

# Mount Shasta Annotated Bibliography

## Chapter 31

### Science: Botany

Mt. Shasta stands as if an island in the sky of northern California. The higher reaches of the mountain are a unique environment. Any such isolated habitat such as the heights of Mt. Shasta holds the promise of containing plants and trees which perhaps have evolved in some way independently of outside influences. From the times of earliest exploration on, botanists have desired to explore Mt. Shasta to see what grows upon its slopes. Comparisons with the flora of other peaks and alpine regions of the West helps give botanists insights into the geographic distribution and evolution of the plant kingdom. The Scotsman William Brackenridge, who discovered the California Pitcher Plant (*Darlingtonia californica*) near the base of Castle Crags in 1841, was the first botanist to cross over the slopes of Mt. Shasta (see Section 9. Early Exploration: American Government Expeditions, 1841-1860). During the latter half of the 19th Century some of the most famous botanists of the time came to Mt. Shasta. Scottish botanist John Jeffrey discovered the Jeffrey Pine in the Shasta Valley, possibly on northern slope of Mt. Shasta, in 1852. The famed American botanist Asa Gray, and English botanist Joseph Dalton Hooker, botanized on Mt. Shasta with John Muir in 1877 (see Section 21. Literature: John Muir). John Gill Lemmon, who climbed to the summit of Shasta in 1879, later scientifically named the specific variety of Red Fir trees he found upon the mountain's slopes as the Shasta Red Fir (see also Section 11. Mountaineering 19th Century). The California Academy of Science's botanist Alice Eastwood climbed and botanized Shasta in 1893. C. Hart Merriam led the 1898 Biological Survey (See Section 31. Science: Zoology) and discovered several new species of plants which were formally described by Edward Lee Greene in 1899. Mt. Shasta offered the 19th Century botanists a chance to achieve some real discoveries.

In the 20th Century more thorough studies of Mt. Shasta's flora were conducted. One of the most complete was Lester J. Matthes's 1942 *The Plant Communities of Mount Shasta*. At about the same time the eminent Mt. Shasta botanist William Bridge Cooke completed and published the first of his four-part *Flora of Mt. Shasta*, a work which the late Dr. Cooke had planned to compile as a one volume work. Dr. Cooke wrote often about Mt. Shasta, as will immediately be evident from the number of entries under his name. All in all, however, there are not that many available studies on the flora of Mt. Shasta, a situation in part due to the reality that the mountain does not have as diverse a flora as the early botanists had hoped for. Note that the entries in this section of the bibliography were selected on the basis of their relevance to the flora of Mt. Shasta, but are not entirely limited to scientific subjects. Marquiss Lloyd's 1931 article on the unique properties of the Shasta Red Fir as a violin maker's perfect wood is an example of some of the more popular subjects also covered in this section. Edward Stuhl's exceptional 1981 publication *Wildflowers of Mt. Shasta* contains many chapters on the botany of Mt. Shasta and includes information about the "*Phacelia cookei*," a rare plant discovered by W. B. Cooke and only found on Mt. Shasta (see Section 1. Comprehensive Histories of Mt. Shasta).

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The [MS number] indicates the Mount Shasta Special Collection accession numbers used by the College of the Siskiyous Library.

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[MS245]. Beardsley, G. F. and Cannon, W. A. **Note on the Effects of a Mud Flow at Mount Shasta on the Vegetation.** In: *Ecology*. 1930. Vol. 11. pp. 326-336. Stanford University. Mud flows on the slopes of Mt. Shasta during the years 1924-1926 added considerable depth, up to 17 feet in some places, to the regions inundated by the mud. This article contains an extensive history of the mud flows and their immediate and longer term effects on various types of vegetation. For example, conifers affected by three or more feet of silt usually died quite quickly, in a matter of months, whereas willows would survive for years and then uncharacteristically die off. The authors suppose that oxygen

deprivation to the roots of the conifers is responsible for the quick dying, and later, after the drying up of the silt, the willows expire from a lack of water. 31. Science: Botany. [MS245].

[MS2017]. Cooke, William Bridge. **Some Aphylophorales of the Southern Cascade Mountains**. 1974. 324-340 pp. : 26 cm. Reprinted from the Transactions of the Mycological Society of Japan, Vol XV, No. 4, p. 324-340, 1974. Includes bibliographical references: p. 340. "For the 150 species of fungi assigned to the Aphylophorales collected and identified to date from Mount Shasta and Lassen Volcanic National Park, in the Southern Cascade Mountains, California, the basic floristic information used to describe these two areas are given." (Summary) 31. Science: Botany. [MS2017].

[MS467]. Cooke, William Bridge 1908-1991. **Flowers and Plants Living on Slopes of Mount Shasta**. In: Mount Shasta Herald. Mt. Shasta, Calif.: Aug. 3, 10, 17, 24, 31; Sept. 7, 14; Oct. 5, 12, 19, 26; Nov. 2, 1939. 12-part article on the flowers and plants from different locales about Mt. Shasta. Cooke was the Sierra Club Lodge caretaker in 1939, and his observations stem from his daily opportunity to botanize. Thus his notes are quite detailed, although informal. In a sense Cooke takes the reader on a nature walk, For example, after describing several species of mistletoe found on Mt. Shasta, he adds two more: "Then there are two very tiny species. The first is the Douglas Fir Mistletoe. The entire plant, growing on a twig of Douglas Fir and causing Witch's Brooms, is not as long as a Fir needle. These tiny plants may have a half dozen staminate or pistillate flowers on each. The Mistletoes never have their pistils and stamens on the same plant, although large numbers of both types of plant may grow on the same tree. The other tiny species has slightly larger plants but is the most destructive plant on the mountain. It grows on White Bark Pine" (p. 6 Oct. 12). 31. Science: Botany. [MS467].

[MS235]. Cooke, William Bridge 1908-1991. **Some Ferns of Mount Shasta**. In : American Fern Journal. 1939. Vol. 39. pp. 105-111. The introduction includes a mention of the historically important Mount Shasta botanizing efforts of Merriam, Eastwood, Pringle, Copeland, Lemmon, Brown, and Brewer. Cooke describes the geographical limits of his own collecting which took place in 1936-1938, and then describes specifically where he found his ferns. The common names of the ferns he collected on Mount Shasta are: Mountain Lady Fern, California Lady Fern, Lace Fern, Rock Brake, Brittle Fern, Sierra Cliff Fern, Shasta Fern, Imbricated Sword Fern, Shield Fern, Bracken, and Rocky Mountain Woodsia. Horsetail and Moonwort are also described. 31. Science: Botany. [MS235].

[MS22]. Cooke, William Bridge 1908-1991. **Flora of Mount Shasta**. Notre Dame, Ind.: The University Press, 1940. 'Reprinted from "The American Midland Naturalist" Vol.23, No. 3, pp. 497-572, May, 1940.' Off-print publisher's binding of the original journal article. This is the classic botanical work on the flora of Mount Shasta. Cooke worked as a custodian of the Sierra Club's Shasta Alpine Lodge for three summers and spent a total of ten months collecting plant specimens. The book includes an historical introduction to prior botanical studies of Mount Shasta. Contains many photographs of plant habitats around the mountain. Also contains a map of Mount Shasta showing major trails and springs around the mountain. The references list includes other Mt. Shasta books and articles written by Cooke.

Four supplements to the flora have been published. In personal correspondence to Michael Zanger, circa 1989, Cooke states that "Both the Flora and the list of fungi are being updated. A manuscript for the second edition of the Flora, combining the first edition and its four supplements is in preparation, and a systematic list of the fungi found to date, including the writer's collections and published records, is in preparation." 31. Science: Botany. [MS22].

[MS1042]. Cooke, William Bridge 1908-1991. **Eastern Scientist Visits Here**. In: Mount Shasta Herald. Mt. Shasta, Calif.: Aug. 1, 1940. p. 1. Records details of a visit by Dr. Francis Pennell, curator of the herbarium of the Philadelphia Academy of Sciences. The author and Dr. Pennell spent one afternoon together on Mt. Shasta. The visiting botanist was a specialist in the Snapdragon family of plants, and was collecting specimens from various "type localities" in the region. 31. Science: Botany. [MS1042].

[MS1043]. Cooke, William Bridge 1908-1991. **Dr. Clausen in Search of Shasta Fern**. In: Mount Shasta Herald. Mt. Shasta, Calif.: Aug. 8, 1940. Records the visit by Dr. Robert Clausen, president of the American Fern Society. The author and Dr. Clausen searched Mud Creek Canyon for specimens of Stonecrop which were first collected on Mt. Shasta. Mt. Shasta was the "type locality" for these Stonecrop plants. 31. Science: Botany. [MS1043].

[MS234]. Cooke, William Bridge 1908-1991. **Preliminary Host Index to Fungi of Mount Shasta, California**. In: The Plant Disease Reporter. Oct. 1, 1940. Supplement 123. pp. 125-133. Issued by the Division of Mycology and Disease Survey, Bureau of Plant Industry, United States Department of Agriculture. In this paper the word 'host' signifies a plant or tree which acts as a host to one or more saprophytic and/or parasitic fungi. The research for the paper was carried

out during the summers of 1937-1939, while the author was the custodian of the Shasta Alpine Lodge for the Sierra Club of California. Most of the paper consists of a list of about 70 plants or trees and their associated fungi. Much of the time was spent studying the Shasta Red Fir (*Abies magnifica* var. *shastensis*), and about fifty separate species of fungi were found to grow on or with this tree. 31. Science: Botany. [MS234].

[MS237]. Cooke, William Bridge 1908-1991. **First Supplement to the Flora of Mount Shasta.** In : American Midland Naturalist. 1941. Vol. 26. pp. 74-78. 31. Science: Botany. [MS237].

[MS236]. Cooke, William Bridge 1908-1991. **The Problem of Life Zones on Mount Shasta.** In : Madrono. 1941. Vol. 6. pp. 49-56. Cooke outlines the difficulties in applying C. Hart Merriam's "Life Zone" concepts to the upper reaches of Mount Shasta (see Merriam 1899). Most of the problem lies in the contradictory fact that Mount Shasta plants which form an association characteristic of Merriam's Arctic-Alpine zone also grow in the same association in places below the Hudsonian zone timberline. Cooke concludes that no Alpine botanical zone really exists on the mountain (p. 55). 31. Science: Botany. [MS236].

[MS468]. Cooke, William Bridge 1908-1991. **Cooke Visits Shasta's Ghost Forest, Tells of Mistletoe Growth.** In: Mount Shasta Herald. Mt. Shasta, Calif.: Aug. 28, 1941. At the 8,000 foot level of Shastina the author encountered a large number of dead trees, all killed by a mistletoe infection. 31. Science: Botany. [MS468].

[MS470]. Cooke, William Bridge 1908-1991. **Cooke Tells of Plant Life, Weeds on Shasta.** In: Mount Shasta Herald. Mt. Shasta, Calif.: Oct. 2, 1941. p. 1. Begins with a far-ranging discussion of the evolution of weeds on the planet. Cooke then tells of the progressive encroachment on Mt. Shasta by the Russian Thistle. 31. Science: Botany. [MS470].

[MS247]. Cooke, William Bridge 1908-1991. **Notes on the Ecology of the Fungi of Mount Shasta.** In : American Midland Naturalist. 1944. Vol. 31. pp. 237-249. 31. Science: Botany. [MS247].

[MS471]. Cooke, William Bridge 1908-1991. **Wm. B. Cooke Talks on Mount Shasta Before Group at Spokane.** In: Mount Shasta Herald. Mt. Shasta, Calif.: Mar. 6, 1947. p. 4. A detailed discussion of the 'Life Zones' on Mt. Shasta. 31. Science: Botany. [MS471].

[MS238]. Cooke, William Bridge 1908-1991. **Second Supplement to the Flora of Mount Shasta.** In : American Midland Naturalist. 1949. Vol. 41. pp. 174-183. 31. Science: Botany. [MS238].

[MS241]. Cooke, William Bridge 1908-1991. **Fungi of Mount Shasta.** In: Sydowia: Annales Mycologici Series II. 1955. Vol. 9. No.1-6. pp. 94-215. Cooke presents a truly amazing amount of data about the fungi of Mt. Shasta. Field work was conducted from 1936 to 1951. Hundreds of fungi and the locations where they were found are listed. Comments on locations vary from simple to detailed. Frequent mention is made of Horse Camp, Panther Meadows, Wagon Camp, Squaw Valley, Sand Flat, etc.

Cooke's work has practical implications for monitoring the health of the Mt. Shasta forests. Consider the following entry: "*Pucciniastrum sparsum* ...On *Arctostaphylos patula* [common name of this host plant is Green Manzanita] - Seen only on the McCloud (south) side of the mountain where it was collected on each of two years in the chaparral along a road below the Squaw Valley Creek spring. It infects, and apparently kills, the leaves of an entire shrub. It was not ascertained whether this action thus kills the host or merely weakens its succeeding growth" p. 150.

Many of the fungi entries are species which were first discovered by Cooke himself. Cooke was one of the world's scientific authorities on fungi.

A bibliography on pp. 116 contains references to Cooke's works, including several papers possibly not listed elsewhere. 31. Science: Botany. [MS241].

[MS239]. Cooke, William Bridge 1908-1991. **Third Supplement to the Flora of Mount Shasta.** In : American Midland Naturalist. 1958. Vol. 70. pp. 386-395. 31. Science: Botany. [MS239].

[MS472]. Cooke, William Bridge 1908-1991. **Cooke Describes Observations of Plant Life on Mount Shasta.** In: Mount Shasta Herald. Mt. Shasta, Calif.: Aug. 23, 1962. 'Part of a paper to be presented by Dr. William Bridge Cooke at the annual Foray of the Mycological Society of America at Corvallis.' A paper on the vegetative patterns of the earth in general and Mt. Shasta in particular, from the perspective of geological history. 31. Science: Botany. [MS472].

[MS246]. Cooke, William Bridge 1908-1991. **Fungi in Burned and Unburned Chaparral Soils**. In: Sydowia: Annales Mycologici Series II. 1971. Vol. 24. pp. 164-168. 31. Science: Botany. [MS246].

[MS465]. Cooke, William Bridge 1908-1991. **H. E. Brown and the Plants on the 'North Side of Mount Shasta'**. In: Madrono. July, 1972. Vol. 21. No. 7. pp. 487-489. In the late 1890s one H. E. Brown, of whom almost nothing is known, collected and labeled plant specimens from the Mt. Shasta area. Wm. Bridge Cooke, noted 20th Century botanist and specialist of the flora of Mt. Shasta, first became aware of Brown's labeled specimens around 1940. Cooke attempted to determine the accuracy of Brown's collecting location notes. As many as 1500 Pacific Coast plant specimens were collected by Brown and of these about 120 were labeled as from Mt. Shasta. Cooke concludes after detailed discussion that "it is suggested that monographers be exceedingly careful about the citation of a plant collected by H. E. Brown 'on Mount Shasta.' It is entirely possible that the specimen was collected elsewhere. This could have been in the neighboring mountains, especially in the Wagon Creek drainage on Mount Eddy" (p. 489). 31. Science: Botany. [MS465].

[MS240]. Cooke, William Bridge 1908-1991. **Fourth Supplement to the Flora of Mount Shasta**. In : Northwest Science. 1977. Vol. 51. pp. 71-78. 31. Science: Botany. [MS240].

[MS466]. Cooke, William Bridge 1908-1991. **The Ecology of Fungi**. Boca Raton, Fla.: CPC Press, 1979. Textbook on all aspects of basic mycology, written by the author of the Flora of Mt. Shasta. The textbook represents the accumulated knowledge of a lifetime of fungi studies. Although the book is theoretical and not directly related to Mt. Shasta it is in a sense the author's masterwork. 31. Science: Botany. [MS466].

[MS2097]. Coville, C. V. **The Forest: The Shasta Fir (Abies Shastensis)**. In: Garden and Forest. Dec. 29, 1897. pp. 516-517. Consists of a travel account to the Cascades by a botanist who wishes to compare the *Abies nobilis* with the *Abies magnifica* and *Abies Shastensis*. Contains considerable history of the various botanists who have worked on this taxonomy, and refers several times to collections in England. Also contains personal anecdotes of travel. 31. Science: Botany. [MS2097].

[MS734]. Coville, Frederick V. **The Itinerary of John Jeffrey, An Early Botanical Explorer of Western North America**. In: Proceedings of the Biological Society of Washington. Mar. 23, 1897. Vol. 11. pp. 57-60. The author explains how a group of gentlemen met at the Botanical Gardens in Edinburgh, Scotland in Nov. 1849 to form the "Oregon Botanical Association." Their purpose was to send a botanist to Oregon to complete and extend the researches of botanist David Douglas, who in 1826 had explored the Willamette Valley and gone as far south as far as the Umpqua River. John Jeffrey, a Scottish botanist, was selected for the assignment. Jeffrey sailed from London in May of 1850, traveled by land through Canada from the East Coast to the West Coast and reached Fort Vancouver on the Columbia River by May of 1852.

Coville states that after two months at Fort Vancouver: "...he next engaged in an expedition, from about August 1 to November 1, to the valleys of Umpqua, Klamath, Trinity, and Rogue Rivers, Siskiyou Mountains, Cascade Mountains, and Mount Shasta, all in southern Oregon and northern California" (p. 59)....In the following season, 1853, he repeated in part his work of the preceding year, collecting in the Umpqua Valley and the Siskiyou Mountains on Clear Creek, Mount Shasta, Applegate River, Scott Mountains, and the Coast Range, on the Sierra Nevada in latitude 38°, in the Sacramento Valley, and the American fork of the Sacramento, and at San Francisco Bay" (p. 59).

Coville does not discuss Jeffrey's great 1852 discoveries of new species: the Jeffrey Pine (*Pinus Jeffreyi*) which he found in the Shasta Valley, and the Foxtail Pine (*Pinus Balfouriana*), which he found in the Scott mountains. Jeffrey himself named the latter species, naming it for J. H. Balfour, chairman of the "Oregon Botanical Association." Jeffrey is known to have climbed to the 9000 foot level on Mt. Shasta (see Jepson 1942). 31. Science: Botany. [MS734].

[MS901]. DeBuhr, Larry Eugene. **Distribution and Reproductive Biology of *Darlingtonia Californica***. Claremont Graduate School, 1973 (Thesis, Master's). *Darlingtonia californica*, or the California Pitcher Plant, has since 1841 been associated with the greater Mount Shasta region. In that year the large and unusual species of insectivorous plant was discovered by William D. Brackenridge near the base of Castle Crags. The plant, then new to science, was considered the greatest botanical find of the United States Exploring Expedition of 1838-1842.

The author's thesis attempts to record the locations of all known populations of the plant. The plant exists at many locales in the Pacific Northwest and California. 31. Science: Botany. [MS901].

[MS248]. Dickson, Bruce Anderson 1917 and Crocker, R. L. **A Chronosequence of Soils and Vegetation near Mt. Shasta, California**. In: Journal of Soil Science. 1953. Vol. 4. pp. 123-141. 31. Science: Botany. [MS248].

[MS233]. Eastwood, Alice 1859-1953. **The Alpine Flora of Mount Shasta**. In: *Erythea: A Journal of Botany*. 1896. Vol. 4. pp. 136-142. Alice Eastwood was a famed botanist for the San Francisco Academy of Sciences. Being interested in the geographical distribution of plants, especially of alpine plants of the West, she arranged a trip to Mount Shasta. She says: "It was to learn about the alpine flora of Mt. Shasta that in August, 1893, I ascended that grand snow-capped mountain, ....Above timber line, however, where I had expected to see wonderful flower gardens full of old favorites and rare species new to me, where flowers of every color, beautiful in form and luxuriant in abundance would make the earth so lovely that the remembrance would be a never failing delight, the appearance was bleak, barren, and utterly disappointing. Instead of meadows full of flower-bordered rivulets there were huge cliffs of volcanic rock and immense fields and slopes of snow" (pp. 138-139). Undaunted, the author noted all the species to be seen; the list is included in this article. The final two pages of the article offer explanations of why there are few species of alpine flora on Mount Shasta. She thinks that a scarce alpine water supply exists because the volcanic soil and rock allow the water to sink down through the mountain. Scarce water alone is not sufficient to explain the paucity of species, and she continues to theorize that the mountain's isolation, and volcanic activity, perhaps combine to make Mount Shasta botanically deficient (p. 142). 31. Science: Botany. [MS233].

[MS1035]. Eastwood, Alice 1859-1953. **An Account and List of the Plants in the Brackenridge Journal**. In: *California Historical Society Quarterly*. Dec., 1945. Vol. 24. No. 4. pp. 337-342. Appears as a companion article to: Alice Bay Maloney 'A Botanist on the Road to Yerba Buena' In: *CHSQ* Vol. 4, No. 4, Dec. 1945, p. 323-336. Alice Eastwood, a distinguished early 20th Century California botanist, identified the plants noted in the 1841 journal of United States Exploring Expedition botanist William Dunlop Brackenridge. She states: "From Brackenridge's journal it is evident that he had an excellent general knowledge of plants, gained from his early study of botany, from his experience as a gardener on estates in Scotland and in Poland, and from what he had learned at the Berlin Botanical Garden. He recognized well-known genera along the route, and the families to which the plants belonged; but, with few exceptions, the species were unknown to him, since the flora of California is unique among world floras. His description of those he did not know, however, and his likening them to plants with which he was familiar, were of much help in making the identifications; and besides, I have made many collecting trips in the area through which the expedition passed" (p. 336).

Approximately 100 plants were noted by Brackenridge, and most of these have been given modern scientific names by Eastwood. Note that she identifies Brackenridge's "Thuya," as "Port Orford Cedar." She writes: "Thuya, the Oregon Cedar, is also not native in California. The tree Brackenridge saw was undoubtedly *Chamaecyparis Lawsoniana*, Lawson's cypress (Port Orford cedar), whose foliage somewhat resembles that of Thuya. Lawson's cypress can be seen today near Shasta Springs" (p. 338). Note that the Port Orford Cedar, a rare tree native only to northern California and southern Oregon, was not yet named by science in 1841. If indeed Brackenridge had collected a specimen of the tree, he may have been the first to do so. 31. Science: Botany. [MS1035].

[MS1292]. Eisenbrey, Norris. **Eponymous Plants of Mt. Shasta (together with) Eponymous Creatures of Mt. Shasta**. 1992. Unpublished lists. 16 plants and 6 creatures whose names contain the word 'Shasta' either as a common name or as a latinized scientific name. Gives source references in which these names are used.

Plants: Shasta Alpine Aster (*Machaeranthera shastensis*, four varieties), Shasta Blue Bell (*Campanula Wilkinsiana*), Shasta (Shrubby) Knotweed (*Polygonum shastense*), Shasta Lily (*Lilium Washingtonianum* var. *minus*), Shasta Lupin (*Lupinus albicaulus* var. *shastensis*), Shasta Penstemon (*Penstemon speciosus*), Shasta Star Tulip (*Calochortus shastensis*), Shasta Jacob's Ladder (*Polymonium pulchellum*), Shasta Red Fir (*Abies magnifica* var. *shastensis*), Shasta Daisy ( -- ), Shasta Arnica (*Arnica viscosa*), Shasta Eupatory (*Eupatorium shastense*), Shasta Fern (*Polystichum Lemmonii*), Shasta Clover (*Trifolium productum*), Shasta Paintbrush (*Castilleja arachnoidea* spp. *shastensis*, -- (*Trifolium longipipes* var. *shastensis*).

Animals listed are: Shasta Rainbow Trout, Shasta Brown Trout, Shasta Salamander, Shasta Crayfish, Shasta Alligator Lizard, Sheep Moth (*Hemileuca eglanterina shastensis*).

Note that the preceding lists, although not exhaustive, give a good indication of the significance of Mt. Shasta as the dominant landmark of the northern California bioregion. 31. Science: Botany. [MS1292].

[MS2095]. Freeman, Linda. *Mount Shasta: A Boreal Island*. 1998. <http://www.snowcrest.net/cnps/98marapr.htm> Website. A brief history of the idea that a chain of Boreal Islands exists along the Cascade Mountains. Compares Mount Shasta boreal plant species with those of mountains to the north and to the south. 31. Science: Botany. [MS2095].

[MS242]. Frenkel, R. E. **Floristic Changes along the Everitt Memorial Highway, Mount Shasta, California**. In: *The Wasmann Journal of Biology*. 1974. Vol. 32. pp. 105-136. 31. Science: Botany. [MS242].

[MS2096]. [Furber, Dr. **The New Remedy, 1870**. In: Yreka Journal. July 27, 1870. col. 6-7. p. 4. Article and advertisement. "Dr. Furber's Cordial of Mountain Balm and Oregon Grape, Two Plants abounding on the base of, and on the Mountains Surrounding Mount Shasta California" "Restorer of the Blood, and acting equally as surely, and as well on the lungs as the stomach, is superior to other cough medicines, by bringing both to bear with the stimulated action of the whole skin in throwing off disease of either" 31. Science: Botany. [MS2096].

[MS1034]. Gilman, Daniel Coit. **Life of James Dwight Dana: Scientific Explorer Mineralogist, Geologist, Zoologist, Professor in Yale University**. New York: Harper and Brothers, 1899. This biography of the great American geologist James Dwight Dana contains some general information about Dana's participation on the Wilkes-Emmons overland expedition of 1841.

The author provides information about W. D. Brackenridge's discovery of the *Darlingtonia californica* in what may be the first time in print of the legend that Brackenridge had only time enough to grasp a plant and run. Gilman states: "The story is told of him, that on his way from Mount Shasta to San Francisco, an alarm from the Indians caused the party of explorers to run. Brackenridge saw a strange looking plant, grabbed a clump of it, and carried it to camp. This was the *Darlingtonia Californica*" (pp. 62-63).

Alice Bay Maloney, in her account of Brackenridge entitled *A Botanist on the Road to Yerba Buena* (California Historical Society Quarterly, Vol. 4, No. 4, Dec. 1945, p. 323), discusses the above mentioned legend and credits Dana as having told the story to Gilman. Note however that Gilman does not credit Dana with the story, and may have learned the story from someone else. D. C. Gilman was president of John Hopkins University, according to information provided on the title page. 31. Science: Botany. [MS1034].

[MS566]. Greene, Edward Lee 1843-1915. **New and Noteworthy Species**. In: *Pittonia*. 1899-1901. Vol. 4. pp. 36-40. Historically important publication reporting plants from Mt. Shasta as being the type specimens for newly discovered and/or newly described species. Also gives details relating each plant to either the name of its discoverer on Mt. Shasta, or to the plant's Mt. Shasta alpine location. The sometimes collaborative scientific process of identifying and naming new species is indirectly revealed in this article. The plants are: *Arnica Merriami*, *Agoseris monticola*, *Campanula Wilkinsiana*, *Pyrolla pallida*, and *Phacelia frigida*.

According to Munz (see Munz 'A California Flora' combined edition 1973), *Arnica Merriami* is now *A. mollis*. *Agoseris Monticola* is now *A. glauca* var. *monticola*. *Campanula Wilkinsiana* is still *Campanula Wilkinsiana*. *Pyrolla pallida* is now *P. picta* Ssp. *dentata*. And *Phacelia frigida* is now *P. frigida* Ssp. *frigida*.

Note that all five of the Mt. Shasta species were collected by C. Hart Merriam or his associates in 1898 as part of the first Biological Survey of Mt. Shasta. Greene named one species after Merriam.

Contains descriptions of five plant species from Mt. Shasta, comprising half of the ten species described in the 'New or Noteworthy Species-XXIV' section of the 1899-1901 'Pittonia.' The author devotes two paragraphs to each plant, the first paragraph describing in English the botanical characteristics, and the second paragraph giving collecting dates and locations, plus details of comparison to similar species.

Example of collecting dates and location descriptions : '*Campanula Wilkinsiana*.....Head of Squaw Creek, Mt. Shasta, California, at an altitude of about 8,000 feet, August and September, 1898, Miss Lewanna Wilkins. A beautifully distinct *Campanula* , with no near relative south of Alaska and the Olympic Mountains; and perhaps nearest *C. aurita*, Greene, of those regions. The calyx in *C. Wilkinsiana* is destitute of auricles or appendages.

Example: '*Pyrola pallida*. ....Dr. C. Hart Merriam has lately shown it to me as collected by himself on Red Cone, near Mt. Shasta, July, 1898, and his insistence upon it as a plant wholly distinct from *P. picta* has led me to examine into its characters with the result of my coming to a full agreement with him in his opinion' (p. 39). 31. Science: Botany. [MS566].

[MS791]. Harvey, A. G. **John Jeffrey: Botanical Explorer**. In: *The Siskiyou Pioneer in Folklore, Fact and Fiction and Yearbook*. Siskiyou County Historical Society. 1947. pp. 17-19, 39. A condensation of an article published in the October, 1946, *British Columbia Historical Quarterly*. The editors of the *Siskiyou Pioneer* add a note that: "John Jeffrey discovered and named, here in Siskiyou County, one of our most important commercial timber trees, the Jeffrey Pine and one of our most interesting timberline trees, the blue-green Foxtail Pine, as well as our native Penstemon."

Of Jeffrey's Siskiyou County experiences the author writes: "On September 9 and 11 [1852] he collected in the Klamath Valley, just across the California border, and by the 27th he had reached Mount Shasta. On the 29th, on the mountains between Shasta and Scott Valleys, he discovered *Pinus Balfouriana* Jeffrey (the bright blue-green foxtail pine), which he named. After visiting the Salmon Mountains and the Trinity Mountains he turned back in October, and on the 24th, in Shasta Valley, discovered *Pinus Jeffreyi* Balf., (which closely resembles the western yellow pine). By December 4 he had reached Mount Jefferson, and soon afterwards he got back to Fort Vancouver, where he spent the winter. (The

Hudson's Bay Company was still in occupation.) In the spring he went south again, leaving about April 6, 1853, when he was advanced \$500 by the Company. He collected in Umpqua Valley between April 23 and May 3, among his finds being *Whipplea modesta* Torr., (a shrub of the *Hydrangea* family). He was in the Rogue River valley on May 15, in the Siskiyou Mountains on the 23rd, and at Mount Shasta on June 10th. Next day, at Clear Creek he discovered *Penstemon Jeffreyanus* Hook. On June 18 he was at Scott Mountain. The next six weeks were spent in this region and southwards to the Coast Range. He then went south and east to the Sacramento Valley and the Sierra Nevada Mountains for August and September, working still southward. On October 1, in the Sierras, he discovered *Cupressus McNabiana* Murr. (the very rare McNab cypress), and by the 7th he had reached San Francisco...in January, 1854...he sent off his last box of plants and seeds..." (pp. 18-19).

In the spring of 1854 Jeffrey sent a letter from Fort Yuma, at the confluence of the Gila and Colorado Rivers. He was never heard from again and presumably perished somewhere in the Southwest. 31. Science: Botany. [MS791].

[MS243]. Herre, Albert William C. T. 1868-1962. **The Lichen Flora of Mount Shasta, California.** In: *The Bryologist*. 1950. Vol. 53. pp. 43-54. From the introduction it appears that Dr. Herre was the one who identified the lichens collected by William Bridge Cooke. Herre says: "The 82 lichens collected here presented are all that have been obtained by Mr. Cooke as yet. It is hoped that he or others may further extend our knowledge of the Mount Shasta lichen flora" (p. 44). The introductory remarks are quite detailed as to the locations of Cooke's collecting and the descriptions of lichen habitats will interest the naturalist reader. For example, Herre writes: "...often four to six species are crowded together on a small rock surface, although usually the greater part of the area is taken up by one or two species. Curious effects may be observed on the small bosses, knobs, and humps which are so common a feature of the andesite lavas, where two, three, or more species compete for space on both the upper and lower or inner and outer surfaces of the rock" (p. 46). 31. Science: Botany. [MS243].

[MS569]. Hill, Tod. **A Lady's Adventure.** In: *San Francisco Call*. San Francisco, Calif.: Sept. 7, 1893. p. 11. Source: Stuhl I says Sept. 7; Source of Citation: Stewart 1929 #217 says Sept. 17. Alice Eastwood's (famous botanist) Shasta climb, written from an interview. 40. Find List/31. Science: Botany. [MS569].

[MS910]. Houghton, Kenneth W. **Shasta Daisies: Summer Mainstays.** In: *Horticulture*. Aug., 1953. pp. 334, 345. The *Chrysanthemum* garden flower known as the Shasta Daisy is defined by the author: "The shasta as we now know it is a true hybrid - the result of crosses between *C. leucanthemum*, *C. maximum*, *C. lacustre*, and *C. nipponicum*. These are all white, single daisies differing primarily in habit of growth, and from them the semi-double and double varieties were originally achieved through careful selection" (p. 334).

Note that the Shasta Daisy known as "*C. maximum*" is considered naturalized in some locations on the Pacific Coast (see Abrahms and Ferris "An Illustrated Flora of the Pacific States" 1960, Vol. 4, p. 394). None of the varieties known as the Shasta Daisy are native to California, and none are known grow on Mt. Shasta (see Stuhl 1981). The origin of the name "Shasta Daisy" is uncertain; Luther Burbank, the eminent horticulturalist, was an active worker with the plant and may have named it. 31. Science: Botany. [MS910].

[MS1067]. Imper, David. **Ecological Survey of the Proposed Shasta Red Fir Research Natural Area. PO No. 43-9AD6-7-0708.** Redding, Ca.: USDA, Forest Service, Pacific Southwest Forest and Range Experiment Station, May, 1988. Unpublished report. Source of Citation: DEIS MSWP 1990, p. VII-2. 31. Science: Botany/40. Find List. [MS1067].

[MS679]. Jepson, Willis Linn 1867-1946. **Early Botanical Ascents of Mount Shasta.** In: *Sierra Club Bulletin*. 1942. Vol. 27. No. 4. pp. 23-30. Jepson, one of the great 20th Century California botanists, discusses the early botanical investigations conducted on Mt. Shasta. Among the botanists historically considered are the Scotsman John Jeffrey (for whom the Jeffrey Pine is named) who ascended to the 9000 foot level on September 30, 1852, and who made the first field notes about the Whitebark Pine he collected at timberline. Jeffrey also discovered the Jeffrey Pine in Shasta Valley on Oct. 24, 1852. William Henry Brewer climbed the mountain in 1862 and wrote the first major botanical report on California flora. The great American botanist Asa Gray and the famous English botanist John Hooker visited Mt. Shasta in 1877, with John Muir as a participant. John Gill Lemmon, who first named the Shasta variety of the Red Fir, climbed Mt. Shasta in 1879. In 1881 Cyrus Pringle, a noted American botanist well known for his Mexico explorations, discovered a new species of the Borage family at the 6000 foot level of Mt. Shasta. Jepson cites visits to Mt Shasta by the botanists Drew and Chestnut in 1889, and Palmer in 1892. In 1894 Jepson, Howe, and Blasdale together climbed to the summit of Mt. Shasta.

Jepson writes that: "In relation to the problems of plant distribution on the Pacific Coast, Mount Shasta has greater

botanical significance than could have been appreciated by botanists in Brewer's day. The presence or absence of alpine and high-montane species on the mountain in relation to the flora of Lassen Peak, the flora of the Salmon Mountains region westward, or the flora of the Cascade volcanic peaks northward, has a deep interest for plant geographers. Exploration of the mountain will continue for long and there will ever be new conclusions formed from a study of its flora as long as there are scientists interested in the geographic distribution of living organisms" (p. 29). 31. Science: Botany. [MS679].

[MS2005]. Lanquist, Karl. **Mt. Shasta Forest Tree Nursery**. Shasta-Trinity National Forest, 1955. 14pp. with 7 photographs. First seeded in 1947, by 1955 it was recorded that 5,000,000 trees were grown annually at the 45 acre Mt. Shasta Forest Tree Nursery on the east side of Mount Shasta. The author explains that the trees are replanted in the forest at 680 trees per acre, and thus all those trees actually only replant 7,000 acres. This booklet is an interesting historical view of the methods then used for preparing cones and for seeding beds. One example of the methods used was to melt the six feet of winter snow at the site more quickly by spreading a thin layer of dry soil over the snow in the Springtime. Seasonal labor was mostly women from McCloud and Potosi. 31. Science: Botany. [MS2005].

[MS1212]. Lemmon, John Gill 1832-1908. **Three West-American Conifers**. In: Garden and Forest. May 12, 1897. John Gill Lemmon first named the Shasta Red Fir as a variety of the California Red Fir, the *Abies Magnifica* var. *Shastensis*, Lemmon (Lemmon 3d. Bienn. Rep. Cal. St. Bd. Forestry, 1890, p. 145). In 1897 he has renamed this tree as a separate species, the *Abies Shastensis*. He begins by stating his overall reasons for the change: "Several so-called marked varieties of our western conifers, I am convinced, are entitled to take rank as species. Crowding two or more marked forms into one polymorphous group, while it emphasizes the fact that they are related, gives us little other knowledge of them. We know in this age of the world that all groups of plants are connected, more or less closely, and we believe that they are all derived from a few simple, primordial forms. As we meet with the termini of these lines of development we find them greatly diversified while also retaining vestiges of kinship. We advance knowledge of these lines--these genera and species--more by detecting and separating than by ignoring and generalizing."

"Prevalence of the following forms over large forest areas, combined with many conspicuous differences, both in habitat and structure, demands, in my opinion, this long-delayed recognition" (p. 183). Note that counter to Lemmon's wishes, modern botanical taxonomy has retained only the "*Abies Magnifica* var. *Shastensis* Lemmon" categorization.

Lemmon names the new species of Shasta Red Fir as *Abies Shastensis*, nom nov., and says: "--This, the Shasta Red Fir, often attains a medium size, 100 to 120 feet in height, with a diameter of three to four feet. Bark dark outside, red within, deeply furrowed; foliage less robust than that of the typical *Abies magnifica*; the cones usually elliptical, with more protuberant scales, the apophyses clothed with short, stiff, recurved, brownish hairs; the scale bracts usually developed to a great length, extending one half to one inch from between the scales. Headquarters around the base of Mount Shasta, California, at altitudes of 5,000 to 8,000 feet, forming a large dense, almost exclusive Fir forest..." (p.184). 31. Science: Botany. [MS1212].

[MS474]. Lemmon, John Gill 1832-1908. **Conifers of the Pacific Slope: How to Distinguish Them**. In: Sierra Club Bulletin. 1898. Vol. 2. pp. 156-172. John Gill Lemmon was the botanist who in 1890 first published that the Shasta Red Fir was a separate variety of the Red Fir. (For Lemmon's fascinating account of climbing to the summit of Mt. Shasta in 1879 see Section 11. Mountaineering: 19th Century).

In this paper Lemmon described the details of the Shasta Red Fir and then wrote: "Forms a dense, almost exclusive forest, on the high lava plateau of Mount Shasta, with a few trees scattered on the volcanic summits of neighboring peaks. Has been confounded with the preceding--*Abies magnifica*--but Dr. Murray founded that species upon very different trees....Published as a variety of the Magnificent Fir, 1890, and recently raised to the rank of species."

A footnote adds: "*A. magnifica*, var. *Shastensis*, Lemmon. Third Report State Board Forestry, 1890, and *A. Shastensis*, Lemmon, N. Sp., in Garden and Forest, May 12, 1897." 31. Science: Botany. [MS474].

[MS1136]. Lloyd, Marquiss. **Violins From California's Fir Trees**. In: Los Angeles Times Sunday Magazine. Los Angeles, Calif.: Mar. 22, 1931. p. 14. Feature story about a Mt. Shasta violin maker who found high on the mountain the nearly perfect wood for his instruments: "There is a man living at the foot of Mt. Shasta, California, who makes violins from the wood of a certain tree that grows on its slopes. He will tell you that in the hearts of these trees there is the reverberation of the storm, the roaring of the winds, the thundering of cataracts, the rustle of spring, the warmth of summer sunshine, the sadness of autumn and the white silence of winter. He will tell you that he is striving to set free these qualities in the vibrant tones of his instruments....For several years he wandered afoot from State to State making his own selections and tests, but it was not until he reached McCloud, Cal. in August 1925 [1925] that his quest ended....At first experts declared his find was a species which grew thickly from the Siskiyou Mountains to Fresno, Cal., but later a



dissimilarity was revealed in the cones, needles and foliage, also there was found to be a difference of about 75 percent between the tone quality and resonance and that of the species to which the experts had referred still later, it was ascertained that Mt. Shasta is the sole habitat of the fir which Mr. Bedell chose for his use."

As to the exact identity of this Mt. Shasta tree species, the author says: "Today when its crater is cooled and its peak crowned with eternal snows, a man has reawakened the world's interest in its coveted wood of the silver needle fir--by discovering among its verdure the *Abies Magnifici*, as used three centuries ago by Stradivarius, the violin maker of Cremona, Italy." Judging from these descriptions and others in the text, the tree was *Abies magnifica* var. *shastensis*, the Shasta Red Fir.

The author says that "In his workshop are several half finished reproductions of Amati, Stradivarius and Guarnerius models. Most of these are orders from prominent American violinists. Recently Mr. Bedell made an Amati model for an artist in Moscow, Russia. While his instruments sell for hundreds of dollars, the pre-eminent concern of this genius of the Northwest is the creation of a perfect violin." 31. Science: Botany. [MS1136].

[MS475]. Matthes, Lester J. **The Plant Communities of Mount Shasta**. University of Minnesota, June, 1942 (Thesis, Master's). 153 pp. A major ecological study based on systematic surveying of about 650 square miles during the summers of 1938 and 1940. Contains discussions of climate, soils, geography, etc. The major portion of the thesis is devoted to describing the plant communities and listing the individual plant species of each community. Contains dozens of excellent black and white photographs of the various plant regions on Mt. Shasta. These photographs contribute greatly to the ecologic historical value of this report.

Plant communities discussed are: Sagebrush-juniper climax, Grassland climax, Chaparral climax, Western yellow pine-sugar pine-incense cedar climax, Chaparral subclimax, Lodgepole pine subclimax, Shasta fir climax, Timberline zone, Alpine zone. Contains a brief bibliography. 31. Science: Botany. [MS475].

[MS2018]. McVaugh, Rogers 1909. **Edward Palmer, Plant Explorer of the American West**. Norman, OK: University of Oklahoma Press, 1956. xvii, 430 p. illus., ports., maps, facsimis. 24 cm. 'References and sources': p. 403-420. In 1892, Palmer collected grasses from Sisson, Calif. to the timberline of Mount Shasta (p. 322). 31. Science: Botany. [MS2018].

[MS592]. [Morse, Elizabeth E. **Trailing a Puffball: A Rare Plant, Supposed To Be Limited to the Sierra**. In: Mount Shasta Herald. Mt. Shasta, Calif.: Aug. 20, 1928. 'Trailing the Sierra Puffball' by Elizabeth E. Morse was published in the Sierra Club Bulletin, Vol. 14, No. 1, Feb 1929, pp. 61-63. Morse reports finding a species of the fungus on Mount Shasta and other locations. Article contains a letter from U. C. Berkeley botanist Elizabeth E. Morse. She notes that: "This season the writer has found this mushroom growing at Mount Shasta City and Medicine Lake, Mt. Shasta, thus moving its locality about 100 miles north. And now it has jumped its lauded boundary into another state [at Crater Lake, Ore.]. Has anyone ever seen a plant answering this description on Mount Hood? The Sierran puffball appears to be a mountain species. Just how it grows and forms its peridial pryamids, and why it appears in such a limited area, are problems which are concerning some people in the botanical world." 31. Science: Botany. [MS592].

[MS649]. Newberry, John Strong 1822-1892. **Botany of the Route**. In: **Reports of Explorations and Surveys to Ascertain the Most Practicable and Economical Route for a Railroad from the Mississippi River to the Pacific Ocean. Made under the Direction of the Secretary of War, in 1854-1855, According to Acts of Congress of March 3, 1853, May 31, 1854, and August 5, 1854. Volume VI. 33rd Congress. 2d Session. House Document 91**. Washington, D.C.: A.O.P. Nicholson, Printer, 1857. Part 3. pp. 1-102, following Parts 1 and 2. Illustrated with full-page plates in both black and white and color. J. S. Newberry, namesake of the Newberry Crater volcano in southern Oregon, wrote the geological, botanical, and zoological reports for the 1854-1855 Abbot (see Abbot 1857) and Williamson Railroad Survey. It is assumed that Newberry was a member of the expedition. 31. Science: Botany. [MS649].

[MS534]. Reedy, Terry Jan. **Vegetation Changes along a Mount Shasta, California, Roadside in Relation to theories of Community Dynamics**. Davis, Calif.: University of California, 1979 (Thesis). Source: Zanger: UCD Main Lib. LD 781 D5j 1979 R445 Microcopy Rm. Also, UCB has circulating microcopy (2 sheets). 40. Find List/31. Science: Botany. [MS534].

[MS1068]. Roy, D. F. and others. **Reconnaissance Report for Proposed Shasta Red Fir Research Natural Area (formerly Red Fir Ridge and Red Butte RNA Proposals)**. Redding, Calif.: USDA, Forest Service, Pacific Southwest

Forest and Range Experiment Station, 1982. Source of Citation: DEIS MSWP 1990, p. VII-2. 31. Science: Botany/40. Find List. [MS1068].

[MS2094]. [Stuhl, Edward. **Correspondence with U.S.D.A and New York Botanical Gardens, [RE: Collecting Rare Plants in the 1940's]**. circa 1940-1950. Edward Stuhl, noted Mt. Shasta climber and artist, was asked to collect rare plants from locations on and about Mt. Shasta. These plants were used in war research for anti-malarials, insecticides, and repellents. Specific plants were requested to be collected, for example, the letter of Aug. 19, 1944, asks Stuhl to collect *Tofieldia occidentale*, which was known to exist at Wagon Camp Meadows and McGuinness Meadows (both on the south slopes of Mt. Shasta.) 31. Science: Botany. [MS2094].

[MS931]. Stuhl, Edward 1887-1984. **Mt. Shasta, Her Trees, Plants**. In: Mount Shasta Herald. Mt. Shasta, Calif.: Nov. 8, 15, 22, 1928. p.2 (Nov. 8); p. 3 (Nov. 15); p.6 (Nov. 22). Three-part article. 'Specially Written for the Mount Shasta Herald.' Edward Stuhl was one of the most respected mountaineers of Mt. Shasta. Part One of his series consists mostly of an autobiographical account of years of discovery of the unusual plants at the higher elevations. The article begins: "After several years of studying and exploring that sublime snow-clad peak of Northern California, Mount Shasta, I am becoming more and more convinced that this great mountain is worthy of holding rank with all the best known heights of North America in which the nature lover and mountaineer takes pride. And yet Shasta has not been appreciated as it deserves....I have mused on the mountain far above the noise and haste of the world for days and weeks; made myself familiar with the rocks, the flowers, the trees and the animals, and noticed that many fellowmen come to the mountain bringing too much of the noise and the haste of the world with them" (p. 2 Nov. 8). Stuhl discusses climbing and future trails around the mountain.

Part Two discusses the plants around the mountain. For example: "On the way up through the shady Shasta fir belt we notice a few plants which are not common throughout the country; these are wild ginger (*Asarum hartwegi*), shinleaf (*Pyrola picta*), pipsissewa (*Chimaphila Menziesi*), and pine-drops (*Pterospora andromedae*). These four species are by no means conspicuous for their largeness, brightness or density in the shade; but at close acquaintance we find them very beautiful and worthy to adorn the finest botanical garden" (p. 3 Nov. 15).

Part Three discusses the mountain's glaciers, and the plants encountered at the headwaters of the creeks which start from these ice masses. For example: "In order to reach Brewer Creek, more ridges and gullies have to be crossed; but these are of moderate height and depth. The open stretches in between are of gentle slope-rocky and sandy, but not hard to walk upon. Alpine phlox (*Phlox douglasi*), pussy paws (*Spraguea umbellata*), alpine yellow violet (*Viola purpurea*), ...are met at every step. The white bark pine seems to be more at home here than in any locality thus far encountered. Fine erect specimens stand in spite of severe winter storms, and, where necessity demands, it stoops and creeps close to the ground, thereby holding its own as the survival of the fittest among Shasta trees in the high altitudes" (p. 6 Nov. 22). 31. Science: Botany. [MS931].

[MS1130]. Torrey, John. **On the *Darlingtonia Californica*, A New Pitcher-Plant, from Northern California**. Apr., 1853. COS copy missing title page. In October of 1841 William Dunlop Brackenridge (1810-1893) collected near Mt. Shasta a plant new to science. The discovery was considered the greatest botanical find of the entire four year Wilkes' Expedition. The eminent botanist John Torrey writes: "This new Pitcher-plant was first detected by Mr. J. D. Brackenridge, Assistant-Botanist to the United States' Exploring Expedition, Under Captain Wilkes, while passing overland from Oregon to San Francisco, in the Year 1842 [sic]. He found it in a marsh, bordering a small tributary of the Upper Sacramento, a few miles south of Shasta Peak. Owing to the lateness of the season (it was October), the flowers had passed; and not even a seed vessel was found, but only the leaves and tall scapes, with the remains of a single capsule. The leaves, however, were so peculiar, that no doubt was entertained of the plant being either a *Sarracenia*, or a near ally of that genus. Without the flowers, nothing further could be determined respecting it; but from the bracteate scape and deeply parted lamina or appendage of the leaves, it seemed more probable that it was distinct from *Sarracenia*. Long had I been hoping to receive the plant in a more complete state, when it was at last brought to me by my friend, Dr. G. W. Hulse, of New Orleans, who found it in flower in May, 1851, in the same region, and perhaps in the very spot where it proved to be generically distinct from *Sarracenia*....and I take great pleasure in dedicating it to my highly esteemed friend Dr. William Darlington...whose valuable botanical works have contributed so largely to the scientific reputation of our country" (p. 3).

This report consists of several pages of scientific description of the plant, with one full-page plate illustration. 31. Science: Botany. [MS1130].