

# The Botanical Examiner

University of California Davis Center For Plant Diversity

## TO GATHER PLANTS. Hints to Amateur Botanists Offered by the Smithsonian Institution.

### WHAT SPECIMENS TO COLLECT

Gentle Maidens in Pursuit of Seaweeds—Fresh Water Weeds—Going After Land Plants—The Tools One Needs—Portfolios and Press—Collecting Fungi—Vegetable Parasites.

Written for The Evening Star.  
AT THIS SEASON OF THE YEAR romantic maidens, unaccompanied by swains, whose presence would supply a keener object of interest, wander along the shores of the lound-sounding sea and gather sea weeds for pressing. Harvests of beautiful specimens are afforded by tangled masses of eel grass thrown up on the beach by storms, or they may be profitably gathered between tides from uncovered rocks and in the tide pools. A gentle maiden's hands, however, are ill adapted to the rougher work of this sort, and so the alga hunting virgin who is not foolish provides herself with a shallow net six or eight inches in diameter on the end of a stout rod.

**TREATMENT OF THE WEEDS.**  
If the seaweeds are of a fleshy or slimy growth they should be exposed to the air for a while before one tries to mount them. It would be well worth while for the shore-haunting maiden to know in detail how to preserve these interesting water plants. So, fair lady, having fetched your specimens home in a pail of sea water or a wide-mouthed bottle wash them first in sea water. Fresh water will not do. For this purpose float the plants in a basin of sea water. Place under the floating vegetable a card or paper of the requisite size on which the plant is to be mounted. See that the paper or card is uniformly wet and as clean as is practicable. Raise up the card with the plant on it and distribute and arrange the branches in as natural and separate a manner as may be, the purpose being best accomplished by the water as it flows off from the card in raising it out of the sea. Let each specimen dry in a separate envelope, then press it under a light weight between newspapers or sheets of absorbent paper.

**FRESH WATER ALGAE.**  
It is worth mentioning, by the way, that fresh water algae are quite as interesting as the weeds of the sea and may be preserved in a similar manner. One finds them in ponds, quiet or sluggish waters, cascades, ravines, shaded and dripping rocks, shallow, quiet angles of lakes and even in mill-racing brooks and rivers. A dip net is the best thing with which to collect them. Among the most interesting of these aquatic forms are the little vegetables called "desmids," which are so beautiful under the microscope. They are found in abundance in pure water, such as pools fed by springs and clear ponds. Myriads of them may be got by rubbing them off from the stems and leaves of larger water plants.

**PROPER METHODS FOR COLLECTING LAND PLANTS.**  
To instruct people in the proper methods for collecting land plants as well as water plants the Smithsonian has this week issued a most interesting pamphlet on the subject. To begin with, the pamphlet informs the amateur botanist as to the tools and apparatus required. One needs in pressing a plant a gentle industry a strong pocket knife, which is useful in a great variety of ways, such as cutting branches of trees, trimming specimens, removing fungi and lichens from bark and even for digging up small plants. For digging, however, one ought to have a small trowel. But the first thing to be decided upon is the receptacle which is to hold the plants while they are being gathered. Experience has shown that a portfolio of some form is most serviceable and admits of being made in a greater variety of conditions and for a greater diversity of objects than any other form of receptacle. A great many modifications of the portfolio have been used and recommended by various botanists, but the simpler it is the more satisfactory it will usually prove to be.

**HOW TO MAKE THE PORTFOLIO.**  
A very serviceable and convenient portfolio may be made by taking two pieces of thick pasteboard, twelve inches wide and eighteen inches long, and fastening them together by running two strings or straps through the bottom and top. These strings or straps should be long enough to be hooked at the top so as to apply a slight pressure to the contained plants and also to prevent the plants from falling out. By this process the thickness of the portfolio may be varied at any time. Strong rubber bands may be used in place of leather straps. The covers of an old book, of suitable size, may be made into a portfolio that will do good service.

**THE PAPER OF THE INSIDE.**  
Having made the portfolio, it should be filled with four or five quires of light but strong paper, which may be fastened into the covers or left loose. It is not desirable that this paper be absorbent, for the object is to keep the plants as fresh as possible until they can be arranged and put in the press, which may often be several hours or days. The paper should be so mounted that it may be removed and replaced as needed to keep a portfolio neat, especially within. By the time it has been well filled a few times with moist plants and muddy roots all the fancy paper that is put into it will have lost its charm. Any paper that is put into it is destined to get wet and torn and to require removal several times a season, and it should therefore be cheap. Moderately thick and firm manilla paper is recommended.  
The plant collector ought to have a special instrument for gathering water plants which cannot be reached with the hands. A long iron rod with a gang of iron hooks near the end is the best thing for the purpose. The amateur should also be provided with a pair of thick, heavy gloves, for use in getting cacti and other thorny and spiny growths.

## A HUNDRED YEARS OF HEADLINES HIDDEN IN HERBARIA

by Allyson Ayalon, Daniel McNair, and Ellen Dean

### UC Botanists Press Plants in Newspaper—Document Plant Diversity!

Around the world, millions of flattened, dried plants are stored within herbaria, scientific museums that document the world's flora. Often associated with universities, botanic gardens and natural history museums, herbaria have played a central role in botany since the 16th century. Today, herbarium specimens are a resource for studies in genetics, ecology, evolution, and population biology, among other disciplines. They are crucial for documenting plant diversity and protecting endangered species as well as for documenting the spread of invasive species.

For over 150 years, botanists have been using newspapers to collect plant specimens. The freshly collected plants are placed inside newspapers, which are then placed between blotter papers and cardboard inside a plant press. Understandably, these newspapers are usually regarded as unimportant compared to the specimens they hold. Collections sometimes sit in herbaria for decades before the mounting process is completed and the newspapers are discarded, but it turns out that the newspapers have unexpected value.

Recent curatorial projects at the UC Davis Center for Plant Diversity have revealed newspapers dating from 20 to 100 years old depicting what was once headline news in our society. These newspapers illustrate how our attitudes towards major issues such as sexuality and gender, science and technology, and even the food we eat (or used to eat) every day has changed. Many of the newspapers such as *The San Francisco Chronicle*, *The Sacramento Bee*, *The New York Times*, and other news journals, still exist today.

### The Importance of Newspapers in the Curation process

At the time a specimen is pressed, botanists often write a number or a date on the newspaper holding the specimen. Ideally, this notation on the newspaper matches an entry in a collector's notebook which can be used to make a label for the specimen. However, detailed notes are often lacking, and the only clue to the origin of the pressed specimen inside the newspaper is the newspaper itself (one of the reasons it can take 50 to 100 years for specimens to be curated). The curator scans the newspaper for a publication date and knows that the specimen had to have been collected after that publication



A Living Carpet Of Gold

They came West for the "gold in them thar hills" and found it in California's great valleys as well-endless vistas of wild, golden poppies like these. John Muir once called the Central Valleys "a vast golden flowerbed 50 miles wide and 300 miles long." The face of California has changed since the bloom—also called the flame flower, "la amapala" and "copa de oro" (cup of gold)—was made the official state flower in 1903. But a few major areas remain where

the flower still blooms in its natural state. This photograph was taken in the Antelope Valley, north of Los Angeles, which the California State Parks Foundation hopes to see preserved as a state park. In cooperation with other groups, the foundation is attempting to raise funds to buy this area, which then will be given to the state as its first wildflower preserve or "Poppy Park."

## Be Happy-GO LUCKY!



## Stebbins To Speak At Sigma Xi

G. Ledyard Stebbins, professor of genetics, will speak at the Society of Sigma Xi meeting October 14 at 8 p.m. in 106 Wellman.

Stebbins' topic will be "Current Research on Evolution in Higher Plants: Challenges and Prospects." For further info, contact OFFICE OF PUBLIC AFFAIRS 752-1930.



## A BLOOD-SUCKING PLANT.

**Strange Vegetable Growth Found in Central American Swamps.**  
New Orleans Letter.  
Leroy Dunstan, the well-known naturalist of this city, who has recently returned from Central America, where he had spent nearly two years in the study of the flora and fauna of the country, relates the finding of a singular growth in one of the swamps which surrounded the great lake of Nicaragua. He was engaged in hunting for botanical and cytological specimens in this swamp, which is known as San Sebastian's, when he heard his dog cry out as if in agony from a distance. Running to the spot from which the animal's cries came, Mr. Dunstan found him enveloped in a perfect network of what seemed to be a fine, ropelike tissue of roots or fibers, the nature of which was unknown to him. The plant or vine seemed composed entirely of bare, interlacing stems, resembling more than anything else the branches of the weeping willow denuded of all foliage, but of a dark, nearly black hue, and covered with a thick, viscid gum that exuded from the pores. Drawing his knife, Mr. Dunstan endeavored to cut the animal free, but it was only with the greatest difficulty that he succeeded in severing the fleshy, muscular fiber. To his horror and amazement the naturalist then saw that the dog's body was covered with blood while his hairless skin appeared to have been actually sucked or puckered in spots, and the animal staggered as if from weakness and exhaustion. In cutting the vine the twigs curled like living sinuous fingers about Mr. Dunstan's hand, and it required no slight force to free the member from its clinging clasp, which left the flesh red and blistered. The gum exuding from the vine was of a grayish dark tinge, remarkably adhesive and of a disagreeable animal odor, very powerful and nauseating to inhale.  
The native servants who accompanied Mr. Dunstan manifested the greatest horror of the vine, which they call the *sagenas* de diable, the devil's snake or snake, and were full of stories of its death dealing powers. The plant is found only in low, wet places and usually beneath a large tree, and while dormant seems only a network of dry, dead vines covering the black earth for several feet, but coming into contact with anything will instantly begin to coil and twine upward in a horrible, lifelike manner, breaking out with the gum-like substance spoken of before, and envelop the object with a celerity that is almost incredible.  
If the substance is animal the blood is drawn off and the carcass or refuse then dropped. A lump of raw meat being thrown in at the same time of five minutes the blood will be thoroughly drunk off and the mass thrown aside. Its voracity is almost beyond belief, it devouring at one time more than ten pounds of meat, though it may be deprived of all food for weeks without any apparent loss of vitality. Mr. Dunstan, attempted to bring away a root of the *sagenas*, but it died during his return voyage, growing so foul with a strong odor of real animal corruption that he was obliged to get rid of it.

## OLD IN CHRIST'S BOYHOOD.

### Newly Found Sequoia Gigantea Dates Back Many Centuries.

Just outside the borders of the General Grant National Park, the home of California's tree aristocrat, and directly within the boundaries of the United States forest reserve, there was discovered the other day the largest known tree in the world. While on a recent surveying expedition in the Sierra Nevada Mountains the attention of A. H. Koehler, a civil engineer of Los Angeles, was attracted to the great size of the tree, and he immediately sent word to Professor John Muir, the scientist, explorer and writer, expressing a desire that Muir would visit and officially measure the new found giant. Mr. Muir had just returned from the King River, Yosemite, where he had been participating in the outing of the Sierra Club, of which he is president, and was the guest of Dr. Norman D. Kelley, of Fresno, when the message reached him. Accompanied by Mr. Kelley, Mr. Muir immediately set out in quest of the monarch, traveling three days in stage and on horseback before reaching the big tree. Mr. Muir describes the tree as being "well preserved, well balanced, noble and majestic" and gives the following dimensions, which he obtained by careful measurement: At one foot above ground the circumference is 108 feet; at four feet above ground, 98 feet; at six feet above ground the girth is 90 feet. The tree stands in a nest of lesser giants of its own kind, and is three miles from Coconino Basin, ten miles from the General Grant National Park and directly back of Millwood, a small town, and about which circles an immense lumber industry.  
Twenty-seven years ago, when on one of his exploring jaunts, Professor Muir tramped through this identical forest, within a few miles of the tree just found, and was at that time much interested in the discovery of a titanic stump, forty feet in diameter, that stood all blackened, seared and worn by time and the elements, a mute but pathetically inscribed monument of primordial history. By using a microscope after chopping away the charred surface Mr. Muir calculated that the actual life of the tree must have endured through tens of centuries, and concluded that about the time its stunted column was twenty feet in girth the Chaldean sages were following the star that led them to the infant Saviour's cradle.  
This newly discovered patriarch is of the species *Sequoia gigantea sempervirens*, and belongs to a genus which flourished in the arctic regions of the interior of North America and in Europe centuries ago, but which was overwhelmed by the bacchus of time, of change and elemental caprice, until only two species were left to represent the genus. It is



SEQUOIA GIGANTEA MEASURES 108 FEET IN GIRTH ONE FOOT ABOVE THE GROUND, AND AT FOUR FEET ABOVE THE GROUND IS 98 FEET IN CIRCUMFERENCE.

date, but how long after? A day, a week, a month, a year? If the newspaper is a local paper, was the specimen collected near the location where the newspaper was published? In the same state? Near the city? Then the handwritten phrases provided by the collector are scanned. Phrases such as "Green Mountains," "scree field" or "found with *Quercus kelloggii*" help us know more about the specimen's geography and ecology. A reasonable guess as to date and place can be made based on the newspaper's publication date and origin, as well as the collector's handwritten notes. Then if field notebooks exist, more information can be found. It is a giant, time-consuming curation puzzle!

### The Implications of Shrinking Newspapers

With the increasing rarity of printed newspaper, as media is primarily received through digital outlets, the future of using newspaper for an age-old tradition in botany is unknown. Newspaper size has varied considerably over the past 100 years, with a folded newspaper from 1900 averaging 11 by 17 inches and one from 2016 averaging 11 by 11 inches. The optimal folded newspaper size for pressing herbarium specimens is 11 inches by 13 inches; a specimen pressed within these dimensions is perfect for mounting onto herbarium paper that is 11 inches by 17 inches. The dimensions of most 2016 newspapers have already shrunk below that needed for pressing plants with the exception of the British paper, *Financial Times*, which is the preferred newspaper used at the Center for Plant Diversity.

### Newspaper Exhibit Honors Botanists' Work

Premiering at The UC Davis Center for Plant Diversity's annual Botanical Tea, and returning later at the UC Davis Picnic Day, we have brought together newspapers from the collections of several researchers including: June McCaskill (Curator of the UC Davis Center for Plant Diversity from 1953 to 1991), whose personal collection of amusing newspaper clippings reflects the role of plants in our changing society; G. Ledyard Stebbins (Professor of plant evolutionary biology and genetics at UC Berkeley and UC Davis), whose large collection spanning more than fifty years, has contributed several of our most notable headlines; Jack Major (Professor and high-elevation vegetation ecologist at UC Davis from 1955 to 1981), whose back-pack-sized specimen newspapers will be on display; and Harold Olmo (Professor of viticulture at UC Davis from 1938 to 1977), whose pre-prohibition era wine grape specimens are housed at our herbarium. The exhibit is entitled "Herbarium Specimen Newspapers: A Botanist's Newsfeed for the 20th Century."



WAKE UP TO TANG NOW THERE ARE TWO