Student Grant Fund
Brenda J. Grewell & Stephen Kidner
E. Eric Grissell
Daniel Potter

Larry Mitich Memorial Student Grant Fund
Charlotte Mitich

Jack Major Memorial Student Grant Fund
Ralph Ball
Helen H. Carpenter
Michael D. Fleschner
Ann F. Johnson
Mary C. Major
Stephen P. Rae
Marcel Rejmanek & Eliska Rejmankova
James H. Richards

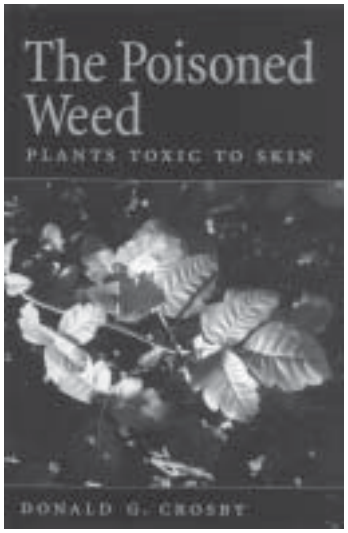
Gifts of Books, Food, Art
Robert Adams
Eric Conn
Nancy Deffenbach
Vera Gottlieb
Starbucks Coffee
Grady L. Webster
Toshimasa Yutani

Thank you!

YOLO COUNTY BOOKSHELVES

IT'S A JUNGLE OUT THERE

The Poisoned Weed: plants toxic to skin *Donald G. Crosby. Oxford University Press, New York. 266 pp., with 24 color plates. 2004. $57.00.*



Poisonous plants occupy an important place in the human psyche. They have also been used medicinally since prehistoric times, often in religious or recreational as well as curative ceremonies. However, Donald Crosby's book centers on a clearly delimited subset of poisonous plants, those that cause dermatitis, or skin irritation. Within this limited scope T*he Poisoned Weed* is an informative source that will interest physicians (especially dermatologists), experts in weed control and other agriculturalists, plant taxonomists, and laymen. It is written in a clear, well-organized fashion and includes many tables and diagrams, as well as a section of color plates illustrating some of the outstanding dermatotoxic plants, most of which are wild or cultivated in California. The list of references is impressive; and there is also a glossary and indices for both botanical and chemical terms. The book is dedicated to Donald Crosby's wife Nancy, whose struggles with allergenic plants helped to inspire its writing.

The author's approach is to review the taxa (families, genera, and species) of plants that cause injury to the skin; the chemical structure of the offending compounds; the different kinds of compounds and their mode of attack; and the ways that suffering humans can avoid or ameliorate the episodes of poisoning. Plant taxonomists, of course, will be especially interested in the taxa that are covered.

The first table lists the most dangerously toxic plants in the temperate United States; these include 15 species in 10 families. It is notable that the Anacardiaceae and Euphorbiaceae top the list with three species each; the Urticaceae have two; and the Apiaceae, Asteraceae, Moraceae, Rutaceae, Ranunculaceae, and Solanaceae each are represented by a single species.

The Anacardiaceae are the stars of this coterie of plant outlaws, and Crosby appropriately devotes the entire second chapter to the poison ivies and their relatives worldwide. The preeminent genus, as you might expect, is *Toxicodendron*, for which Crosby lists 18 species. We are all familiar with poison ivy (*Toxicodendron radicans*) and poison oak (*Toxicodendron diversilobum* in California); four species occur in Mexico and a considerable number in the Old World. One of the most remarkable is *Toxicodendron vernicifluum*, the Japanese lac tree. This is economically the most important *Toxicodendron*; its poisonous exudate provides the remarkable blackish laquer coating on Japanese vases. In temperate regions in the Northern Hemisphere, *Toxicodendron* is the most virulent and widespread of dermatotoxic plants. In the tropics, mangos (*Mangifera indica*) and cashew nuts (A*nacardium occidentale*), popular food items widely consumed in the United States, contain similar compounds to poison ivy. Mangos in particular produce allergenic effects if not carefully peeled, as sufferers from "mango mouth" can attest.

Crosby arranges skin-irritant (dermatotoxic) plants in four classes, according to the chemical mechanism of their deleterious effects. The Anacardiaceous toxic species are outstanding among the class of *allergenic* plants, which produce

damage to skin through their production of caustic sap that contains cyclic compounds (urushiols). However, Crosby offers an intimidating list of many unrelated plants that have poison-ivy-like compounds, including *Ginkgo, Philodendron* and many grasses and Proteaceae. In a succeeding chapter he enumerates a number of allergenic plants in which the toxic principle is different from that in the Anacardiaceae. It is not surprising that ragweed (*Ambrosia*) is one of these, but the list also includes plants that this reviewer had always considered innocuous: buttercups (*Ranunculus)*!; many Asteraceae such as artichoke (*Cynara*), mayweed (*Anthemis*), *Chrysanthemum,* lettuce (*Lactuca*); dandelion (*Taraxacum*); and other unlikely suspects such as English Ivy (*Hedera*), peppermint (*Mentha piperita*), and—most incredible of all—carrots, tulips and lady's slipper orchids (*Cypripedium*)! Almost as unexpected are the allergenic dangers from common trees, such as birch (*Betula*), incense cedar (*Libocedrus*), mahogany (*Swietenia*), silk oak (*Grevillea robusta*), and teak (*Taectona grandis*). These sinister players attack human skin through a variety of compounds, including lactones and quinones. Many of the outstanding offenders are spice plants: peppermints, oranges, cinnamon, roses, violets, and sandalwood. A most bizarre hazard turns out to be rubber gloves made from the latex of *Hevea* (and you thought that the doctor was protecting you from germs…).

So much for the depressing spectrum of allergenic plants. Crosby's second class of antisocial plants includes the phototoxic species. These don't attack via an allergic reaction; hence you can't revel in your immunity if you happen to be one of the lucky persons who is not bothered by poison ivy. The active ingredients in phototoxic plants are furocoumarins and other obscure compounds, but the offending plants are familiar enough: celery (*Apium graveolens*), cow parsnip (*Heracleum*), St. John's wort (*Hypericum*), and marigolds (*Tagetes*).

Irritant contact dermatitis is mostly caused by different chemical agents (terpenoids), and the primary bad actors here are mostly from a single family, the Euphorbiaceae. The genus *Euphorbia* includes over 1,000 species that have range from the innocuous—poinsettia (*Euphorbia pulcherrima*)—to the highly toxic African succulents such as the "gasoline tree" (*Euphorbia tirucalli*). The term "superirritant" is appropriate for many Euphorbiaceae such as the West Indian manchioneel (*Hippomane*), and Crosby raises the spectre that exposure to the terpene-laden latex of some Euphorbiaceae may lead to skin cancer. The blackish latex that oozes from stems of *Jatropha* is sinister-looking, suggesting a soupçon of risk when collecting these plants in the field.

There are a number of plants that cause skin irritation by the "urticaria", or nettle mechanism, in which stinging hairs inject histamines and related compounds into the skin. In contrast to the irritant euphorbias that wound by a caustic exudate, nettles produce an immediate painful sting that is, fortunately, transient. The classical nettle is the Urticaceous genus *Urtica*, of which there are in Callifornia both native species and others introduced from Europe. The Euphorbiaceae, however, also have a worthy competitor in the nettle category: the stinging hairs of the 50 neotropical species of *Cnidoscolus* produce not only an initial painful spasm in the victimized arm or leg, but also produce nasty lesions that linger for a considerable time. In Texas the local species is called "bull nettle", but an even more colorful epithet—"mala mujer"— is applied to the Mexican species.

The Poisoned Weed is outstanding for Crosby's detailed exposition of the chemical mechanism of the dermatotoxic phenomena, which is enhanced by a large number of figures showing the structure of the molecules of the offending substances. The author's discussions connect the symptoms of dermatitis with the chemical structures, adding thereby great depth to the comprehension of the interaction between dermatotoxic plants and humans. However, for most readers to follow this in detail a knowledge of molecular structures is necessary, at least at the level of an introductory course in undergraduate chemistry—and a background course in general biochemistry wouldn't hurt either. For most readers, the chemical background is both interesting and important, even if some of the finer points have to be scanned or skipped over.

Throughout the book many case histories are lucidly explicated, and a final chapter sums up advice for the "consumer" in minimizing contact with allergenic and other kinds of irritant plants. Avoiding suspect plants is encouraged, and protection by clothing and lotions is recommended. If this isn't effective, the next line of defense is some kind of treatment to remove the poisons and minimize damage to the skin. Crosby has a number of anecdotal suggestions. For example, he mentions ameliorative plants such as witch hazel (*Hamamelis virginiana*) that can be used to treat affected areas, although he thinks drinking extracts of echinacea or jewel weed (*Impatiens biflora*) are not as useful as taking a (very) hot shower. Corticosteroids seem to be among the most useful substances to apply to relieve symptoms if prevention fails.

The most insidious aspect of encounters with dermatotoxic plants is probably secondary exposure, especially common in poison oak and ivy afflictions, where the urushiol compounds are carried on clothes or skin and transferred to other areas of the body. Crosby mentions transfer between husband and wife in bed, which is referred to as "connubial contact dermatitis." After many intimidating enumerations of the great number of common dermatotoxic plants and the difficulties of avoiding contamination, Crosby almost apologetically suggests that the only way to be absolutely safe from killer plants is to lock yourself indoors.

The Poisoned Weed is an excellent example of the genre often referred to as a "semi-popular" book. It marshals impressive technical information without overwhelming the reader (as long as you don't get bogged down in the chemical formulas). As a book of this kind should do, it at once informs and entertains; in addition, it is also an excellent reference book about the botanical aspects of plant dermatitis.

G.L. Webster