

FROM THE PRESIDENT DAVIS BOTANICAL SOCIETY

Greetings,

The Davis Botanical Society has evolved a great deal over the years. The Society was first conceived as a way of supporting the herbaria at the University when few other resources existed. Fortunately, the herbaria now have greater financial support from the University, although the current state budget picture raises concerns about the immediate future. We eagerly anticipate the move into new facilities when they are completed (recognizing that much additional fund raising must be done for this to become a reality). In 1999, the Davis Herbaria Society extended its support role to the Botanical Conservatory and welcomed their long-time volunteers into what we now know and love as the Davis Botanical Society.

This year the Davis Botanical Society leadership intends to examine the Society's structure, mission, and modes of operation. Your help and comments are invited! If you have some special commendations (or gripes) about the Davis Botanical Society, tell us about them. For examples, would you be devastated if we stopped leading field trips or holding workshops? Would you like more, or to different locations, for example, more nearby? Does the campus parking fee keep you from attending meetings?

Tell us! You can contact the Society at the address on *Lasthenia*, or you can email me directly at bamrice@ucdavis.edu.

Cheers,
Barry Rice
President, Davis Botanical Society

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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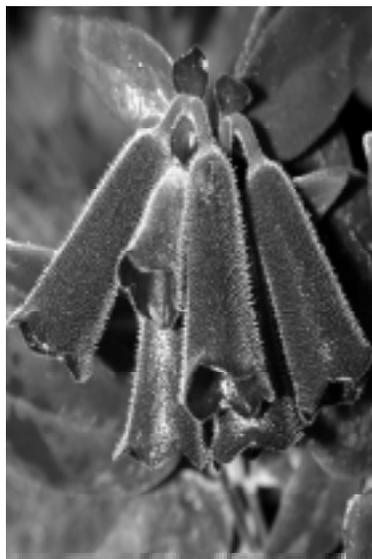
LASTHENIA

NEWSLETTER OF THE DAVIS BOTANICAL SOCIETY

EARLY HISTORY OF THE BOTANICAL CONSERVATORY

Ed. Note: This issue of *Lasthenia* focuses on the Botanical Conservatory, with a profile of Curator Ernesto Sandoval and this memoir from the collection's founder, Roman Gankin. Tim Metcalf, current Director of the Botanical Conservatories, has added comments (in italics) that show just how far the collections and equipment have come from the pioneering era Gankin describes.

I was still a graduate student in Botany in 1959 when Prof. Vernon Cheadle, then Botany Department Chairman (later Chancellor at UC Santa Barbara), called me into his office to tell me about a newly created Laboratory Technician position working in the department's greenhouses. Knowing that I had received a



Aeschenanthus lobbianus
(lipstick plant)

Masters degree in Botany at UCD, Professor Cheadle carefully pointed out that I might be overqualified for the position. Nonetheless, I accepted the position and was assigned to work under Harold Drever, who was in charge of all of the department's greenhouses and other outdoor plantings. In spite of my graduate degree, I hardly considered myself "overqualified." Liking to grow plants was one thing; taking on the task of developing a conservatory was quite another.

Harold Drever was a very fine horticulturist, and he made me feel comfortable with the tasks necessary to ensure that classes had their materials on time, tasks still performed by Botanical Conservatory personnel. It wasn't long, though, before Harold took me over to a brand new 35 x 100 foot, nearly empty greenhouse and challenged me to fill it

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LARRY MITICH STUDENT GRANT ENDOWED

The Larry Mitich Memorial Fund has been endowed with a gift from Mrs. Charlotte Mitich in memory of her husband, who passed away in August of 2000. Larry was a long-time treasurer of the Society and one of our founders, coming up with the idea for the Davis Herbaria Society with June McCaskill and Grady Webster. His University appointment was as a weed scientist, but his life-long love was the study of succulent plants, which he contributed to the UCD Botanical Conservatory. At the time of his death, he was the president of the Cactus and Succulent Society of America.

The Larry Mitich Memorial Fund will support student field research in botany. As a reflection of Mitich's interests, preference will be given to students wishing to study cacti and succulents. This support will be given in the form of an annual student grant awarded by the Society. The first Mitich grant was given this past spring, and Charlotte has now ensured that this student grant will be given in Larry's name in perpetuity. We are grateful to Charlotte for giving us a way to honor and remember Larry.

E. Dean

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Alluaudia procera (Didiereaceae) a Madagascar endemic (and closest living cactus relative) as it appears in the Conservatory

DIRECTORS' CORNER

Herbarium

We spent the fall trying to catch up with several projects that needed attention. We were able to do so with the assistance of graduate assistant Jennifer Buck. Jennifer first worked in the herbarium as an undergraduate over five years ago; she is now a graduate student working with Michael Barbour. The first task that Jennifer attacked was sorting our piles of book donations, books donated to the Botanical Society by June McCaskill, Grady Webster, and Jack Major. She helped me sort out which

books would be incorporated into the herbarium library and which would be sold in an upcoming book sale (Keep your eyes open for an announcement of the sale. It will be a big one!). Once that was done, she helped me sort out the journals that had been donated by Jack Major, Ledyard Stebbins, and Grady Webster. Journal duplicates are being exchanged for specimens with various herbaria worldwide. Finally, Jennifer helped Jean Shepard finish labeling her Yolo County Grasslands Park flora specimens, putting Jean one step closer to finishing her flora. Thank you,

Jennifer, for all your hard work!

Of course, once we sorted through all the book donations, our librarians, Kate Mawdsley and Bill McCoy, stepped up to the plate and began cataloguing books and shelving them in our library. We are extremely grateful for their very hard work, which involved multiple weekends.

Our other volunteers continue to help us. Denny Nolet is refolding the Chenopodiaceae, Layne Huiet continues to curate our ferns, and Linda Wheeler is finishing her beautiful exhibit herbarium specimens. We are very grateful for their continued help. We also were fortunate to have a short-term volunteer, Sarah Jones, who began the project of putting our wine grape collection in alphabetical order.

In October, Mark Bibbo and I finished the plant list for UC's Quail Ridge Reserve, which is now available at our Website (<http://herbarium.ucdavis.edu>). In December, I finished a manuscript that I have been working on forever and sent it off for review in the *Botanical Journal of the Linnean Society*. In January, Jean, Kate, and I finished up a contract project for Redwood State and National Parks, and we are now hosting the Barbour Vernal Pool Group. They are going through their collections from last spring, preparing for their final field season this coming March to June. As they use our collections, Carol Witham is annotating specimens, and we are grateful for her curatorial assistance.

We can always use more help in the herbarium. If you are interested in volunteering, please phone Jean or Ellen at 752-1091.

E. Dean

Conservatory

Autumn is cleaning season at the Conservatory! The usual seasonal drop in light intensity and duration coupled with low rainfall resulted in student staff shoving soap-laden push brooms on the ends of long pipes up to the ridge of the greenhouse. The volume of dirt, old whitewash, and even weeds washed down was gratifying. On the inside, a new pressure washer purchased in part from donations peeled off sheets of algae that had coated ceilings, walls, benches, and floors. The boosts in natural light intensity coupled with six

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SOCIETY PROFILES

Ernesto Sandoval

ERNESTO SANDOVAL, CONSERVATORY CURATOR AND PLANT EXPONENT EXTRORDINAIRE

It's easy to understand Conservatory Director Tim Metcalf's enthusiasm for his student intern program when you learn that Ernesto Sandoval spent five years in that role as an undergraduate. Ernesto joined the full-time staff when he received his degree in Botany in 1996. As Curator, he is responsible for day-to-day maintenance of the living plant collections. He and Tim also do most of the UC Davis class tours of the facility. He maintains the accessions database, the archival record of the collections, and is working with Eva Bayon on the retrospective taxonomic name verification project. He also shares his knowledge and enthusiasm for the Conservatory's plants as the principal coordinator of the student intern program, in which about four students each quarter are trained in watering, pruning, transplanting and other aspects of plant health. Interns also help with tours for school groups.

Ernesto also coordinates the Wednesday night volunteer program. Students and off-campus plant lovers propagate, transplant and label plants for the annual October sale in conjunction with the Arboretum Plant Faire. (And the day before, when DBS members and a select few others have a chance to choose before the crowds gather.) The sale is a major source of supplemental funding for the Conservatory, earning almost \$13,000 in 2002. Volunteers share and add to their plant expertise. To join them, contact Ernesto at 752-0569 or jesandoval@ucdavis.edu.

UC Davis students see hundreds of native plants in situ during the field trips Ernesto plans and leads for the Botany Club. Virtually annual trips to Baja California over either the Christmas or Spring break, a number of trips to Arizona deserts, and day trips to destinations as varied as private orchid collections and the Calaveras Big Trees have been part of the program. Ernesto has also led trips for the Society, most recently last year's Table Mountain trip. Participants will remember his passion for photography. His slides illustrate talks he gives the region and beyond, just one more way this high-energy plant lover shares the Conservatory's and California's beauty.

Kate Mawdsley



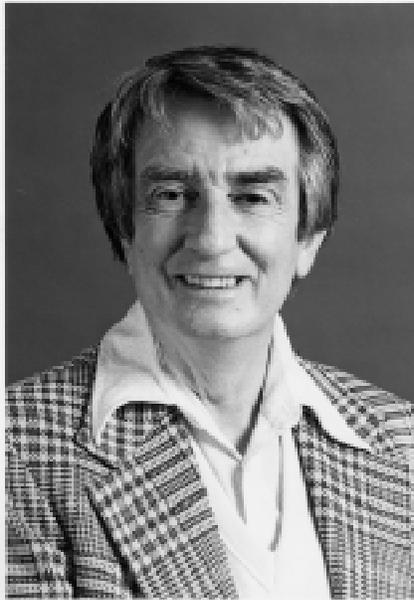
Ernesto in the Conservatory

HOW GREEN WAS HIS VALLEY: THE LIFE AND WORKS OF BEECHER CRAMPTON

Publications of Beecher Crampton.

Collected works: 29 publications; 34 reports for limited distribution. 1954-1984. Assembled by Department of Agronomy and Range Science, University of California, Davis; filed at the UCD Herbarium.

Beecher Crampton, a familiar figure for three decades on the botanical stage at the Davis campus, is remembered for his teaching and research on the California flora. Beecher died at the age of 84 at home on August 10th 2002, and was mourned by colleagues, students, friends, and family (including a total of 25 grandchildren and great-grandchildren). He had received his master's degree at Berkeley in 1951, working under Professor Herbert Mason on a study of *Navarretia*, a plant that remained one of his favorites and which led him to his lifelong work on the flora of vernal pools. In 1952, he joined the Agronomy and Range Science Department at UC Davis, and worked there



Beecher Crampton

for over three decades, until his retirement in 1984.

Beecher taught a number of courses, especially Range Science and Range Management, but his most

popular course was undoubtedly Resource Science 110: Wildflowers of the Central Valley of California. The centerpiece of his lectures was his extensive collection of slides of wildflowers (especially of vernal pools), along with live specimens and carefully prepared handouts. Beecher's low-key presentations were very effective, due to his contagious enthusiasm and obvious command of his subject, as well as his personal interactions with students. For the last 15 years of his career, Resource Science 110 was his major teaching assignment, and he charmed and inspired over 1,800 students during that time. Also, for an even longer period (1953-1983), he taught Range Science 100 and 105, which included emphasis on agrostology.

Although Beecher's interest in *Navarretia* was lifelong, he became interested in other vernal pool plants, especially grasses. One of his most significant papers, published in 1959, was an ecological and systematic study of the obligate vernal pool grass

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CALENDAR PREVIEW: A VERNAL POOL YEAR (WITH A SALLY ON SERPENTINE)

Both DBS programs and one spring field trip in 2002-03 focus on a uniquely Californian botanical delight: vernal pools.

Carol Witham introduced the subject at the Fall program with an overview of the types of vernal pools (depending on substrate) found throughout the state, including the Merced County area potentially affected by the tenth UC campus. She



Limnanthes (meadow foam)

then illustrated their amazing animal denizens—fairy and tadpole shrimp, et. al.—and, of course, the fascinating plants. (Check vernalpools.org to tap into information on all aspects of vernal pools.)

The April field trip will offer members the chance to see the glories of vernal pools for themselves. Dir. Ellen Dean and volunteer (and Jepson Prairie docent) Kate Mawdsley will lead a trip to two or more local vernal pool sites to see the differences among them.

At the Spring program in early May Prof. Robbin Thorp will highlight another aspect of vernal pool ecology: the relationship between the plants and highly specialized insect pollinators. Robbin has studied vernal pool solitary bees for over 30 years; his slides bring a new meaning to the word “close-up.”

Endlessly fascinating as vernal



Downingia ornatissima

pools are to many of us—including Beecher Crampton, as Grady Webster reminds us—California's rich topographic and edaphic diversity also gives us our splendid serpentine plant communities. Past President Art Shapiro will lead another in his series of field trips on June 7 and provides a preview elsewhere in the issue.

It's shaping up to be a great year—join us!

K. Mawdsley

RECENT GIFTS

General Gifts / Life Memberships:

John Brinley
Jane Dunaway
Katherine Mawdsley
Kenneth and Shirley Tucker
Judith Jernstedt

Student Grant Fund:

E. Eric Grissell
John Tucker

Herbarium Endowment:

Cole Hawkins
Cynthia Roy
Betty Rivers
Ernesto Sandoval
Arthur and Adrienne Shapiro
Alan Whittemore

Gifts of Books or Slides

Grady Webster
Wesley Youngclaus
Estate of Beecher Crampton

June McCaskill Memorial Fund:

Frederick Addicott
Harold Kempen
Ellen Dean
Andrew Leiser
Mandy Tu
Franklin Chan
Mike Conner
Alva Day
Gerald Dickenson
Louis and Georgette Grivetti
Roman Gankin
Calvin Quaiet
William McCoy
Jack Maze
Tim Metcalf
Patricia Piper
Ramona Robison
Maureen Stanton
Gail Sullivan
Anonymous

Jack Major Memorial Fund:

Louise Jackson
Charlotte Kimball
Mary and Bill Pyott
Marcel Rejmanek
Anne Culman
Ted and Joan Major
Ann Johnson
Helen Carpenter
Anne Geraci

Larry Mitich Memorial Fund:

Charlotte Mitich
Lee Miller
Cactus and Succulent Society of America

Conservatory Operations Gifts:

Anonymous
Carole Ludlum

Herbarium Operations Gifts:

William McCoy

Thank you for your support

DIRECTORS' CORNER (CONT FROM PAGE 2)

more 1000 watt Metal Halide fixtures Ernesto installed is resulting in much stronger plant growth.

The south end of the Conservatory, with coffee, rubber, palm, chocolate and other trees tied together with excessively vigorous vines on disintegrating forty-year-old wooden benches, can be a literal jungle. Vigorous work substituting high quality rigid tiered plastic benches for the wooden ones has transformed the displays for the African violet, pineapple, and philodendron families, and given the trees more headroom. During the February 8 open house were able to enjoy the results there and in the African desert room, renovated for the first time in six years. The plants love the new soil and greater space.

The Genetic Resources Conservation Program funded an additional workstation to print labels and access specimen documentation freeing a computer for Eva Bayon to continue verifying identification and nomenclature of the specimens in preparation for ordering photo-engraved labels. Her work last year and this year has been funded by proceeds from the Conservatory sales at the Arboretum Plant Faire. This year's Faire, a delight to plant enthusiasts, was also an income record breaker for the Arboretum and came close to equaling last year's Conservatory's record.

The Conservatory Carnivorous Plant team, composed of some of the best talent in the world, has been strengthened even further by Michael Wang, a gifted Bay Area grower. His plant

donations and almost daily visits working on seed germination and nutritional treatments are benefits to the collection as well as being an outlet for the tension of his course-work in Plant Biology.

The Orchid family is one of the most diverse flowering plant families and the six hundred specimens in the Conservatory collection range from native terrestrials to cloud forest denizens to tropical tree dwellers. Many need special attention, more than the limited Conservatory staff can furnish. Joyce Miller has her own collection in Sacramento but is investing her energy and skill at the Conservatory every Thursday. She is able to cover an amazing amount of territory, but there is room for several others from beginners

T. Metcalf

CONSERVATORY (CONT FROM PG 1)

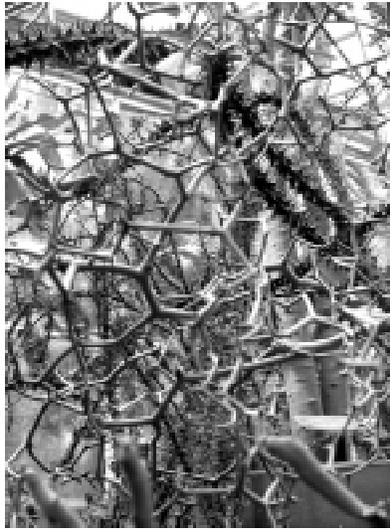
with a diversity of plants. I didn't realize then that what I was getting into was developing a kind of botanical garden in a greenhouse. I needed help. Discussions with Professors Crafts, Tucker, Gifford and others provided me with some guidelines. With Harold's coaching and excellent horticultural training and the input of the department's staff, the collection began.

Myron Kimmach, then in charge of greenhouse collections at the UC Berkeley Botanic Garden, provided me with many ideas of what a greenhouse collection could contain. Although he soon left UC to become the Director of Huntington Botanic Gardens in San Marino, it was from Myron that I learned to develop a diverse collection of plants. I also obtained many items for propagation for the Davis collection from Berkeley, mostly by their sharing their "extras" or cutting materials; some of those original plants probably exist to this day. *[Thirty-six of the two hundred plants accessioned in the first year (1959) forty-three years ago are still important parts of the collection, from the adder's tongue fern (Ophioglossum petiolatum), useful for illustrating fern structure and relationships, to the Madagascar silver dollar vine, (Xerosicyos danguyi) a woody cucumber with diverse physical drought adaptations giving good material for anatomy quizzes, to the lipstick plant (Aeschynanthus lobbianus) demonstrating bird pollination syndromes.]*

My training had been in ecology, genetics and plant taxonomy, so I had a reasonable understanding of varying climates—tropical rain forest, desert, temperate, alpine, and of world plant distribution. From this I deduced whether plants might be successfully grown in Davis or would require more special conditions. With four separate compartments in the greenhouse and certain modifications, like the creation of a moss-filled wall in front of one of the fans, Harold and I were able to provide sufficiently modified environments to grow a great array of plants. Davis tap water made long term growing conditions difficult until a distilled water system was added. *[A two-head fertilizer injection system now provides near ideal low-level complete nutrition with every watering. Watering and misting for many of the plants is computer controlled. Another challenge to plant health emerged with the building of six-story Storer Hall south of the Conservatory, blocking most of the winter sun. The recent installation of forty-two high intensity discharge*

lamps has returned much of the needed light intensity.]

Through UC Botanic Garden's chief botanist, Paul Hutchison, I learned of developing seed exchange programs with many of the botanic gardens of the world. This and other sources made it possible to expand the collection with interesting and diverse plants. Paul advised keeping track of the collection,



View of the "thorn forest" in the African desert room at the Conservatory

beginning with simple notes and expanding to a more detailed listing, or accession record, showing dates, sources, collectors, etc., for each plant received. The accession system thus developed is continued to this time. *[Now instead of entering the information in a logbook, it is entered into a database with bar code thermal transfer printer printing labels for the specimens. The current list is available on the greenhouse website.]*

Then, as now, the collection in the greenhouse was used primarily for the classroom and periodically for public display. In the early days, display was limited to selecting special plants to show on Picnic Day. These were brought from the greenhouse for display at Robbins Hall or to the department's greenhouse in the courtyard of Robbins Hall. This was the time when we could brag about the various odd plants in our collection by showing them to the public as an adventure in learning. *[Each year, Picnic Day became more elaborate, transforming different wings of Robbins into overwhelming jungles and deserts intermingled with displays on adaptations and plant relationships. Ten years ago we decided to open*

the Conservatory with students and staff stationed to interact with visitors instead of moving half of the Conservatory specimens out for one day and then back. Various themes such as animal-plant interactions or economic plants (complete with coconut cookies and chocolate kisses) enliven the experience. To give the public a less crowded venue, the Botanical Society started sponsoring an open house in early February incorporating Herbarium specimens and topics such as Indonesian flora and poisonous plants. This event attracts hundreds from Rocklin to Vacaville. These public events are in addition to the over 3,500 university and K-12 students on guided tours.]

Myron Kimmach (as well as Paul Hutchison and others) at UC Berkeley had given me the thirst for growing succulents, including cacti. Paul and Myron had started the International Succulent Institute (ISI), which continues to this day. These two succulent enthusiasts had connections with some of the more important field botanists in Africa, Madagascar, the Arabian Peninsula, and elsewhere, so their collection was continually growing, and Davis got its fair share. These specialized plants did well in the hot Davis climate, and growing them was less of a challenge, except when it came to pests. Mealy bugs and spider mites were the worst of the pests, especially the soil mealy bugs. To deal with them Harold and I would periodically put on our safety clothing and gas masks and spray the greenhouse, then lock it up so that no one could get in. Overnight, the spray would have dissipated, and the greenhouse fans and doors could be opened up for staff to enter safely. *[Increased public and student activity in the Conservatory, more stringent regulations, and Doug Walker's skill with greenhouse biological control shifted the Conservatory's pest management strategy to biological and reduced-toxic methods which are often more effective and allow us to eat the bananas.]*

My tenure at the Botany Greenhouses, as we called them then, ended in 1963 when I transferred to the University Arboretum. By that time the collections had "stuffed" the 35 x 100 foot space. We even spread into the Botany Courtyard. My successor, Bejan Dehgan, continued the work, and upon his departure for a teaching position in Florida, Tim Metcalf became the curator. Tim's work has truly placed the Conservatory on the map as one of the better collections of its kind in the UC system.

R. Gankin, T. Metcalf

BEECHER CRAMPTON (CONT FROM PG 3)

genera *Orcuttia* and *Neostapfia*. This publication was widely cited, and became so emblematic of Beecher that a drawing of *Orcuttia mucronata* (later *Tuctoria mucronata*) was incorporated into the Davis Botanical Society logo. He interacted often with other botanists on campus, especially Professors Jack Major and Ledyard Stebbins, and in



Beecher in a field of *Neostapfia colusana*

1961 he collaborated with Stebbins on a new classification of North American grass genera.

Undoubtedly Beecher's most important publication is *Grasses in California*, published in 1974 as one of the California Natural History Guides. It is a field guide in the best sense. Although it deals with only a fraction of the grass flora of the state (65 genera and 162 species), it includes most of the prominent or unusual genera and species. The clear and simple keys, descriptions, 92 line drawings, and 8 color plates make this book still a useful guide to the common (and some uncommon) California grasses. For the average amateur botanist, the treatments of genera and species in *Grasses in California* are certainly more comprehensible than comparable passages in the *Jepson Manual*, and are less likely to discourage the tyro from developing an interest in the diversity of grasses.

Beecher made another important botanical contribution to the Davis campus when he took over the herbarium in the Agronomy Department that had been inherited from Berkeley and later curated by Alan Beetle. Beecher collected specimens enthusiastically and widely, especially in the Central Valley, with an emphasis on grasses and legumes. He also exchanged duplicate collections with a number of

out-of-state institutions, including those in Australia, and built up an important herbarium collection of about 40,000 mounted specimens. His collections in vernal pools were significant, but thousands of them were stored unlabelled, perhaps because of his other duties and limited assistance: he was at once curator, secretary, specimen preparer, and custodian. A good indication of his problems (and his dedication) is the fact that he paid for herbarium cases out of his own pocket.

When Beecher approached retirement, the fate of the herbarium he had so carefully and laboriously developed for three decades became problematical, apparently because of changes in academic programs

within the College of Agriculture. The Agronomy Herbarium faced the same harsh destiny that has befallen so many university herbaria during the past quarter century: its space was coveted for other uses, and the curator had only a single vote in departmental deliberations. In the fall of 1984, Beecher made an impassioned plea for retention of the herbarium by the Agronomy Department, citing the irreplaceable nature of its contents, its value for teaching and research, and its importance for public outreach. Despite his arguments, the Department, after deliberations over several years, at one point was seriously considering the possibility of shipping the herbarium to the Berkeley campus. Finally, in 1988, June McCaskill and the author of this memoir succeeded in having the Agronomy herbarium transferred to the Botany Department, where it was named the Beecher Crampton Herbarium. By this time, Beecher was retired and his research career inactive, but he was clearly gratified by the perils-of-Pauline rescue of his lifetime project. He continued to visit the Botany Herbarium at intervals to advise on curation and accessioning of his many unmounted specimens.

A summary of the history of the Crampton Herbarium was given by Herbarium Director Ellen Dean in *Lasthenia* no. 7 (1995), and in *Lasthenia*

no. 11 (1997), when she was able to report the award of \$500,000 from the National Science Foundation to fund integration of the Crampton Herbarium with the Tucker Herbarium in the Section of Plant Biology. The first stage of curating the Crampton collection was reported on by Ellen Dean in *Lasthenia* in 1998. The plants other than grasses of the Crampton collection have been incorporated into the Tucker Herbarium, with their provenance (AHUC) noted for future users. The Tucker grasses have been incorporated into the larger Crampton collection, with all folders newly labeled and the specimens "Barkworthized" (annotated according to the new classification of Mary Barkworth). Beecher was highly gratified to see the Crampton Collection grasses in their gloriously renovated state at a ceremony on October 8th, 1998, attended by many colleagues, including faculty from the Agronomy and Range Science Department.

At the fall 1999 meeting of the Davis Botanical Society Beecher delivered in his inimitable drawl a lecture—which proved to be his valedictory address—on the vernal pools of Solano and Yolo counties. Copiously illustrated with slides, his talk carried us on an imaginative journey through the vernal pools as they existed three or four decades ago along county roads and near railroad sidings that have since been abandoned or forgotten. It was a unique historical glimpse into the prehistory of the world of vernal pools before the extensive development in Solano and Yolo counties, as well as a perceptive view of the vernal pool diversity as related to subtle differences in soil types. The talk stimulated lively discussion and suggestions of a Botanical Society "sentimental journey" to retrace Beecher's peregrinations among the *Navarretias* and *Tuctorias*. Some day, we may yet make this "sentimental journey," in tribute to our Sage of the Vernal Pools, Beecher Crampton.

Beecher was an optimistic, extroverted person who enjoyed contacts with students, staff, and faculty alike. His homespun conversations were often punctuated by sallies of droll humor. During his final illness with a brain tumor, he bore the affliction with stoic cheerfulness, and enjoyed reminiscing about people he had known at Davis and Berkeley. It is gratifying to know that the herbarium collections on which he

lavished so much effort, along with his publications and the influence he had on students' lives through his teaching, are preserved as his legacy to the Davis campus and the University of California.

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Fritillaria liliacea (prairie bells) at Jepson Prairie

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G. L. Webster

LATE SPRING FIELD TRIP: THE MEADOWBROOK LOOP

Serpentine soils and their special plants are a persistent theme in California botany; even after over a century of study, the actual reasons for the peculiarity and distribution of the flora remain debatable. Serpentine soils in California are most extensive in the Coast Ranges and the Klamath-Trinity-Siskiyou area. In the Sierra Nevada they occur in a narrow, discontinuous strip through the foothills. There are fewer serpentine endemic plants in the Sierra than in the Coast Range. The same is true for the insect fauna; only in the mid-1990s was it established that most of the Coast Range serpentine butterflies also occur in the Sierra, albeit typically at low densities.

One of the best Sierran serpentine sites for both plants and insects is located on the Meadowbrook Loop, also known as Traverse Creek. Owned by the Bur. of Land Management, the

site was being used for off-road vehicle recreation when a local amateur botanist, Don Smith, alerted the agency to its botanical significance. For butterflies, it is the best site known in the Sierra, harboring all the serpentine species except one whose host plant (MacNab Cypress) does not occur there, plus some other non-serpentine "goodies" as well.

The site is best-known for its large and very showy stand of Bitterroot (*Lewisia rediviva*), but the overall flora is very diverse. Among the botanical "goodies" are *Eriogonum tripodum*, *Odontostomum hartwegii*, *Allium membranaceum* and *A. Sanbornii* var. *congdonii*, *Mimulus bicolor*, *Lomatium marginatum*, *Erythronium multiscapoideum*, *Sidalcea hartwegii*, *Clarkia gracilis*, *Streptanthus diversifolius* and a very strange nickel-accumulating *S. polygaloides*, a very showy race of *Dudleya cymosa*,

Parvisedum condonii, *Trichostema simulatum*, *Plantago erecta*, *Calochortus monophyllus*, *Disporum hookeri*, and *Piperia unalascensis*. There are four (4!) Delphiniums and seven (7!) Monkeyflowers recorded, etc., etc. One of the odder non-serpentine plants is the large-leaved legume *Hoita orbicularis*.

For those adventurous enough to climb to the highest point in order to look down into the canyon of Traverse Creek, there is a pygmy forest of Oregon White Oak (*Quercus garryana*) covered in foliose lichens, with an understory of *Wyethia angustifolia* and Poison Oak. And Meadowbrook has the southernmost known Sierran population of the serpentine endemic Leather Oak (*Quercus durata*) (along with its special butterfly, *Erynnis brizo lacustris*).

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