

CONTRIBUTIONS FROM THE DUDLEY HERBARIUM

Published by the Natural History Museum of Stanford University
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Contents

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THE GAUTIER HERBARIUM

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The herbarium of Gaston Gautier was acquired by Stanford University in 1946 through a bequest of the late Dr. Herman Knoche. Dr. Knoche had purchased the Gautier Herbarium while in Europe in 1930 (Thomas, 1959).

Marie Clement Gaston Gautier was a respected French botanist who was born in Narbonne on April 10, 1841, and who died on October 7, 1911. During the course of his life, Gautier built up a large herbarium through his own collecting, by purchase, and by exchange. This herbarium forms the basis for his two best-known works, *Catalogue Raisonné de la Flore des Pyrénées-Orientales*, published in 1898, and *Catalogue de la Flore des Corbières*, published posthumously in 1912. Gautier was the leading botanist in Narbonne and his numerous organized field trips were always well attended by masters and novices alike. Gautier was an indefatigable hiker and collected extensively, alone or in company with one or two close companions, in the vicinity of Narbonne, in the Corbières, and in the Pyrénées.

In addition to his botanical interests, Gautier managed his family estate at Grand Craboules from the age of twenty-four. As an agriculturalist he was a pioneer in such practices as swamp drainage and reclamation of barren land and in applying modern methods to viticulture. He was a member of several professional agricultural societies, as well as botanical societies, and received several agricultural awards and prizes. Among Gautier's other interests and public services were membership on the governing board of the Narbonne hospital, membership on the Narbonne archeological commission, and as an arbitrator in local civic unrest.

After his death, Gautier's herbarium was offered for sale. For this purpose one of Gautier's friends, Henri Mue, prepared a prospectus in German of the herbarium. A translation of the prospectus follows:

"NOTICE OF THE HERBARIUM OF GASTON GAUTIER (OF NARBONNE)

The important botanist Gaston Gautier of Narbonne, who died a few months ago, left behind a magnificent herbarium. As early as 1888, this fine collection was the subject of a detailed note published by G. Rouy in the *Bulletin de la Société Botanique de France* on the occasion of a special meeting of the Society. The collection has been considerably enriched since then. It contains about 130-140,000 sheets, forming 530 bundles, and representing more than 22,000 species and varieties. For example, the general herbarium which has been treated with sublimate and is in an excellent state of preservation contains 110-120,000 sheets and 22,240 species or varieties of European, North African, and Asian plants. There are fewer North African and Asian plants than European, however. The herbarium of Martrin-Donos which has not been poisoned and is kept separately contains about 15,000 sheets of plants from France, Africa, the Mediterranean basin in general, and the islands of the Atlantic Ocean.

Gaston Gautier personally collected a large number of valuable scientific specimens in France and Spain in connection with the publication of his *Flore des Pyrénées-Orientales*, his forthcoming *Flore des Corbières*, and his *Hieracitheca* which was issued jointly with Arvet-Touvet. In addition, Gautier acquired the herbaria of Boutigny and of Martrin-Donos, the author of the *Florule du Tarn*. The herbarium of Martrin-Donos, which can be purchased separately, consists of 172 bundles containing 15-20,000 sheets and contains in addition other valuable specimens: the centuries of Billot (*Flora Galliae et Germaniae exsiccata*) and of Schultz (*Herbarium normale*),

which are also found in the general herbarium of G. Gautier; the centuries of Durando (*Flora atlantica exsiccata*) and of Orphanides (*Flora Graeca exsiccata*); as well as the exchanges of Heldreich, Sauzé, Jordan, Geneviev, Didier, Cadet de Fontenay, Bonnier, etc. Gautier's herbarium also contains the following: the *Herbarium normale* of Schultz; the *Reliquiae Mailleanae*; the centuries of Billot (*Flora Galliae et Germaniae exsiccata*), those of the Swiss Society and the Societies of Dauphiné and La Rochelle; the collections of Becker (eastern Russia), Bourgeau (Spain and Savoy), Fries (Spitzbergen), Heldreich (Greece), Huet du Pavillon (Naples and Sicily), Huter, Porta, and Rigo (Spain, Tyrol, and Venice), Lojacono (Sicily), Noé (Dalmatia), Pedro del Campo (Spain), Reverchon (Corsica, Sardinia, Crete), Todaro (Sicily); and the exchanges of Auzende, Barrandon, Boissier, de Borbas, Freyn, Gelmi, Grenier, Haekel, A. Huet, Indebetou, de Janka, la Jolis, Loret, Malinvaud, Mielichoffer, Parlatore, Perez y Lara, Rizzozero, Rouy, de Santheim, Savi, Sommier, Waldstedt, Coste, Soulié, Sennen, etc., etc.

This magnificent herbarium contains plants collected in the Mediterranean region, Asia, and Africa by such well-known botanists as: Balansa (Armenia), Barbey (Palestine), Blanchet (Palestine and Syria), Debeaux (Algeria), Gaillardot (Syria), Hohenacker (Caucasus), Kotschy (Persia), Kralik (Tunisia and Egypt), Peronin (Sicily), Pichler (island of Karpathos), Ruhmer (Kyrenia in Cyprus), Shimper (Persia), Sintenis (Troas in Asia Minor), Smirnoff (Caucasus), and Warion (Algeria). In addition, G. Gautier acquired a large number of specimens offered by the Doerfler Firm of Vienna during the last few years.

Further, the herbarium of Gaston Gautier contains the collection of *Hieracium* in 26 bundles which was assembled by Jordan. It contains all the types of plants which were mentioned in Gautier's *Flore des Pyrénées-Orientales*, in his forthcoming *Flore des Corbières*, and in Martrin-Donos' *Florule du Tarn*.

The collection is therefore of great interest as scientific documentation for the plants of the Mediterranean region, the French Pyrénées, and the French territories in North Africa.

As an example of the richness of the herbarium, the following figures are presented. It contains:

<i>Ranunculus</i>	163 species, subspecies (or hybrids), and	81 varieties
<i>Dianthus</i>	164	37
<i>Trifolium</i>	149	33
<i>Astragalus</i>	220	4
<i>Rosa</i>	120	339
<i>Galium</i>	198	34
<i>Hieracium</i>	722	1528

The very considerable series of specimens of *Hieracium* of this collection is independent of that which G. Gautier and Arvet-Touvet issued in their *Hieraciotheca*.

Aside from the collections of the public scientific institutions of Europe, there are only an extremely limited number of herbaria which are so complete for France in particular and Europe in general. Only the rarest species are lacking in Gautier's herbarium. Finally, to give an idea of the relative importance of the herbarium with respect to non-European plants, the following figures refer to the number of native Asian and African species of various genera: *Ranunculus*, 44; *Dianthus*, 25; *Trifolium*, 27; *Delphinium*, 17; *Potentilla*, 18; etc., etc.

The collection is supplemented by means of an excellent four-volume catalogue. Opposite the name of each species is listed the place of origin, the number of the bundle, and the number of the folder within the bundle. Each volume of the catalogue contains an alphabetically arranged index at the end.

For more exact information and purchase terms apply to: M. Mue, Directeur des Contributions Indirectes, Allée Al. Peyrat, 29, in Toulouse (Haute-Garonne), botanist and friend of Mr. Gaston Gautier.

When the Gautier Herbarium was acquired by the Dudley Herbarium in 1946, it consisted of some 307 bundles of plants containing an estimated 135,000 sheets (Wiggins, 1946). These figures are at variance with those given above in the prospectus. This discrepancy can, I believe, be accounted for. The herbarium of Martrin-Donos was probably incorporated into that of Gautier sometime after his death, perhaps by Herman Knoche. Knoche's handwriting was distinctive and there are a number of his annotations on various of the herbarium sheets and in the four-volume catalogue to the herbarium. Many of Martrin-Donos' specimens are present and there are many duplicates of Billot's *Flora Galliae et Germaniae exsiccata* and Schultz's *Herbarium normale*. The *Hieraciotheca* mentioned in the prospectus is a large exsiccata of species of *Hieracium* issued by Gautier and Arvet-Touvet. Many of the new species of *Hieracium* proposed by Arvet-Touvet and Gautier were formally described in their paper, *Hieracium Nouveaux pour la France ou pour l'Espagne* (Arvet-Touvet and Gautier, 1894, 1905). Sets of the *Hieraciotheca* are to be found at Barcelona, Berlin-Dahlem, Grenoble, Kew, Leiden, Leningrad, Paris, Torino, and Wien (Lanjouw and Stafleu, 1954, p. 43). A set of the *Hieraciotheca* did not come with the Gautier Herbarium in 1946, nor did, I believe, the collection of *Hieracium* amassed by Jordan.

Most of the specimens in Gautier's herbarium are in an excellent state of preservation. Gautier himself fumigated his herbarium with sulfur dioxide (Rouy, 1888) and a number of specimens had been poisoned with mercuric chloride. Certain taxonomic groups in the Gautier Herbarium were examined by leading authorities of the day: *Hieracium* by Arvet-Touvet, *Rosa* by Crépin, *Euphrasia* by Wettstein, *Echium* by Auguste de Coincy, most of the grasses by Haekel, and the ferns by Christ.

At present, the Gautier Herbarium is in the process of being mounted and incorporated into the Dudley Herbarium. Some of the specimens are completely lacking in data and are being discarded. Many specimens are meager and often two or more individual collections of the same species are being mounted on the same sheet. In the case of duplication, i.e., two specimens of the same collection, the specimens are being combined. When completely available, the Gautier Herbarium should be a valuable reference collection for American botanists, especially those interested in introduced Mediterranean weeds.

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May 31, 1961

THE HISTORY OF BOTANICAL COLLECTING IN THE SANTA CRUZ MOUNTAINS
OF CENTRAL CALIFORNIA

John H. Thomas

The history of botanical collecting in the Santa Cruz Mountains probably began in 1791. Until about 1850 the men who collected were botanists, naturalists, or the surgeons of scientific or diplomatic expeditions sent from Europe or from the eastern part of the United States. The specimens collected prior to 1850 were sent to such botanical centers as London, Paris, Prague, St. Petersburg, Cambridge, New York, and, eventually, Washington. Not until after 1850 were there some residents in central California interested in the study of botany and natural history. The number of collectors prior to 1850 number about eighteen. It is quite likely that small collections of plants were made by various other travelers, but if so these collections never reached the leading botanists of the day and did not contribute to the development of California botany. The number of collectors since 1850 probably approaches one thousand or more, but many of these were students and their period of collecting was short. I have chosen to list only those individuals who have, in one way or another, made significant collections of vascular plants in the Santa Cruz Mountains or who by their writing, published or not, have added to our knowledge of the flora.

The Santa Cruz Mountains are part of the Outer Coast Range of California and extend from the Golden Gate south to the Pajaro River. The descriptive term, the Santa Cruz Mountains, is used to include the area from the Golden Gate to the Pajaro River and from the Pacific Ocean eastward to the San Francisco Bay and the center of the Santa Clara Valley. The area thus outlined is about 1386 square miles.

LEROY ABRAMS (October 1, 1874–August 15, 1956) was a member of the faculty of Stanford University from 1906 until his retirement in 1940. He collected in many parts of the Santa Cruz Mountains and his collections, next to those of W. R. Dudley, are probably the most important local ones in the Dudley Herbarium. Abrams' first local collections, about 1898, date from his student days at Stanford and his last were made about 1940. A number of his local collections were made in company with I. L. Wiggins. Abrams is best known for his four-volume *Illustrated Flora of the Pacific States* (Abrams and Ferris, 1923-1960). Biographical sketches of his life have been written (Wilson, 1956; Wiggins, 1957). A tribute to Dr. Abrams along with his portrait was published by the California Botanical Society (Bacigalupi and Mason, 1954). *Cupressus abramsiana* Wolf, a local Santa Cruz Mountains endemic, is named for Dr. Abrams as is *Eriastrum abramsii* (Elmer) Mason, a species with its type locality in the Santa Cruz Mountains.

CHARLES LEWIS ANDERSON (September 22, 1827–December 22, 1910) was a physician who lived in Santa Cruz from 1864 until his death (Jepson, 1929). Although he is better known for his Nevada and Sierra Nevada collections, Anderson did collect in Santa Cruz County. Anderson sent most of his specimens to Asa Gray and is commemorated in *Arctostaphylos andersonii* Gray, a central California endemic. Anderson was also interested in algae and collected extensively along the California coast. One set of his algae is in the Pacific Grove Museum and his grass collection is in the Dudley Herbarium. Anderson's published works include a *Catalogue of Flowering Plants and Ferns of Santa Cruz County* and *List and Notes of Native and Other Grasses Found Growing Wild in Santa Cruz County* (Anderson, 1892). This catalogue is almost identical with the list edited by F. L. Clarke (1890), but with the occasional addition of common names, habitat notes, and localities.

In reviewing Clarke's list, Brandegee (1890) wrote: "Although this pamphlet bears on its cover the name of Dr. C. L. Anderson, its contents furnish abundant proof that he had no hand either in its arrangement or in the proofreading." With her characteristic bluntness, Mrs. Brandegee concluded the review as follows: "It is claimed that this is 'The first of its kind published in the State.' Let us hope that it is also the last, and that future Boards of Education who would probably employ a carpenter if they wished to build a house, will show their common sense by employing a botanist when they want a local Flora." A private reprinting of Anderson's 1892 list together with lists of animals and a discussion of the local geology was issued as *The Natural History of Santa Cruz County* (1893).

NILS JOHAN ANDERSSON (February 20, 1821-March 27, 1880), the Scandinavian willow expert, was in San Francisco and environs in 1852 during a visit of the ship *Eugenie* (Rydberg, 1907, pp. 25-26). Most of Andersson's collections are in Sweden, but recently a small set of duplicates has been returned to California and is in the herbarium of the California Academy of Sciences in San Francisco.

ELMER IVAN APPLGATE (March 31, 1867-November 18, 1949) was born at Ashland, Oregon, attended Stanford University in 1895, and from 1929 to 1949 held the honorary title of Acting Curator of the Dudley Herbarium. He collected locally as a student and occasionally after 1929. In the academic year of 1928-1929 he presented his herbarium, very rich in plants from Oregon and northern California, to the Dudley Herbarium. He was a rancher, farmer, and businessman in Klamath Falls, Oregon. From about 1928 until his death he spent a portion of his time at Stanford and from 1934 to 1938 he served in the National Park Service as a ranger naturalist (botanist) at Crater Lake National Park, Lava Beds National Monument, and Oregon Caves National Monument (Applegate, 1939, p. 229). He married Esther E. Ogden in 1899. Applegate is best known for his floras of the Lava Beds National Monument and Crater Lake National Park and his work with the genus *Erythronium* (Applegate, 1929, 1930, 1933, 1935, 1938, 1939). *Castilleja applegatei* Fernald, a species of Oregon and California, was named for him.

WILLIAM SACKSTON ATKINSON (September 17, 1864-about 1925) was born at Cazenovia, New York, and received his A.B. in biology from Stanford in 1899. He was a scientific illustrator at Stanford from 1913 until shortly before his death. During 1900 and 1901 he collected quite extensively in the Santa Cruz Mountains. His specimens are in the Dudley Herbarium.

RIMO CHARLES BACIGALUPI (March 24, 1901), now the curator of the Jepson Herbarium at the University of California, has collected in many parts of the Santa Cruz Mountains since about 1922. Bacigalupi received his A.B. from Stanford in 1923, his A.M. from Stanford in 1925, and his Ph.D. from Harvard University in 1931. He has long been interested in the Saxifragaceae and the Lythraceae and has become recognized as an authority in such difficult genera as *Castilleja* and *Cordylanthus* during the course of completing Jepson's *Flora of California*.

CHARLES FULLER BAKER (1872-1927) collected extensively in the vicinity of Stanford during the years 1902 and 1903. In May of 1903 he received an A.M. in entomology from Stanford University. He had previously received a bachelor's degree from Michigan Agricultural College in 1891. Many of his California plants were identified by E. L. Greene and some of them were described as new species. Baker's name was used as a specific epithet by E. L. Greene for no less than sixteen "species" mainly from Colorado. Many of Baker's collections of *Amsinckia* were named as new species by W. N. Saksdorf, among them *A. bakeri*, a plant collected in the foothills near Stanford and now considered a synonym of *A. intermedia* Fischer and Meyer. Additional information about Baker has been recorded by Ewan (1950, pp. 154-155).

MARGARET ALICE BARRY (March 31, 1916), now Mrs. John Robert Cunningham, was born at Huntington Park, California, and received her A.B. and A.M. in 1937 and 1938, respectively, from Stanford University. Her master's thesis was entitled *A Floristic and Ecologic Study of Coal Mine Ridge* (1940). Coal Mine Ridge is an area about one square mile in extent, about six and one-half miles southwest of Palo Alto, and supports a flora of over 200 specific and subspecific taxa. Her work was done under Professor I. L. Wiggins.

HANS HERMAN BEHR (August 18, 1818–March 6, 1904), a physician and from 1854 until his death a prominent member of the California Academy of Sciences, collected in many parts of the Santa Cruz Mountains. Behr was born in Germany and came to California in 1851. A full account of Behr's life has been written by Gutzkow, Chismore, and Eastwood (1905). Many of Behr's local collections were destroyed in the 1906 fire, but he sent specimens to Hamburg, St. Petersburg, and elsewhere (Ewan, 1953, p. 46). Behr was the author of a *Synopsis of the Genera of Vascular Plants in the Vicinity of San Francisco* (1884), *Linnaean Key to the Local Flora* (1886), *Flora of the Vicinity of San Francisco* (1888), and several short papers published in the *Proceedings of the California Academy of Sciences* and *Zoe*. Behr's name is commemorated in a genus of the Liliaceae, *Behria* Greene, endemic to the Cape Region of Baja California.

JOHN MILTON BIGELOW (June 23, 1804–1878), the botanist and surgeon of the Whipple Expedition (Jepson, 1938), collected in San Francisco in 1853 and 1854. Most of his collections from California are in eastern herbaria, but there are a few scattered specimens at Stanford and elsewhere in California. Bigelow's name is commemorated in *Plantago bigelovii* Gray.

FREDERIC THEODORE BIOLETTI (July 21, 1865–September 12, 1939) was a horticulturalist and viticulturalist in the University of California and a member of its faculty from 1894 until his retirement. He was born in Liverpool, England, and died in Redwood City, California. He received a B.S. from the University of California in 1894 and a M.S. in 1898. Bioletti studied under E. L. Greene (Cantelow and Cantelow, 1957, p. 85) and wrote a thesis entitled *Notes on the Genus Nemophila* (1895). Most of Bioletti's local collections were from San Francisco and some of them were made with C. Michener. He described *Collinsia franciscana* from San Francisco. His name is commemorated in *Mimulus biolettii* Eastwood, a plant of the central Sierra Nevada.

HIRAM G. BLOOMER (1821–September 1874) was an early member of the California Academy of Sciences, its curator of botany from 1858 to 1862, and the director of the museum from 1868 to 1873. His herbarium was given to the Academy but was apparently lost (Jepson, 1899). A few of his collections from the Santa Cruz Mountains remain in other institutions. His name is commemorated in *Ranunculus bloomeri* Watson, a species that occurs from Oregon south to Santa Clara County, California, and in the Liliaceous genus *Bloomeria* Kellogg.

HENRY NICHOLAS BOLANDER (1831–August 28, 1897) came to California in 1861 and for many years was the State botanist. He died in Portland, Oregon (Anon., 1897). He collected in many parts of California including the Santa Cruz Mountains. His collections are widely known both in the United States and Europe and a number of his specimens are in the Dudley Herbarium. He is known for his *Enumeration of Shrubs and Trees in the Vicinity of San Francisco Bay* (1863) and *A Catalogue of Plants Growing in the Vicinity of San Francisco* (1870). Ewan (1953, p. 51) has briefly summarized the main events of Bolander's life. Bolander's name is commemorated in a number of California species, among which are *Carex bolanderi* Olney, *Poa bolanderi* Vasey, *Phacelia bolanderi* Gray, *Mimulus bolanderi* Gray, and *Cordylanthus bolanderi* (Gray) Pennell.

PAOLO EMILIO BOTTA (1805–April 1870), the surgeon aboard the French ship *Héros* (Alden and Ifft, 1943, pp. 31-32), was in various parts of California in 1827 and 1828. Botta was mainly interested in birds, but did collect a few plants, probably some of them in Santa Cruz and San Francisco (McKelvey, 1955, p. 360). He is commemorated in the species now known as *Clarkia bottae* (Spach) Lewis and Lewis, native in Monterey County.

WILLIAM DUNLOP BRACKENRIDGE (June 10, 1810–February 3, 1893) was the assistant naturalist of the Wilkes Expedition. In company with Titian Ramsey Peal and William Rich, he traveled overland from Fort Vancouver to Yerba Buena Island, arriving on October 28, 1841. Brackenridge then traveled southward in the Central Valley, eventually crossed the Inner Coast Range, and reached the Mission of San Jose. From there he went to the Santa Clara Mission and thence back to Yerba Buena. An annotated transcript of Brackenridge's California journey has recently been published (Maloney, 1945) as has a list of the plants mentioned in his journals (Eastwood, 1945).

MARY KATHARINE (LAYNE) (CURRAN) BRANDEGEE (October 28, 1844–April 3, 1920), the curator of botany at the California Academy of Sciences from 1883 until 1894, collected actively in many parts of the Santa Cruz Mountains and especially in San Francisco. She was the author of the first catalogue of plants of San Francisco (1892, 1892a). Most of her collections are now at the University of California at Berkeley, but many duplicates are to be found elsewhere. Ewan (1942) has published a detailed guide to the collections of Mrs. Brandegee and of her husband, Townshend Stith Brandegee. An interesting paper about Mrs. Brandegee has recently been written (Herre, 1960).

TOWNSHEND STITH BRANDEGEE (February 16, 1843–April 7, 1925), a civil engineer by training and profession, is best known for his botanical explorations in Colorado, Baja California, and parts of the Mexican mainland (Moran, 1952). He resided in San Francisco from 1889 to 1894 and in Berkeley from 1906 until his death. During these periods he collected in the Santa Cruz Mountains. His major collections are now at Berkeley with those of his wife. A number of specimens distributed from the California Academy of Sciences bear only the name Brandegee. It is thus often difficult to determine whether they were collected by Brandegee or by his wife. A biographical account of Mr. and Mrs. Brandegee was written by Setchell (1926).

WILLIAM HENRY BREWER (September 14, 1828–November 2, 1910), the occupant of a chair of agriculture at Yale from 1864 to 1903, was the first botanist of the California State Geological Survey. He served on the "State Survey" from 1860 to 1864 and collected in various parts of the Santa Cruz Mountains during this time. He is the author of part of the first flora of California, *Botany of California*, Volume I (Brewer and Watson, 1876). Volume I deals with the Polypetalae and the Gamopetalae, the latter having been written by Asa Gray. Volume I was issued again in 1880 as a "second (revised) edition" (Brewer and Watson, 1880) at the time of publication of Volume II. Volume II of the *Botany of California* (Watson, 1880) contains the Apetalae, Monocotyledoneae, Gymnospermae, the vascular cryptogamae, some nonvascular cryptogamae, and a long list of additions and corrections to Volume I. Brewer, Engelmann, Bebb, Boott, Thurber, and D. C. Eaton all contributed to Volume II, but it is essentially the work of Sereno Watson. A good account of Brewer's travels in California is contained in his journal (Farquhar, 1949). Various authors have named species for him in a number of genera including *Allium*, *Lupinus*, *Linum*, *Gilia*, and *Phacelia*.

THOMAS BRIDGES (May 22, 1807–November 9, 1865) came to California in 1856 (Dall, 1866) and collected until his death. He collected in the Santa

Cruz Mountains at various times after 1856 (Jepson, 1933a). He is also known for his earlier collecting in Chile and Bolivia (Johnston, 1928). Many of his California collections were sent to W. J. Hooker and after his death his herbarium was acquired by the Smithsonian Institution. His name is remembered in such species as *Pellaea bridgesii* Hooker, *Brodiaea bridgesii* Watson, and *Silene bridgesii* Rohrbach.

STEWART HENRY BURNHAM (October 6, 1870–September 1943) was born at Vaughns, New York, attended Stanford University from 1893 to 1895, and received his B.S. from Michigan in 1899. From 1901 through 1922 he held various positions at the New York Botanical Garden (Anon., 1943), at Cornell University, and with the State of New York. After 1922 he was an assistant curator at Cornell. During his student days at Stanford, he collected extensively in the vicinity of Stanford and published a paper on the results of his collections (Burnham, 1907). His herbarium containing some 75,000 sheets (Lanjouw and Stafleu, 1954, p. 108) was given to Cornell.

JOSEPH BURTT-DAVY (1870–August 20, 1940) was associated with the University of California from 1893 to 1903, first as a student, then as a member of the staff of the Experiment Station (Crum, 1941, p. 31). After leaving California he went to South Africa where he was employed as an agrostologist and botanist in the Department of Agriculture at Pretoria. He returned to England after the close of World War I and at his death was lecturer in tropical botany at the Imperial Forestry Institute at Oxford (Anon., 1940). While in California he collected widely and many of his specimens from the Santa Cruz Mountains are at the University of California. Many of them bear only the name Davy. Burtt-Davy's name appears in *Clarkia davyi* (Jepson) Lewis and Lewis and in *Centaurium davyi* (Jepson) Abrams.

EVELINA CANNON, whose dates are not known, collected extensively in San Francisco, Los Gatos, and other areas in the 1880's and 1890's. A number of her plants have been cited by Brandegee (1892). Miss Cannon's herbarium was given to the California Academy of Sciences after the 1906 fire by a niece, a Miss Carrington (Eastwood, 1947, p. 45; Cantelow and Cantelow, 1957, p. 88). Miss Cannon was for a time employed as an assistant in the herbarium at the Academy. *Helianthella cannonae* was described by Miss Eastwood on the basis of specimens collected by Miss Cannon on the Bayview Hills in San Francisco. *Helianthella cannonae* is now usually considered to be a synonym of *H. castanea* Greene.

ADELBERT von CHAMISSO (Louis Charles Adélaïde de Chamisso) (January 27, 1781–August 21, 1838), the botanist of the Russian ship *Rurik*, was in San Francisco in October 1816, and with Eschscholtz made the first really extensive collection from central California. Chamisso and Eschscholtz made most of their collections in San Francisco near the Presidio. An extensive account of the new species obtained in 1816 has been given by Mahr (1932) and Eastwood (1944).

F. L. CLARKE, of whom almost nothing is known, compiled a list of plants (1890) from Santa Cruz County for the County Board of Education. The list was based on collections made by the pupils of the sixteen elementary schools then existing in the county. A prize was offered by the newspaper, the *Santa Cruz Surf*, to the students of the school collecting the largest number of specimens. A total of about 3500 specimens was thus collected and some of them probably passed into the hands of C. L. Anderson. The title page of this work contains the statement: "...additions of names to fill out the list have been made by Dr. C. L. Anderson." In all about 700 species were listed. A copy of this rather rare publication is in the library of the Jepson Herbarium at the University of California.

ALEXANDER COLLIE (?–December 1835), the surgeon on one of Captain Beechey's voyages, was in central California from November 7 to December 28,

1826, and in November 1827. Collie was in San Francisco and he journeyed southward on horseback to the Santa Clara Mission and then through the Santa Clara Valley to Monterey. He returned via the same route (McKelvey, 1955, pp. 342-358). Collie's plant material was eventually worked over by Hooker and Arnott (1830-1841) in the *Botany of Captain Beechey's Voyage*.

JOSEPH WHIPPLE CONGDON (April 12, 1834-April 5, 1910) is best known for his collections from Mariposa County where he practiced law from 1882 to 1905. He had previously been a member of the Rhode Island House of Representatives and had taught school in various parts of California. Specimens in the Dudley Herbarium indicate that he collected at various times in San Francisco and other parts of the Santa Cruz Mountains from 1881 to 1897. Many of his duplicate collections are in the Dudley Herbarium and his own herbarium of some 10,000 sheets was acquired by the University of Minnesota some time after 1910 (Jepson, 1928a). Congdon's name is commemorated in the Crassulaceous genus *Congdonia* Jepson and as the specific name in a number of California plants, among them *Mimulus congdonii* Robinson, a member of the local flora.

WILLIAM SKINNER COOPER (August 25, 1894) is best known in California for his ecological work on the chaparral (Cooper, 1922). Much of the chaparral ecology was done in the vicinity of Stanford University. Cooper was a lecturer in ecology during the academic year of 1914-1915 at Stanford. A few of his local collections are in the Dudley Herbarium.

THOMAS COULTER (1793-1843), the first botanist to cross the Colorado Desert, was in Monterey in 1832, and although McKelvey (1955, pp. 430-441) does not so state, it is quite possible that Coulter did journey northward into the Santa Cruz Mountains.

JAMES GREGORY DALY received his B.A. from the University of California in 1930 and his M.A. in 1935 with a thesis entitled *A Botanical Survey of San Gregorio Creek* (1935). This work was done under W. L. Jepson. Daly listed 316 species as occurring in the San Gregorio Creek watershed in San Mateo County, an area of approximately fifty-two square miles. Daly's specimens are presumably at the University of California. At present, Daly teaches school in San Francisco.

HORACE DAVIS (March 16, 1831-July 12, 1916) had a long and varied career. He was trained as a lawyer at Harvard University, at one time he served as a judge, was a member of the United States Congress (Wentworth, 1886, p. 31), was president of the University of California for three years, served as a member of the board of trustees of Stanford University from its inception, and was engaged in manufacturing and the shipping business. His lineage is equally distinguished. His father was John Davis (Anon., 1916), one time Governor of Massachusetts and a United States Senator; his mother was Eliza Bancroft Davis; and one of his uncles was George Bancroft, the historian. Judge Davis was honored with honorary doctorates by the University of the Pacific, Harvard University, and the University of California. For a number of years he had a summer home in the Santa Cruz Mountains near Glenwood. His collections from there date from about 1900 to 1914 and were sent to W. R. Dudley and to Miss Eastwood. His specimens served as the types for several species, among them *Chrysopsis camphorata* Eastwood and *Erysimum teretifolium* Eastwood.

DAVID DOUGLAS (1799-July 12, 1834) was one of the most famous botanists to visit California in the decade from 1830 to 1840. Douglas collected in the Santa Cruz Mountains and visited San Francisco, Santa Clara, Santa Cruz, and San Jose in 1831 and 1833 (Howell, 1942). A biography of Douglas has recently been written (Harvey, 1947). Douglas' name is commemorated in many California species, among them *Quercus douglasii* Hooker and Arnott, one of the common local oaks.

WILLIAM RUSSEL DUDLEY (March 1, 1849–June 4, 1911) was the first professor of systematic botany at Stanford University. Dudley's appointment at Stanford was noted in an anonymous note in *Zoe* (Anon., 1892) doubtless written by Mrs. Brandegee: "Prof. W. R. Dudley, late of Cornell, has taken the chair of systematic botany at Stanford University. With such men as he and Prof. Douglas H. Campbell in charge of the botanical work of Stanford University, where botany is taught according to modern methods, we may expect to have in time, a body of resident botanists whose entire stock of botanical knowledge is not confined to the possession of a limited terminology and a large capacity for discovering new species that do not exist." Quite obviously, this was aimed at E. L. Greene. From 1893 to 1910 Dudley collected in many parts of the Santa Cruz Mountains. Without doubt he must be considered the most important local collector. There were few taxa of vascular plants which he did not collect, or few localities he did not visit. Dudley traveled by foot, on horseback, and with horse and wagon. His collections were not widely distributed until recently, despite the wealth of duplicate material. Dudley received his master's degree from Cornell University in 1876 and was a member of the faculty at Cornell from 1873 until he came to Stanford in September 1893. Dudley was for a number of years a member of the California State Park Commission and was instrumental in the establishment of Big Basin Redwoods State Park in Santa Cruz County. A memorial volume, the *Dudley Memorial Volume* (Branner *et al.*, 1913), was published by Stanford University shortly after his death. Dudley's name is commemorated in the Crassulaceous genus *Dudleya* Britton and Rose and in several species, among them *Clarkia dudleyana* (Abrams) Macbride, *Polystichum dudleyi* Maxon, *Pedicularis dudleyi* Elmer, and *Lupinus latifolius* Agardh var. *dudleyi* Smith. The latter two taxa are endemic in the Santa Cruz Mountains. In addition, the herbarium at Stanford was named in his honor.

HARRY ARNOLD DUTTON (January 8, 1873–January 1, 1957) was born in Glenwood, Kansas, attended Stanford University and received his bachelor's degree in botany in 1900. Dutton was in the building supply business, but maintained his interest in botany throughout his life. During his student years he collected extensively in the Woodside serpentine and in September 1949 relocated the stand of *Cupressus abramsiana* Wolf on Butano Ridge in southern San Mateo County, a stand which had been "lost" for nearly fifty years. His name is commemorated in an endemic member of the mint family, a plant which is now probably extinct, *Acanthomintha obovata* Jepson var. *duttonii* Abrams. Dutton was a good friend of Willis L. Jepson. In a biographical sketch of Jepson, Parsons (1947, p. 105) wrote: "...Mr. Harry Dutton, himself a botanist by avocation, accompanied Dr. Jepson from 1909 to 1930 on botanizing trips that covered 'every township in California.'"

ALICE EASTWOOD (January 19, 1859–October 30, 1953), curator of the herbarium at the California Academy of Sciences from 1894 to 1949, collected extensively in many parts of the Santa Cruz Mountains (Wilson, 1953). Many other collections were made with John Thomas Howell, and a few, especially those of *Carex*, with Howell and J. W. Stacey (Howell, 1944). Most of Miss Eastwood's specimens are at the California Academy of Sciences. Among her many papers dealing with the flora of California is one entitled *The Plant Inhabitants of Nob Hill* (Eastwood, 1898) and reprinted as *The Flora of the Nob Hill Cobblestones* (Eastwood, 1950). The reprinted edition contains the following statement in the foreword written by Miss Eastwood: "This article was originally published in *Erythea*, Vol. 6, June 1898. *Erythea* was a 'Journal of Botany, West American and General,' founded in 1893 by members of the Department of Botany, University of California, Willis L. Jepson, editor. Without consulting the author, the editor changed the title, *Flora of the Nob Hill Cobblestones*, to *The Plant Inhabitants of*

Nob Hill. This title is misleading as it is more suggestive of the plants cultivated in the gardens of the millionaires above than the lowly plants, chiefly weeds, of the cobblestones below." Several biographical sketches and books have been written about Miss Eastwood (Crum, 1939; Anon., 1943a; Abrams, 1949; Dakin, 1954; Howell, 1954, 1954a; Wilson, 1955). Miss Eastwood is remembered in the monotypic sunflower genus *Eastwoodia* Brandegee.

ADOLPH DANIEL EDWARD ELMER (1870–April 17, 1942) collected in many parts of the Santa Cruz Mountains during and prior to 1903, the year in which he received an A.M. from Stanford. He had previously received a bachelor's degree from Washington State College. Elmer described a number of new species from central California in the early numbers of the *Botanical Gazette*, among them *Pedicularis dudleyi*. In 1904 Elmer went to the Philippines and collected in many areas in the far east. For a time he worked for the Bureau of Science in Manila and later was the editor and chief contributor to *Leaflets of Philippine Botany*. Dr. Albert W. Herre has told me that E. D. Merrill considered Elmer to be the best collector who worked in the Philippines and southeastern Asia up until the beginning of World War II. This contention is borne out by Merrill's *Plantae Elmerianae Borneenses* (1929). Elmer's Philippine and southeastern Asian collections are widely distributed throughout the world. Elmer died in a concentration camp in the Philippines (Herre, 1945). Van Steenis (1950) has given a short account of Elmer's botanical activities. Elmer is commemorated in *Castilleja elmeri* Fernald, a species of central Washington.

JOHANN FRIEDRICH ESCHSCHOLTZ (November 12, 1793–1831) was the surgeon on the *Rurik* when it visited San Francisco in 1816 (Mahr, 1932). Eschscholtz was in California again in 1824 on the ship *Predpriatie* and collected in San Francisco (Eastwood, 1944). Among the best-known plants described from the material collected by Chamisso and Eschscholtz is *Eschscholzia californica* Chamisso (Jepson, 1929a).

ROXANA JUDKINS STINCHFIELD FERRIS (April 13, 1895) came to Stanford as a student in the fall of 1912, received an A.B. in 1915, and an A.M. in 1916. Her thesis was on the genus *Cordylanthus* (Ferris, 1918). She was an assistant in the Dudley Herbarium from 1916 to 1929 and since then she has been the assistant curator. Her collections from many parts of the Santa Cruz Mountains are in the Dudley Herbarium and duplicates have been distributed elsewhere. Several species, such as *Eriogonum saxatile* Watson and *Chrysothamnus nauseosus* (Pallas) Britton, are not known locally except for her collections. Mrs. Ferris is the author of the fourth volume of the *Illustrated Flora of the Pacific States* (Abrams and Ferris, 1923–1960), a contributor to, and editor of, substantial portions of the other three volumes, and the author of numerous other papers. She was honored recently when Volume 14 of *Madroño* was dedicated to her and her picture was published as the frontispiece. Her name is commemorated in *Ceanothus ferrisae* McMinn, a species which occurs in the Santa Cruz Mountains, and in several species from the Tres Mariás Islands (Ferris, 1927).

Between 1846 and 1849, Reverend AUGUST FITCH collected in California and sent most of his specimens to Dr. Torrey (Watson, 1880, p. 556). Fitch used such localities as "around San Francisco" and "the valley of San Jose" in his published papers (McKelvey, 1955, p. 1089).

JOHN CHARLES FREMONT (January 21, 1813–July 13, 1890) reached the central California coast on his third expedition, 1845–1847. During January and February he was in San Francisco, New Almaden, San Jose, and crossed the Santa Cruz Mountains from Los Gatos to Santa Cruz. The view from the summit of the Santa Cruz Mountains impressed him, for he wrote (Fremont, 1887, pp. 456–457): "The varied character of the woods and shrubbery on this mountain, which lay between my camp and the Santa Cruz shore, was very interesting to me, and I wished to spend some days there, as now the spring

season was renewing vegetation, and the accounts of the great trees in the forest of the west slope of the mountains had aroused my curiosity. Always, too, I had before my mind the home I wished to make in this country, and first one place and then another charmed me..." Fremont's name is commemorated in a genus of the Sterculiaceae, *Fremontodendron* Coville. One of the rarer shrubs in the Santa Cruz Mountains is *Fremontodendron californicum* (Torrey) Coville subsp. *crassifolium* (Eastwood) Thomas.

WILLIAM GAMBEL (1821–November 1849), at one time an assistant curator of the Philadelphia Academy of Natural Sciences, collected in California in 1841 and 1842. According to the published account of his collections (Nuttall, 1848) none was collected north of the rather vaguely defined locality, "near Monterey." Palmer (1928, p. 278) indicated that Gambel collected "...at various points along the coast chiefly in the vicinity of the Missions, as far north as San Francisco Bay." Some of the plants labeled as coming from near Monterey may actually have come from the Santa Cruz Mountains. His name is commemorated in *Quercus gambelii* Nuttall. Additional accounts of his life may be found in the works of Harshberger (1899) and McKelvey (1955).

EDWARD LEE GREENE (August 20, 1843–November 10, 1915), the first professor of taxonomic botany at the University of California, collected in the Santa Cruz Mountains in the 1880's and early 1890's. In 1895 he left California to become professor of botany at the Catholic University of America in Washington (Jepson, 1918). Much to the annoyance of succeeding generations of botanists, he stipulated in his will that specimens should never leave his herbarium which he bequeathed to the University of Notre Dame. Greene is known for his *Flora Franciscana* (1891–1897), his first floristic work on the California flora. It was followed by his *Manual of the Botany of the Region of San Francisco Bay* (1894). The *Manual*, like the earlier *Flora Franciscana*, is not complete and although contributing to knowledge, received some very unfavorable reviews (Brandege, 1894, p. 417): "The title should have been *A Phanerogamic Flora of—counties in the State of California, omitting Typhaceae, Lemnaceae, Naiadaceae, Alismaceae, Juncaceae, Cyperaceae, Gramineae, Coniferae and numerous species in other orders; with thirty 'new species' none of which are new, and nearly all vaguely characterized both as to character and station; and with every change of name which the author's present knowledge admits.*"

THADDEUS HAENKE (1761–1817) was probably the first botanist to collect in the Santa Cruz Mountains. Haenke, who together with Louis Née was a botanist on the Spanish Malaspina Expedition, spent from September 13–23, 1791 at Monterey. McKelvey (1955, p. 20) suggested that Haenke "might well have gotten to Santa Cruz from Monterey in 1791" and collected the coast redwood. Haenke's collections from California were eventually described by K. B. Presl.

STELLA DUFFIELD HALSEY (September 20, 1886) was born at Freeport, Illinois, and received a bachelor's degree from Stanford University in 1909. For a time following her graduation, she taught high school in San Diego. She married Harvey Dwight Allen and for many years lived in Los Angeles. Miss Halsey's contribution to botany was a season of intensive collecting in the salt marshes near Palo Alto in 1908. Many of her specimens had not been incorporated into the Dudley Herbarium until recently.

KARL THEODORE HARTWEG (June 18, 1812–February 3, 1871), a German by birth and a collector for the London Horticultural Society, arrived in California in 1845. During the following two years he traveled extensively in California and in the Santa Cruz Mountains (Jepson, 1897, pp. 34–35). Hartweg's collections were eventually worked up and published upon by Bentham under the title *Plantae Hartwegianae* (1848–1857). Hartweg's name is commemorated in such local plants as *Chorizanthe pungens* Bentham var. *hartwegii* (Bentham) Goodman and *Tauschia hartwegii* (Gray) Macbride.

IDA RICKARD HAYWARD (December 16, 1888) was born in Vinton, Iowa, and received her collegiate education at Stanford. Her A.B. was awarded in 1911 and her A.M. in 1932 with a thesis entitled *The Marsh and Aquatic Plants of the Pajaro Valley* (1931). This thesis is based on collections made along the Pajaro River, adjacent sloughs, in the numerous small lakes in southern Santa Cruz County, and in northern Monterey County from 1929 to 1931. Miss Hayward did not cite specimens in her thesis, but most of her specimens are in the Dudley Herbarium. She taught in the Watsonville High School for a number of years and maintained a small herbarium at the school.

AMOS ARTHUR HELLER (March 21, 1867–May 18, 1944) is one of the best-known botanical collectors of western North America. He was born in Montour County, Pennsylvania, attended Franklin and Marshall College, and received a bachelor's degree in 1892, an A.M. in 1897, and an honorary Sc.D. in 1911. There have been several brief accounts of Dr. Heller (Harshberger, 1899, pp. 382-388; Pennell, 1943; Ewan, 1950, p. 226; Cantelow and Cantelow, 1957) in the botanical literature and it is my intention to prepare a short biographical sketch in the near future. A picture of Dr. Heller has been published (Thomas, 1961). Heller lived in Los Gatos from about 1904 to 1909. During this time he collected extensively in the Santa Cruz Mountains. He published the results of his explorations in his own hand-set and hand-printed journal, *Muhlenbergia* (Heller, 1907, 1907a). Heller's specimens are among the most widely distributed that were ever collected in the Santa Cruz Mountains. Almost every major United States and European herbarium has a set of his California plants. His original herbarium is now part of that of the Brooklyn Botanic Garden. His name is commemorated in a number of species, among them *Delphinium helleri* Rydberg and *Astragalus arthuri* Jones.

VESTA F. HESSE (September 11, 1901) is one of the most astute collectors who has ever dealt with the local flora. The following is a brief account of her life which she sent me in February 1959: "I was born in Boulder Creek, California, on Sept. 11, 1901, and graduated from the Boulder Creek Union High School in 1920. I went to college at the University of California in Berkeley, receiving an A.B. degree in 1924, and a secondary school teacher's credential in 1925. I taught in the high school at Angels Camp, Calaveras County, from 1925 to 1927, but was not a particularly good teacher. Teaching was a strain and I thought (mistakenly, as I know now) that it might be easier in another school. However, I was not able to find another position at that time. After staying a few years in Berkeley without finding any satisfactory employment, I came back to Boulder Creek to live. Here I became curious about various wild flowers, and in March 1938 bought a copy of Jepson's *Manual of the Flowering Plants of California*, so that I would be able to look them up. I had a wonderful time that first year, and identified some 500 species in this area, without paying much attention to Gramineae and Cyperaceae. Since then I have studied plants from all parts of California that were available to me, though the bulk of my collecting has been done in the Santa Cruz Mountains, with emphasis on the San Lorenzo Valley in Santa Cruz County." Her specimens are to be found in the herbaria at the California Academy of Sciences, the University of California, and at Stanford University. Miss Hesse has published the results of some of her explorations (Hesse, 1957, 1959), and others (for example, Howell, 1949; Lewis and Raven, 1960) have reported upon some of her other finds. Her name is commemorated in *Calyptidium parryi* Gray var. *hesseae* Thomas.

RICHARD BRINSLEY HINDS, the surgeon-naturalist aboard the British Admiralty survey ship *Sulphur* was in central California in October and November 1837 and again briefly in September 1839 (McKelvey, 1955, pp. 389-390). Hinds traveled as far south as Santa Clara, but his most important work in

California was an expedition up the Sacramento River (Eastwood, 1939, p. 10), during which he discovered the plant that is now known as *Juglans hindsii* (Jepson) Jepson. Hinds' dates are a bit obscure. Britten and Boulger (1893, p. 83) do not list his birth date and give only "d. before 1861" as the date of his death.

JOHN THOMAS HOWELL (November 6, 1903) has collected in many parts of the Santa Cruz Mountains since about 1925. Since 1930 he has been on the staff of the California Academy of Sciences. Within the last several years he has collected extensively in San Francisco in preparation for his flora of that city (Howell, Raven, and Rubtsoff, 1958). Howell is also known for his excellent flora of Marin County (1949a) and as the publisher of *Leaflets of Western Botany*. His name is commemorated in the genus *Howelliella* Rothmaler, a member of the Scrophulariaceae.

WILLIS LINN JEPSON (August 19, 1867–November 7, 1946), a now almost legendary figure in California botany and for many years on the faculty of the University of California, collected in many sections of the Santa Cruz Mountains from before 1890 to about 1940. Most of his specimens are in the Jepson Herbarium (Constance, 1949) and are important because his published works are based largely on the specimens in his personal collection. Several biographical sketches have been written about Jepson (Mason, 1947; Constance, 1947; Fritz, 1947, 1948; Parsons, 1947; Ewan, 1947). His most important works are *A Flora of Western Middle California* (1901, 1911), *A Flora of California* (1909–1943), and *A Manual of the Flowering Plants of California* (1925). Jepson's name is commemorated in the Saxifragaceous genus *Jepsonia* Small.

BERYL SCHREIBER JESPERSEN (February 12, 1911) was a systematic botanist at the California Forest and Range Experiment Station of the United States Forest Service at Berkeley from 1936 to 1942 and 1948 to 1950. During this time she collected in the Santa Cruz Mountains. Most of her specimens are at the University of California. One of the facets of her work was a detailed study of the genus *Arctostaphylos* in the Coast Ranges, resulting in the description of a new endemic species of this genus from Santa Cruz County, *Arctostaphylos glutinosa*. Mrs. Jespersen is now the research botanist of the Lane Publishing Company in Menlo Park.

MARCUS EUGENE JONES (April 25, 1852–June 3, 1934), for most of his life a professional botanical collector, botanized in the Santa Cruz Mountains in 1881 and 1882. His specimens were widely distributed and a good set is in the Dudley Herbarium. The biographical sketch by Jepson (1934) related the major events in Jones' life. Jones' name is commemorated in *Oenothera micrantha* Hornemann ex Sprengel var. *jonesii* (Leveille) Munz, a variety which occurs locally.

CARLOS E. KAUFELDT (October 23, 1926) was born in San Jose, California, attended school in San Francisco, received his B.A. in biological sciences at San Francisco State College in 1950, and his M.S. degree from the University of San Francisco in 1953. His thesis was an ecological study of the sand dunes of San Francisco (1954). It contains a list of the 31 kinds of vascular plants occurring on sand dunes in the southwestern part of San Francisco, a habitat now nearly destroyed by housing developments. Kaufeldt now teaches biology and physiology at Westmoor High School in Daly City.

ALBERT KELLOGG (December 6, 1813–March 31, 1887) spent several years in Sacramento after arriving in California in 1849, eventually moving to San Francisco. He was the first resident botanist in central California. In April 1853 he was one of the seven original founders of the California Academy of Sciences (Ewan, 1953, pp. 43–45). He collected widely from Alaska south to Baja California. In the Santa Cruz Mountains, Kellogg collected from about 1867 to 1880. Some of his collections were made with W.

G. W. Harford (Jepson, 1933) and S. Brannan, Jr. Although many of Kellogg's plants were destroyed in 1906, some duplicates exist elsewhere, some at Stanford, and some in various eastern herbaria. Several accounts are available of Kellogg's life (Greene, 1887; Anon., 1893; Ewan, 1953, pp. 43-45). Kellogg's name is commemorated in one of the local oaks, *Quercus kelloggii* Newberry.

EDWARD LOUIS HERMAN KNOCHE (July 26, 1870–November 21, 1945) collected in various parts of the Santa Cruz Mountains at various times from 1890 to 1938. His most important local collections came from some of the serpentine areas south of San Jose. His specimens are in the Dudley Herbarium (Thomas, 1959).

GEORG HEINRICH von LANGSDORFF (1774–1852) was the surgeon-naturalist on the von Krusenstern Expedition and spent the better part of April and May 1806 in San Francisco Bay. Although scientifically trained, von Langsdorff did little or no collecting and in his journals there is mention of only one plant, the species we know now as *Suaeda californica* Watson (McKelvey, 1955, p. 95).

CHRISTIAN FERDINAND LEITHOLD (July 27, 1869–?) was born at Postville, Iowa. He received his A.B. from Stanford in physiology in 1896 and during his undergraduate days collected many specimens of flowering plants and ferns in the vicinity of the University. His specimens are in the Dudley Herbarium. A short reference to Leithold concerning his collections in Lake County was made by Brandegee (1893, p. 170).

RICHARD M. MALLORY (June 12, 1926) was born in Richmond, California. He was a summer park naturalist in Big Basin Redwoods State Park for several seasons and wrote a summer flora of the park as a master's thesis at Fresno State College. The flora (Mallory, 1947) was intended "for use during the months of June to September, the months of greatest park attendance." Nearly 200 species are listed, many of them with habitat and distributional notes based on the author's own experience. Specimens are not cited. Mallory's collections are in the herbarium of Fresno State College and at the Rancho Santa Ana Botanic Garden. At present he is a biology instructor in the Fresno city schools.

HERBERT LOUIS MASON (January 3, 1896), professor of botany and director of the University of California Herbarium, collected extensively in the Santa Cruz Mountains between 1917 and 1922 and since then has collected occasionally in this area. Mason received his A.B. from Stanford University in 1922. Most of his early collections are at Stanford.

JAMES IRA WILSON McMURPHY (July 12, 1871–November 20, 1943) was born in Illinois, received his A.B. in 1908 and his A.M. in 1909 from Stanford University. His thesis dealt with the tarweeds (McMurphy, 1909). He was a member of the Stanford University botany faculty from 1912 to 1936 and his later interests were in plant pathology and mycology. Most of his local specimens of flowering plants and ferns were collected between 1906 and 1911 and are in the Dudley Herbarium. He also collected extensively in the vicinity of Albion, Mendocino County.

DON MEADOWS (1897) was born in Shoals, Indiana, arrived in California at the age of six, and received his early education in Orange. He graduated from Pomona College in 1922 and was granted a master's degree in insect ecology at the University of California in 1931. While at Pomona he studied plant taxonomy under Dr. Philip A. Munz. Meadows was supervisor of field work of the Los Angeles County Museum–Channel Islands Biological Survey from 1938 to 1940, was variously employed as an entomologist, and for a time taught high school. During the summers of 1946 to 1950 he was a park naturalist in Big Basin Redwoods State Park in Santa Cruz County. During this time he collected some vascular plants and these are presumably

in the museum at Big Basin. He prepared a manual of the history and biology of the park (Meadows, 1950). Meadows now lives in Santa Ana, California.

ARCHIBALD MENZIES (March 15, 1754–February 15, 1842) collected the coast redwood near Santa Cruz between November 27 and 29, 1794. He was the surgeon and botanist of one of Vancouver's expeditions. Menzies had previously visited San Francisco in November 1792 and in October 1793, but during the latter visit was not allowed to go ashore (Eastwood, 1939, p. 337). Additional accounts of Menzies' visits have been written (Alden and Ifft, 1943, pp. 15-18; McKelvey, 1955, pp. 26-60). His name is commemorated in *Arbutus menziesii* Pursh.

BARBARA ALICE MOCK (January 30, 1918) was born in Washington, D. C., and received her undergraduate and graduate education at Stanford. In 1941 she was awarded a master's degree with a thesis on the vegetation of Lake Lagunita (1941). She is now Mrs. Harry Milburn Allred and lives in Fishkill, New York.

JOHN CARTER MOEUR (March 10, 1923) is in the nursery business in Tempe, Arizona. He received an A.B. in 1944 and an A.M. in 1948 from Stanford University. His thesis (1947) was a study of Jasper Ridge, the Biological Reserve on the Stanford campus. Moeur collected on Jasper Ridge but did not deposit his specimens in the Dudley Herbarium.

EUGENE DUFLLOT DE MOFRAS, a Frenchman, traveled in California from 1841 to 1843, mainly in the Coast Ranges and as far north as Fort Ross (McKelvey, 1955, pp. 717-718). He was in San Francisco, San Jose, and Santa Cruz, and presumably collected plants in and between these localities. His published work according to Watson (1880, p. 555) was "...a catalogue of the principal plants of the Northwest Coast, which enumerates about two hundred and ninety species, without even the usual specific authorities, and with so many errors of one kind or another as to be of little scientific value."

THOMAS NUTTALL (January 5, 1786–September 10, 1859) may have collected in San Francisco in 1836; the evidence is contradictory. Coville (1899, p. 111) stated that Nuttall "...did not visit the California Coast north of Monterey." Pennell (1936), however, suggested that Nuttall stopped briefly in San Francisco en route from the Sandwich Islands to Monterey and suggested further that he collected *Eriophyllum stachaedifolium* Lagasca in San Francisco. Nuttall's name is commemorated in a number of California species, as for instance in *Galium nuttallii* Gray.

GEORGE THOMAS OBERLANDER (June 18, 1915), a member of the faculty at San Francisco State College, collected in northern San Mateo County from about 1949 to 1952 in connection with his ecological studies in the Crystal Springs area (Oberlander, 1953). Unfortunately a number of his specimens were damaged by insects and only a portion of his collection, therefore, is preserved in the Dudley Herbarium. Oberlander has lately turned his attention to the study of algae.

PEHR HAJALMAR OLSSON-SEFFER (September 15, 1873–May 1, 1911) was born in Finland (Rydberg, 1907, p. 45) and received his Ph.D. from Stanford University in 1904. His dissertation was concerned with the ecology of coastal sand dunes (Olsson-Seffer, 1904). He was a member of the faculty at Stanford from 1902 to 1905. He collected in the Santa Cruz Mountains in 1903 and 1904 and his specimens are in the Dudley Herbarium and at the California Academy of Sciences. At the time of his death he was professor of botany at the University of Mexico. He was shot on April 30, 1911 by 'insurrectors' at Cuernavaca, Mexico, and died the next day (Anon., 1911).

SAMUEL BONSALE PARISH (January 13, 1838–June 5, 1928) was one of the pioneer southern California botanists. During 1881 he collected in San Francisco. His herbarium is now part of that of the Dudley Herbarium (Cantelow and Cantelow, 1957, p. 97). Additional information about Parish is available in Jepson's biography (1932).

Raven, and Rubtzoff, 1958) and the author of many papers and notes on the flora of California and adjacent regions. A nearly complete set of Raven's local specimens is at the California Academy of Sciences. He will join the Rancho Santa Ana Botanic Garden as taxonomist in the fall of 1961. Raven's name is commemorated in a recently described species of the Umbelliferae, *Lomatium ravenii* Mathias and Constance, the type of which came from near Ravendale, Lassen County, California.

WILLIS HORTON RICH (March 15, 1885), an ichthyologist and for many years a member of the faculty of Stanford University, collected in the vicinity of Swanton in Santa Cruz County in the spring and early summer of 1912 while working there on a fisheries research problem. His collection, which is in the Dudley Herbarium, is the most complete from that part of the Santa Cruz Mountains. Additional information may be found about Rich in *American Men of Science* (Cattell, 1955, p. 932).

REED CLARK ROLLINS (December 7, 1911) was a member of the faculty of Stanford University and curator of the Dudley Herbarium from 1940 to 1948. Since then he has been director of the Gray Herbarium at Harvard University. While at Stanford, he collected in various parts of the Santa Cruz Mountains, specializing in members of the Cruciferae.

LEWIS SAMUEL ROSE (November 25, 1893), research associate in botany at the California Academy of Sciences, has collected in many parts of the Santa Cruz Mountains and has carried on a voluminous exchange program with botanical institutions in other countries and at home. As a result, about 70,000 of the over 400,000 specimens in the California Academy herbarium have been obtained through Mr. Rose's efforts (Cantelow and Cantelow, 1957, p. 98). His name is commemorated in *Arctostaphylos crustacea* Eastwood var. *rosei* (Eastwood) McMinn, *Castilleja roseana* Eastwood, and *Lupinus rosei* Eastwood. The *Arctostaphylos* is endemic in San Francisco and the lupine is generally considered to be a synonym of *Lupinus caudatus* Kellogg.

PETER RUBTZOFF (February 14, 1920) was born in Leningrad, Russia, graduated from the Gymnasium in Riga, Latvia, in 1939, attended the University of Innsbruck, Austria, and received his bachelor's degree in 1951 from the University of San Francisco. He received an M.S. from the latter institution in 1953 with a thesis entitled *A Phytogeographical Analysis of the Pitkin Marsh* (1953). He is one of the authors of *A Flora of San Francisco, California* (Howell, Raven, and Rubtzoff, 1958) and the author of several other papers dealing with the vegetation of marshes.

EVERETT WINDER RUST (August 8, 1884) was born in Pasadena and received his bachelor's degree from Stanford University in 1908. He was registered as a graduate student during the academic year of 1909-1910 but he did not receive an advanced degree. His collections are dated 1906, 1907, and 1908. A few of them bear the date 1887, but this is probably an error. For a time after his graduation, Rust was employed as an entomologist.

CHARLES PIPER SMITH (April 25, 1877-January 6, 1955) was for many years a high school instructor in San Jose and was an authority on the genus *Lupinus*. He collected locally from about 1914 until his death. His lupine herbarium, presented to Stanford in 1955 by Mrs. C. P. Smith, is valuable because of the large number of type specimens it contains (Thomas, 1956). For a number of years Smith published his own journal, *Species Lupinorum* (Anon., 1956, p. 19). Smith's name is commemorated in the variety we now know as *Lupinus bicolor* Lindley var. *pipersmithii* (Heller) Smith.

MARTHA EDITH SPRINGER (January 24, 1916) was born in Mountain View, California, and received her A.B. in 1935 and her A.M. in 1936 (Springer, 1935) from Stanford. She later received a Ph.D. from the University of Michigan and since 1947 has been a member of the faculty at Willamette University. She collected on Jasper Ridge, but apparently did not deposit her specimens at Stanford.

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A NOTE ON THE REPORTED CHROMOSOME NUMBERS FOR THE GENUS LARREA

Duncan M. Porter

Darlington and Wylie (1955, p. 82) list chromosome numbers of $2n=26$, 52 for *Larrea nitida* Cav. and $2n=52$, 104 for *Larrea tridentata* (DC.) Cov. A check with the original citation (Covas, 1949) reveals that the diploid numbers reported are $2n=26$ for *L. nitida* and $2n=52$ for *L. tridentata*. The counts of $2n=52$ for *L. nitida* and $2n=104$ for *L. tridentata* are cases of polysomaty.

Covas made his counts from somatic cells of root apices and states (1949, p. 162), "Se observaron células poliosomáticas en...*Larrea nitida* y *Larrea tridentata*." The five species he cites as having polysomatic cells are the only ones listed in his table with two counts, the second double the first.

In the first paper of this series (Covas & Schnack, 1946) the authors reported polysomatic cells from the root apices of *Larrea divaricata* Cav. ($2n=26$, $4n=52$), but they failed to find polysomatic cells in the root apices of *Larrea cuneifolia* Cav. ($2n=52$).

The nature of these polysomatic cells is explained in a later note (Schnack & Covas, 1946). Both diploid and tetraploid cells were found in the root apices of *Larrea divaricata*, with the cells nearest the apex always being diploid, while those further away from the apex were predominantly tetraploid. As the roots of this *L. divaricata* contained large nodules similar to those of the Leguminosae, they suggested the polyploidy was caused by the infection of the rootlets by a bacterium similar to *Rhizobium*.

Bacterial nodules are also reported to occur in *Zygophyllum album*, *Z. coccineum*, *Z. decumbens*, *Z. simplex*, *Fagonia arabica*, and *Tribulus alatus* (Sabet, 1946), all species of the Egyptian desert.

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INDEX TO VOLUME FIVE

New names and combinations appear in this index in italics.

- rams, L., 147
hillea arenicola, 102; *borealis*
sp. arenicola, 102; *gigantea*, 102;
villofolium var. *arenicola*, 102;
 1. var. *gigantea*, 102; m. var.
itoralis, 101; m. var. *maritima*,
 102; m. var. *puberula*, 102; *pub-*
erula, 102
stinolepis affinis, 68; *coronaria*,
 58
goseris alpestris 66; *barbellula-*
ta, 67; *cuspidata*, 67
 laska, The vascular flora of Mid-
 dleton Island, 39; Notes on the
 plants in the vicinity of Chandler
 Lake, 69
ligera barbata, 121; *californica*,
 121; *ciliosa*, 121; *collina*, 120;
eichleriana, 120; *glabrior*, 121;
grayi, 120; *insignis*, 121; *inter-*
media, 121; *jepsoni*, 120; *macro-*
cera, 121; *macroptera*, 121; *mamil-*
lata, 120; *ostiolata*, 120; *patel-*
liformis, 121; *rubens*, 121
 Anderson, C. L., 147
 Andersson, N. J., 148
Aphyllon minutum, 99; *uniflorum*
 var. *occidentale*, 99
 Applegate, E. I., 148
Arctomecon californicum, 113; *hum-*
ilis, 113; *merriamii*, 113
Argemone corymbosa, 138; *ochroleuca*
 138
Arnica alata, 102; *discoidea* var.
alata, 102; *foliosa* var. *sonnei*,
 102; *parryi* var. *sonnei*, 102; p.
 ssp. *sonnei*, 102; *parviflora* ssp.
alata, 102; *sanhedrensis*, 102;
sonnei, 102
 Atkinson, W. S., 148
 Bacigalupi, R. C., 148
Baeria aristata, 68; *californica*,
 68; *chrysostoma*, 67; c. ssp.
gracilis, 100; c. ssp. *hirsutula*,
 99; *consanguinea*, 68; *coronaria*,
 68; *fremontii*, 67; f. var. *conju-*
gens, 100; *gracilis*, 100; *minor*,
 67; *platycarpha*, 67
 Baker, C. F., 148
Valsamorhiza macrolepis var. *platy-*
lepis, 99; *platylepis*, 99
 Barry, M. A. 149
 Behr, H. H., 149
Betkea major, 199; *samolifolia*, 119
 Bigelow, J. M. 149
 Bioletti, F. T., 149
 Bloomer, H. G., 149
 Bolander, H. N. 149
 Botanical collecting in the Santa
 Cruz Mountains of central Califor-
 nia, The history of, 147
 Botta, P. E., 150
 Brackenridge, W. D., 150
 Brandegee, M. K., 150; T. S., 150
 Brewer, W. H., 150
 Bridges, T., 150
 Burnham, S. H., 151
Burrielia anthemoides, 68; *gracil-*
is, 100
 Burt-Davy, J., 151
 Calais *bolanderi*, 61; *glauca*, 61;
 g. var. *procera*, 61; *graciloba*,
 59; *laciniata*, 61; *linearifolia*,
 61, 64; *lindleyi*, 64; *nutans*, 59;
sylvatica, 59
Canbya aurea, 113; *candida*, 113
 Cannon, E., 151
Chaenactis douglasii var. *rubri-*
caulis, 100; *rubricaulis*, 100
 Chambers, K. L.: Taxonomic notes on
 some Compositae of the western
 United States, 57
 Chamisso, Adelbert von, 151
 Chandler Lake, Alaska, Notes on the
 plants in the vicinity of, 69
 Chromosome numbers, of some Papav-
 eraceae, 137; of some western Pap-
 averaceae, 109; for the genus *Lar-*
rea, A note on the reported, 169
 Clarke, F. L. 151
 Collie, A., 151
 Compositae of the western United
 States, Taxonomic notes on some,
 57
 Congdon, J. W., 152
 Cooke, W. B.: The fungus collec-
 tions of William Russel Dudley, 23
 Cooper, W. S., 152
Corethrogyne filaginifolia var. *li-*
nifolia, 100; *linifolia*, 100
 Coulter, T., 152
 Curran, M. K., 150
Cuscuta from Sinaloa, Mexico
 A new, 133; *jalapensis*, 135; *lind-*
savi, 133; *macrocephala*, 135
 Daly, J. G., 152
 Davis, H., 152
 Davy, J. B., 151
Dendromecon rigida, 113
Dicoria canescens ssp. c., 106; c.
 ssp. *hispidula*, 105; *clarkiae*, 106

- Dicranostigma leptopodum, 138
 Douglas, D., 152
 Dudley, The fungus collections of William Russel, 23; 153
 Dutton, H. A., 153
- Eastwood, A., 153
 Ehrendorfer, F.: Survey of the Galium multiflorum complex in western North America, 3
 Elmer, A. D. E., 154
 Eriophyllum ambiguum var. paleaceum, 100; paleaceum, 100
 Ernst, W. R.: Chromosome numbers of some Papaveraceae, 137; Chromosome numbers of some western Papaveraceae, 109
 Eschscholz, J. F., 154
 Eschscholzia caespitosa, 113; californica, 13; elegans, 113; glyptosperma, 114; hypocoides, 138; lemmonii, 138; lobbii, 114; mexicana, 138; minutiflora, 114; m. var. darwinensis, 138; palmeri, 114; ramosa, 114
- Fagonia arabica, 169
 Fedia samolifolia, 119
 Ferris, R. S.: Taxonomic notes on western plants, 99: 154
 Fitch, A., 154
 Fremont, J. C., 154
 Fungus collections of William Russel Dudley, 23
- Galium multiflorum complex in western North America, Survey of the, 3; acutissimum, 7; angustifolium, 3; bloomeri, 10; b. var. hirsutum, 10; brevifolium, 3; buxifolium, 20; catalinense, 20; chihuahuense, 3; collomae, 3; coloradoense, 19; ericarpum, 3; fendleri, 3; fuscum, 3; gabrielense, 3; grayanum, 15; g. ssp. glabrescenes, 15; g. ssp. grayanum, 15; jepsonii, 3; hallii, 6; hypadenium, 3; hypotrichium, 11; h. ssp. h., 12; h. ssp. scabriusculum, 13; h. ssp. subalpinum, 12; h. ssp. tomentellum, 12; h. ssp. utahense, 12; hystricocarpum, 3; leucothrichum, 3; matthewsii, 8; multiflorum, 10; m. f. hirsutum, 10; m. var. hirsutum, 10; m. var. parvifolium, 14; m. ssp. puberulum, 16; m. var. puberulum, 16; m. var. scabridum, 10; munzii, 9; m. var. carneum, 9; m. f. glabrum, 9; m. var. subalpinum, 12; parishii, 14; parvifolium, 14; philippii, 3; rothrockii, 3, 99; serphylloides, 3; stellatum, 7; s. ssp. eremicum, 7; s. var. eremicum, 7; s. ssp. s., 7; watsonii, 16; w. ssp. puberulum, 16; w. f. scabridum, 16; w. ssp. w., 16; wrightii, 3; w. var. rothrockii, 99
 Gambel, W., 155
 Gautier, G., 143; Herbarium, The, 143
 Glaucium flavum, 138
 Greene, E. L., 155
- Haenke, T., 155
 Halsey, S. D., 155
 Hartweg, K. T., 155
 Hayward, I. R., 156
 Heller, A. A., 156
 Hesse, V. F., 156
 Hinds, R. B., 156
 Howell, J. T., 157
 Hunnemannia fumariifolia, 138
 Hymenonema glaucum, 61; laciniatum, 61
 Hymenoxys californica, 68; c. beta coronaria, 68
- Jepson, W. L., 157
 Jespersion, B. S., 157
 Jones, M. E., 157
- Kaufeldt, C. E., 157
 Kellogg, A., 157
 Knoche, Herman, 1870-1945, 123; 143; 158
 Koeleria asiatica, 129, cairnesiana, 129
- Langsdorff, G. H., 158
 Laphamia inyoensis, 104; palmeri, 104; toumeyii, 104; villosa, 104
 Larrea, A note on the reported chromosome numbers for the genus, 169; cuneifolia, 169; divaricata, 169; nitida, 169; tridentata, 169
 Lasthenia conjugens, 100; hirsutula, 99
 Layne, M. K., 150
 Leithold, C. F., 158
 Lessingia arachnoidea, 101; germanorum var. peirsonii, 101; g. var. ramulosissima, 101; g. var. tomentosa, 101; grandulifera var. tomentosa, 101; hololeuca var. arachnoidea, 101; lemmonii var. ramulosissima, 101; l. var. piersonii, 101; leptoclada var. arachnoidea, 101; micradenia var. arach-

- noidea, 101; m. var. glabrata, 101; ramulosa var. glabrata, 101; ramulosissima, 101; tomentosa, 101
- Macleaya cordata, 139
- MacVicar, D. G.: Notes on the plants in the vicinity of Chandler Lake, Alaska, 69
- Malacothrix altissima, 102; foliosa var. squalida, 102; insularis var. squalida, 102; saxatilis var. altissima, 102; squalida, 102
- Mallory, R. M., 158
- Mason, H. L., 158
- McMurphy, J. I. W., 158
- Meadows, D., 158
- Meconella californica, 114; denticulata, 114; linearis, 114; oregana, 114
- Meconopsis regia, 139
- Menzies, A., 159
- Microseris alpestris, 66; bolanderi, 61; howellii, 62; laciniata ssp. 159; l. ssp. leptosepala, 61; leptosepala, 61; lindleyi, 64; linearifolia 64; nigrescens, 67; nutans, 58; n. var. macrolepis, 59; paludosa, 62; sylvatica, 59; s. var. stillmani, 62; troximoides, 67
- Mock, B. A., 159
- Moeur, J. C., 159
- Mofras, E. D. de, 159
- Morey, D. H.: Changes in nomenclature in the genus Plectritis, 119
- Myzorrhiza corymbosa, 99
- Nothocalais alpestris, 66; cuspidata, 67; nigrescens, 67; suksdorfii, 67; troximoides, 67
- Nuttall, T., 159
- Oberlander, G. T., 159
- Olsson-Seffer, P. H., 159
- Orobanche californica, 99; c. var. corymbosa, 99; corymbosa, 99; grayana, 99; uniflora ssp. occidentalis, 99
- Papaver californicum, 114
- Papaveraceae, Chromosome numbers of some, 137; Chromosome numbers of some western, 109
- Parish, S. B., 159
- Parry, C. C., 160
- Pendleton, R. L., 160
- Platystemon californicus, 114
- Plectritis, Changes in nomenclature in the genus, 119; anomala, 120; a. var. gibbosa, 120; a. var. lactiflora, 120; aphanoptera, 120; brachystemon, 119; californica, 121, c. var. rubens, 121; ciliosa ssp. c., 121; c. var. c., 121; c. var. davyana, 121; c. ssp. insignis, 121; c. var. insignis, 121; c. var. patelliformis, 121; collina, 120; congesta var. alba, 119; c. ssp. brachystemon, 119; c. ssp. c., 119; c. var. c., 119; c. var. magna, 120; c. var. major, 119; c. beta minor, 119; c. ssp. nitida, 120; davyana, 121; eichleriana, 120; gibbosa, 120; glabra, 120; involuta, 120; jepsonii, 120; macrocera var. collina, 120; m. var. eichleriana, 120; m. ssp. grayii, 120; m. var. grayii, 120; m. ssp. m., 120; m. var. m., 120; m. var. mamillata, 120; macroptera, 120; magana, 120; m. var. nitida, 120; microptera, 119; nitida, 120; racemulosa, 119; samolifolia, 119; s. var. involuta, 120; s. var. pussila, 119; suksdorfii, 119
- Porter, D. M.: A note on the reported chromosome numbers for the genus Larrea, 169
- Pringle, C. G., 100
- Ptilocalais graciloba, 59; macrolepis, 59; nutans, 59
- Ptilomeris anthemoides, 68; aristata, 68; coronaria, 68
- Ptilophora nutans, 59
- Randall, J. L. D., 160
- Rattan, V., 160
- Raven, P. H., 160
- Rich, W. H., 161
- Rollins, R. C., 161
- Romneya coulteri, 139; trichocalyx, 139
- Rose, L. S., 161
- Rubtzoff, P., 161
- Rust, E. W., 161
- Santa Cruz Mountains of central California, The history of botanical collecting in, 147
- Scorzonella bolanderi, 61; glauca, 61; howellii, 62; laciniata, 61; l. var. bolanderi, 61; leachiana, 61; leptosepala, 61; nutans, 59; paludosa, 62; p. var. integri-folia, 62; procera, 61; sylvatica, 59; s. var. stillmani, 62; troximoides, 67

- Senecio foetidus var. hydrophiloides, 102; hydrophiloides, 102; spartioides var. granularis, 102
 Sericocarpus californicus, 100; oregonensis ssp. californicus, 100
 Smith, C. P., 161
 Springer, M. E., 161
 Stephanomeria intermedia, 59
 Stylomecon heterophylla, 114
 Suksdorf, W. N., 162
 Symphoricarpos hesperius, 99; mollis ssp. hesperius, 99; pauciflorus, 99
- Taxonomic notes on western plants, 99
 Thomas, J. H.: Herman Knoche, 1870-1945, 123; The Gautier Herbarium, 143; The history of botanical collecting in the Santa Cruz Mountains of central California, 147; The vascular flora of Middleton Island, Alaska, 39; 162
 Torrey, J., 162
- Tribulus alatus, 169
 Troximom alpestre 66; barbellulatum, 67; cuspidatum, 67
- Uropappus grandiflorus, 64; lindleyi, 64; linearifolius, 64
- Valerianella aphanoptera, 120; anomala, 120; ciliosa, 121; congesta, 119; c. var. trigona, 119; macrocera, 120; magna, 120; samolifolia, 119
 Voss, A., 162
- Wiggins, I. L.: A grass new to the Alaskan arctic, 129; A new Cuscuta from Sinaloa, Mexico, 133; Notes on the plants in the vicinity of Chandler Lake, Alaska, 69; 162
 Williamson, T. G., 162
- Zygophyllum album, 169; coccineum, 169; decumbens, 169; simplex, 169

This completes the Contributions from the Dudley Herbarium.