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CALIFORNIA HISTORICAL SURVEY SERIES
HISTORIC LANDMARKS, MONUMENTS AND STATE PARKS
Edited by Clark Wing

REDWOOD HIGHWAY FLORA

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Division of Parks

Berkeley, 1939

To the Garden Club of America

donors of

The Garden Club of America Redwood Grove

FOREWORD:

The Redwood Highway in California is the only scenic drive of its kind in the world. It is here that the Coast Redwoods (Sequoia sempervirens) survivors of extensive ancient forests, are making their last stand.

As the people of California came to realize that these trees must be saved if the fame of the state for scenic beauty was to be perpetuated, the cry of "Save-the-Redwoods" was heard and effort to save the Redwoods in Humboldt County began in 1921. Not only our citizens, but travelers from over the world, recognized the importance of saving the Redwoods.

These giant Sequoias, here on the western edge of this continent are of two species -- the Big Trees, or Sierra Redwoods, botanically known as Sequoia gigantea, and the Coast Redwoods, the Sequoia sempervirens. The big trees are preserved, except for the Calaveras North Grove State Park, in National Parks and Forests. The Coast Redwoods, are being saved by the state.

"Of all natural scenic features found here, these Great Redwoods are most distinctly Californian. Remarkable for their great size and their age, even more remarkable for the massed beauty of their forests, these Redwoods are

a living museum of antiquity, extending far back beyond the beginning of our Christian era. To enter a Redwood forest is to transport oneself into an environment not unlike that of hundreds of thousands of years ago.

"In Humboldt and Del Norte counties, where the Sequoia sempervirens reaches its supreme development in a setting of rich associated flora, more than thirty thousand acres have been preserved in state parks, representing a cost of over \$6,000,000. Extending for thirty miles along the Redwood Highway, these majestic colonnades are assured of preservation for all time. But more important still, away from the beaten tract, and unpenetrated by automobile roads, large units of virgin forest have been incorporated in the state reserves with all their primitive qualities undisturbed, capable of being held untouched by artificial intrusions for many generations to come.

"These are in four main areas. Within the twenty-thousand acre Humboldt Redwood Park, forty-five miles south of Eureka, the Bull Creek watershed has been preserved almost intact from ridge to ridge. At its heart the heavy stands of giant redwoods on a thousand acres of extensive flats, from South Fork of Eel River four miles west along Bull Creek, make up one of the greatest of all forest spectacles. The comparison to a mighty cathedral has been often made, yet there is no other simile to express its overwhelming

effect. 'Dim, lofty, pillared, peaceful, this temple which the Great Architect has been building for a score of centuries is incomparably nobler, more beautiful and more serene than any created by the hands of man.' Aside from the main highway, approached from the south through a series of impressive memorial groves, and from the north over the privately owned 'Avenue of the Giants,' which the state is now acting to save, Bull Creek Flat represents the climax of a trip through the Redwoods.

"The Prairie Creek Redwoods, to the north of Eureka, near Orick, make up another large primitive tract, quite different in prevailing atmosphere, more somber, the dense and even stand of redwoods interspersed with spruce and fir and hemlock, with broad-leaved maples along the streams, the forest floor luxuriant in great tangles of shrubs and giant man-high ferns. Then going northward one comes to the Del Norte Coast Redwoods, seven miles south of Crescent City, where rugged seascape vies for attention with redwoods growing almost to the ocean's edge, and thickets of rhododendrons which bloom in the early summer. Comparable in impressiveness are the Mill Creek Redwoods, northernmost of the outstanding groves, where a large beginning has been made upon the fourth of the main projects outlined years ago by the Save-the-Redwoods League." *

* California's Investment in State Parks by Newton B. Drury, Acquisition Officer, California State Park Commissioner; Secretary, Save-the-Redwoods League.

These redwood forests give protection to a wide variety of California flora. The list which follows, flora along the California Redwood Highway, has been authorized by the Save-the-Redwoods League. It has been compiled as a part of the California Historical Survey Series, being prepared and published by the California State Division of Parks, under the auspices of the Works Projects Administration. The purpose of this series is to trace the historical background of the state parks and landmarks, to tell what can be found there and how they were acquired.

The information given here has been gathered to follow a list prepared by Mr. H. W. Shepherd, of the Division of Landscape Design at the University of California in Berkeley. The list, which has also been checked by Mr. Herbert L. Mason, Curator of the Herbarium at the University of California, is given as the table of contents of this volume.

* Two authorities have been used for the material which follows: Dr. Willis L. Jepson, Manual of Flowering Plants of California and Mary Elizabeth Parsons, The Wild Flowers of California. The Jepson Manual, which covers trees, shrubs, ferns, vines, ground cover plants and the more ornamental annuals and perennials has been used as a

* (see page 5-A)

reference for the entire list. Parsons, Wild Flowers of California has also been used as an additional source for the flowers. This Parsons material begins on page 47 and from this point on, credit is given to both Jepson and Parsons.

Following the list, on page 130, is a leaflet prepared by the Garden Club of America. It tells of the Garden Club of America Redwood Grove, which is 3,100 acres of magnificent redwoods, on the Redwood Highway in the Humboldt State Redwood Park, about 231 miles north of San Francisco.

* A Manual of the Flowering Plants of California, by Willis Linn Jepson, Professor of Botany in the University of California, President of the California Botanical Society, Fellow of the Royal Society of Arts, London.
Prepared through a fund provided by James Bernard Smith and Inez Ray Smith.
Illustrated with 1023 original drawings.
Associated Students Store, University of California.
Publishers of Botanical Books, Berkeley, California, 1925.

The Wild Flowers of California, by Mary Elizabeth Parsons.
Illustrations by Margaret Warriner Buck
California School Book Depository, San Francisco, California, 1921.

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REDWOOD HIGHWAY FLORA

Prepared For the Garden Club of America

Botanic Name

Common Name

Family

TREES:

Conifers

Abies grandis

Grand Fir

Pine

- A. *grandis* Lindl. LOWLAND FIR. Forest tree 40 to 160 ft. high, the trunk $1\frac{1}{2}$ to 4 ft. in diameter; leaves flat, 1 to 2 in. long, notched at apex, dark lustrous green above and with a medium channel, below with two white bands separated by a ridge; cones long-oblong in outline, $2\frac{1}{2}$ to 4 in. long, $1\frac{1}{2}$ to $1\frac{3}{4}$ in. thick; bracts small, with a short awl-like point set on the roundish apex, $\frac{1}{2}$ as long as the scales; seeds drab-color $4\frac{1}{2}$ lines long with a wing somewhat longer and twice as broad as the seed; cotyledons 6.-Low hills or valleys near the sea; n. Sonoma Co. to Del Norte Co.; n. to B. C.

Libocedrus decurrens

Incense Cedar

Pine

- L. *decurrens* Torr. INCENSE CEDAR. Fig. 48. Forest tree 50 to 125 ft. high with conical trunk 2 to 7 ft. in diameter; bark cinnamon, loose or fibrous in age; leaves minute, 1 to 3 lines long, coherent, also adherent to the stem, free only at the tips, those above and below obtuse but minutely pointed and forming a pair overlapped by the keel-shaped lateral pair; cones red-brown, oblong - ovate when closed, $\frac{3}{4}$ to 1 in. long, consisting of 2 seed-bearing scales with one septal scale between them and often with 2 small scales at base; scales with a small triangular umbo at tip; seeds 4 lines long, margined on each side from near the base to apex by two very unequal wings; larger wing ovate, about 6 lines long.-Mountain slopes, 2,000 to 7,000 ft.; common in the Sierra Nevada; higher Coast Ranges; mts. of S. Cal.; s. to L. Cal., n. to Ore. Wood soft, fine and straight-grained, highly durable.

Picea sitchensis

Sitka Spruce

Pine

P. sitchensis (Bong.) Carr. TIDELAND SPRUCE. Fig. 42. Forest tree 80 to 190 ft. high, with trunk 3 to 20 ft. in diameter, wide spreading rigid branches, and drooping branchlets; trunk bark reddish brown, developing roughish and ill-defined deciduous scales; leaves linear, $\frac{1}{2}$ to 1 in. long, $\frac{2}{3}$ to 1 line wide, whitened and flat above but with a median ridge, convex or strongly ridged below, very stiff and usually tapering to a prickly point or the upper leaves less sharp or bluntly pointed; cones dull brown, long oblong, 2 to 4 in. long and when open $1\frac{1}{4}$ to $1\frac{1}{2}$ in. in diameter; scales narrow, finely and irregularly toothed; with ovate-lanceolate bracts, $\frac{1}{2}$ to $\frac{2}{3}$ as long; seeds $1\frac{1}{3}$ lines long, the wing 3 to 4 lines long and $1\frac{1}{2}$ to 2 lines broad.-Lowlands facing the ocean, Mendocino Co. to Del Norte Co.; n. to Alas. Extensively lumbered. In cultivation called Sitka Spruce.

Pinus contorta

Beach Pine

Pine

P. contorta Dougl. BEACH PINE. Scrub pine 2 to 35 ft. high, commonly with depressed or irregular dark green crown, the trunk mostly $\frac{1}{4}$ to $1\frac{1}{4}$ ft. in diameter with dark rough bark; needles in 2s, $1\frac{1}{4}$ to 2 in. long, clothing the branchlets densely; cones narrowly ovate or sub-cylindric, somewhat oblique, globose when open, 1 to $1\frac{1}{2}$ in. long, falling after 4 or 5 years or remaining on the tree many years; apophysis low pyramidal, bearing a very slender prickly which weathers away in age; seeds $1\frac{1}{2}$ to 2 lines long, the wing 3 to 6 lines long; cotyledons 4 or 5.-Seacoast, Mendocino Co. (Albion River) to Del Norte Co. and n. to Alas. Var. MURRAYANA Engelm. Tamrac Pine. Fig. 37. Forest tree commonly 50 to 125 ft. high; bark remarkably thin ($\frac{1}{4}$ in. thick), smooth; needles $1\frac{1}{2}$ to $2\frac{3}{4}$ in. long.-Dry slopes or swampy swales 6,000 to 10,000 ft.: Sierra Nevada; San Bernardino Mts., and San Jacinto Mts.; Mt. Shasta to the Siskiyou Mts.; also far n. and e. Lodge-pole Pine of the northwest. Var. BOLANDERI Vasey. Cane-like dwarf 2 to 5 ft. high; cones very small.-Mendocino coastal plain.

Pinus muricata

Bishop Pine

Pine

P. muricata Don. BISHOP PINE. Tree 40 to 80 ft. high, 1 to 3 ft. in trunk diameter; bark dark roughly fissured; needles in 2s, 4 to 6 in. long; cones broadly ovate, 2 to 3 in. long, almost as thick, or when open more or less globose, borne on the shoot in circles of 3, 4 or 5, gradually turned downward, developed more strongly on the outside towards the base and in consequence always one-sided; scale-tips rhomboidal, bearing a central prickle with a broad base, or the highly developed scales towards the base on the outside standing out as very stout straightish or upwardly curving spurs; seeds black, sometimes mottled, the thin shell minutely roughened, $2\frac{1}{2}$ to 3 lines long; wing 5 to 8 lines long; cotyledons 4 to 7.- Low swampy hills or flats or rocky slopes, always near the sea; Luffenholz Creek near Trinidad; Mendocino and Sonoma coasts; Pt. Reyes Peninsula; Monterey; Coon Creek, San Luis Obispo.

Pseudotsuga taxifolia Douglas Fir

Pine

P. taxifolia (Lamb.) Britt. DOUGLAS FIR. DOUGLAS SPRUCE. Fig. 43. Magnificent forest tree, 70 to 250 ft. high, the trunk 1 to 8 ft. in diameter; bark on old trees very thick, soft and putty-like, broken into broad heavy furrows; branchlets with the leaves spreading all around the stem or on horizontal branchlets turned more or less to right and left but not in truly flat sprays; leaves linear, blunt at apex, flat with a median groove above and a ridge below, green, with two pale longitudinal bands on the under surface, very short-petioled, $\frac{1}{2}$ to $1\frac{1}{2}$ in. long, $\frac{1}{2}$ to 1 line wide; cones cinnamon or red-brown, long-oval and more or less pointed, $1\frac{3}{4}$ to $3\frac{1}{2}$ in. long, when open $1\frac{1}{4}$ to $1\frac{3}{4}$ in. thick; scales broad and rounded at apex; bracts conspicuously exserted, broadly linear and bearing in the deep notch at apex a spear-like point; seeds 3 lines long, almost as long as the wings; cotyledons 5 to 8.- Moist mountain slopes; Coast Ranges, especially toward the coast, from the Santa Lucia Mts. to Siskiyou Co.; Sierra Nevada from Fresno Co. to Shasta Co.; n. to B. C. Valuable timber tree; known to woodsmen as Red Fir or Yellow Fir, but when manufactured into lumber the product is sold under the trade name "Oregon Pine."

Sequoia sempervirens

Coast Redwoods

Redwood

S. sempervirens (Lamb.) Endl. REDWOOD. Fig. 47. Tall and massive tree 100 to 340 ft. high, the trunk 2 to 16 ft. in diameter; bark $\frac{1}{2}$ to 1 ft. thick; foliage reddish brown; leaves linear, spreading right and left so as to form flat sprays, $\frac{1}{2}$ to 1 (mostly $\frac{1}{2}$ to $\frac{3}{4}$) in. long and 1 to 1 $\frac{1}{2}$ lines wide, or in the top of adult trees with short linear acuminate leaves 3 to 5 lines long, such branchlets strikingly suggestive of those of the Big Tree; cones oval, reddish brown, $\frac{5}{8}$ to 1 $\frac{1}{8}$ in. long, maturing in first autumn; scales 14 to 24; seeds narrowly margined, elliptic in outline, 2 lines long.- This forms a narrow belt along the coast from the Santa Lucia Mts. to the Oregon line, never ranging inland beyond the influence of the sea-fogs, reaching its greatest development in Humboldt Co. It is the tallest tree on the American continent. The wood is light, non-resinous, very straight-grained and exceedingly durable. No other tree has been so important to the development of civilization in California, since the wood, abundant and cheap, is highly useful for all sorts of building and industrial purposes and in manufactures and the arts.

Taxus brevifolia

Western Yew

Yew

T. brevifolia Nutt. WESTERN YEW. Fig. 51. Small tree 10 to 30 ft. high, the crown irregular with the branches of unequal length and standing at various angles but tending to droop; bark thin, red-brown, shreddy; leaves linear, acute at apex, shortly petioled, flat, with midrib in relief above and below, 3 or mostly 6 to 8 lines long, 1 line wide, spreading right and left in flat sprays; seeds borne on the under side of the sprays and when mature set in a fleshy scarlet cup, the whole looking like a brilliantly colored berry.- Deep, shady canons: Santa Cruz Mts. to Mendocino Co. and northw. to Mt. Shasta, thence s. through the Sierra Nevada. Localities few and scattered, and the individuals not numerous. Wood fine - and close-grained, hard, heavy and durable.

Torreya californica

California Nutmeg

Yew

- T. californica* Torr. CALIFORNIA NUTMEG. Fig. 52. Handsome tree 15 to 50 ft. high, the trunk $\frac{1}{2}$ to 3 ft. in diameter; leaves rigid, $1\frac{1}{4}$ to $2\frac{1}{2}$ in. long, $1\frac{1}{2}$ lines wide, flat, dark green above, yellowish green beneath and with two longitudinal glaucous grooves, linear or tapering above middle, bristle-tipped, twisted on their short petioles so as to form a 2-ranked flat spray; fruit elliptical, green in color or when ripe streaked with purple, $1\frac{1}{8}$ to $1\frac{3}{4}$ in. long; flesh thin and resinous; endosperm copious, with irregular incisions filled by the inner coat, giving it a marbled appearance so that in cross-section the seed resembles the true nutmeg of commerce.- Cool, shady cañons: Santa Cruz Mts. to Mendocino Co.; Sierra Nevada. A forestally rare tree.

Tsuga heterophylla

Coast Hemlock

Pine

- T. heterophylla* (Raf.) Sarg. COAST HEMLOCK. Graceful conifer, 100 to 180 ft. high, with trunk 1 to 4 ft. in diameter, the branches and branchlets slender, forming sprays which droop cascade-wise but not pendulous; trunk bark brown or dark red inside, smoothish or broken into small oblong plates; branchlets finely hairy with the leaves mostly spreading in 2 ranks; leaves linear, flat, 3 to 10 lines long, $\frac{1}{2}$ to 1 line wide, shortly but distinctly petioled; cones oblong or conical when closed, roundish when open, $\frac{1}{2}$ to $\frac{3}{4}$ or 1 in. long; scales longer than broad, roundish at apex, entire, bracts about $\frac{1}{6}$ the length of the scales, broadly triangular with truncate or obtuse summits; seeds light-brown, $1\frac{1}{4}$ line long, the wing 3 or 4 lines long and twice the breadth of the seed.- Mountain slopes near the sea from Gualala River, Sonoma Co., to Del Norte Co.; n. to Alas. and w. Mont.

<u>Botanic Name</u>	<u>Common Name</u>	<u>Family</u>
<u>Deciduous Trees</u>		

<i>Acer circinatum</i>	Vine Maple	Maple
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A. *circinatum* Pursh. VINE MAPLE. Fig. 611. Shrub or sometimes a small tree, erect and 5 to 20 ft. high, but more often vinelike or reclining; leaves 2 to 4 in. broad, 5 to 7 lobed to the middle, with toothed margin; flowers 4 to 10 or more in a corymb, most of them staminate, the cluster often setting but one fruit; stamens 6 to 10, shorter than the petals in the perfect flower but longer than the petals in the staminate flower; filaments villous below; samaras glabrous, the wings spreading at right angles to the stalk, scarlet when full grown; as the fruit ripens, the peduncle turns upward and finally the samara stands erect above the leaf.- Along the coast from Humboldt Co. to Del Norte Co.; n. to B. C.

<i>Acer macrophyllum</i>	Broad-leaf Maple	Maple
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A. *macrophyllum* Pursh. BIG-LEAF MAPLE. Fig. 610. Broad-crowned tree 30 to 95 ft. high; leaves roundish in outline, palmately parted into 5 broad fingers, 4 to 10 in. broad; perfect and staminate flowers mixed in the same raceme; stamens 7 to 9, villous below; body of samara short-bristly. - Along living streams throughout cismontane Cal., and also on east and north slopes of mt. ranges in the areas of about 25 to 50 inches rainfall; n. to B.C. and Alas. Also called Water Maple, White Maple and Oregon Maple.

Aesculus californica

California Buckeye

Buckeye

- A. californica* (Spach) Nutt. BUCKEYE. Fig. 614. Low broad-headed tree 10 to 20 ft. high; leaflet 5 to 7, oblong-lanceolate to oblong-elliptic, acute or acuminate, 3 to 5 in. long; thyrse 4 to 6 in. long; petals 6 to 7 lines long; axis of the thyrse at length naked and pendulous, bearing one pear-like pod or sometimes 2 to 9; seed 1 to 2 in. in diameter.- Dry hills or canon sides, 10 to 4,000 ft.: Coast Ranges from Siskiyou Co. to Antelope Valley, Los Angeles Co.; Sierra Nevada foothills. June.

Alnus rubra

Red Alder

Birch

- A. rubra* Bong. Red Alder. Fig. 298. Tree 30 to 90 ft. high; bark very white or white-mottled; leaves 2 to 6 in. long, elliptic ovate, often rusty beneath, the coarse teeth again finely toothed; cones oblong-ovoid, $\frac{3}{4}$ to 1 $\frac{1}{8}$ in. long.- Deep cool canons or moist flats along the coast; Santa Inez Mts. to Del Norte Co.; n. to Alas. Abundant from Marin Co. to Humboldt Co.; where it forms pure groves of singular beauty in marshy bottoms near the sea. Also called Oregon Alder.

Cornus nuttallii

Pacific Dogwood

Dogwood

- C. nuttallii* Aud. MOUNTAIN DOGWOOD. Fig. 717. Tree 10 to 30 (or 45) ft. high; leaves narrow- or elliptic-obovate or even orbicular, with rounded or shortly acute apex 3 to 5 in. long, on petioles 2 or 3 lines long; flowers crowded in a head on a thick convex receptacle and surrounded by a conspicuous petal-like involucre; bracts of the involucre commonly 6, white, sometimes tinged with red, obovate to oblong, $1\frac{1}{2}$ to 3 in. long, abruptly acute or acuminate; heads $\frac{1}{2}$ to 1 in. broad, very dense, borne on peduncles 1 to $1\frac{1}{2}$ in. long; drupe 5 to 6 lines long, scarlet.- Mountain woods, 1,500 to 5,100 ft.: coastal mts. of S. Cal.; Santa Lucia Mts.; Santa Cruz Mts.; North Coast Ranges; Sierra Nevada; n. to B. C. Also called Pacific Dogwood.

Corylus rostrata californica

Hazel

Hazel

- C. rostrata californica* Ait. var. *californica* A. DC. CALIFORNIA HAZEL. Fig. 299. Commonly 6 to 10 (rarely 20) ft. high; leaves obovate to roundish, rounded at apex or shortly acute, sometimes obscurely 3-lobed above the middle, short-villous beneath (velvety to the touch), $1\frac{1}{2}$ to 4 in. long; involucre at base sometimes densely, sometimes sparingly hispid or almost glabrous, prolonged beyond the nut into a laciniately fringed tube $\frac{1}{2}$ to $1\frac{1}{2}$ in. long; nut ovoid, bony, 6 lines long.- Along streams in cool canons or on moist slopes; Coast Ranges, 20 to 2,500 ft., from the Santa Cruz Mts. and Napa Co. to Humboldt Co. and Del Norte Co.; Sierra Nevada, 2,500 to 6,000 ft. from the Kaweah River to Yosemite and Mt. Shasta; n. to B. C. Not as yet seen in Vaca Mts., inner South Coast Range or Santa Lucia Mts. (*C. californica* Rose.) Var. TRACYI Jepson n. var. Leaves subglabrous beneath or sparingly pubescent (not velvety; involucreal tube (beyond nut) very short, 2 to 4 (rarely 8) lines long.- Humboldt Co. (Grouse Mt., Tracy 4842, type) to Siskiyou Co. and s. in the Sierra Nevada.

Fraxinus oregona

Oregon Ash

Willow

- F. oregona* Nutt. OREGON ASH. Fig. 740. Tree 30 to 80 ft. high; leaves 6 to 12 in. long; leaflets 5 to 7, oblong to oval, or often broadest toward the apex and abruptly short-pointed, usually sessile except the terminal one, entire or toothed above the middle, 2 to $5\frac{1}{2}$ in. long; stamens 2 (sometimes 1 or 3); samara oblong-lanceolate, $1\frac{1}{2}$ to 2 in. long, including the wing, the body clavate and $\frac{1}{2}$ to $\frac{3}{4}$ in. long.- Along streams or in valley or lake bottoms, 10 to 4,000 ft.: throughout cismontane Cal.; n. base San Bernardino Mts.; Modoc Co.; Siskiyou Co.; n. to B. C.

Populus trichocarpa

Black Cottonwood

Willow

- P. trichocarpa* T. & G. BLACK COTTONWOOD. Fig. 297b. Tree commonly 30 to 125 ft. high, with a broad head of upright branches; trunk 1 to 3 ft. in diameter; bark light or dark in color but usually with a yellowish cast, longitudinally fissured, the long, narrow and rather smooth-surfaced plates separated by cleanly channeled fissures; leaves broadly or narrowly ovate; finely serrate, truncate or heartshaped

at base, acute or tapering to a point at apex, $2\frac{1}{2}$ to 7 (or 11) in. long, lustrous green above, rusty-brown beneath when young but at length whitish; stigmas 3, dilated and deeply lobed; pod nearly sessile; seeds with long lustrous white hairs.- Along living streams and rich bottoms in canons and valleys, mostly 500 to 7,500 ft., nearly throughout the state in the greater ranges; W. Nev.; n. to Alas. Var. *INGRATA* Jepson n. comb. Leaves lanceolate, 2 to $4\frac{1}{2}$ in. long, 4 to 10 lines broad.- Santa Ana Canon, San Bernardino Mts. (f. *ingrata* Jepson).

Quercus garryana

Oregon Oak

Oak

Q. garryana Dougl. OREGON OAK. Fig. 301. Round-headed tree 25 to 55 ft. high, the trunk bark white, thin, superficially checked into small squarish scales; leaves 3 to 4 (or 6) in. long, $1\frac{1}{2}$ to $4\frac{1}{2}$ in. wide, dark lustrous green and nearly glabrous above, rusty or pale, finely pubescent and yellow-veined beneath, leathery in texture and pinnately parted into 5 to 7 (rarely 9) lobes with mostly deep and often acute sinuses; lobes entire or with 2 or 3 coarse rounded unequal teeth; cup very shallow, 6 to 9 lines broad, with tuberculate scales; nut bulging beyond the small cup, typically subglobose but varying to obovoid or subcylindric, although always rounded at apex, $\frac{3}{4}$ to 1 in. long, $\frac{2}{3}$ to $\frac{3}{4}$ in. thick, its surface polished and shining.- Rich mt. slopes: Santa Cruz Mts. and Mt. Tamalpais to Mendocino and Humboldt Cos.; far n. to B. C. Wood used for shipbuilding and interior finish in Oregon. Also called Garry Oak and Post Oak. Var. *BREWERI* Jepson. Brewer Oak. Scrub form; leaves 1 to 2 in. long.- High altitudes from the Yollo Bolly Mts. to the Siskiyou Mts. Var. *SEMOTA* Jepson. Kaweah Oak. Shrub; leaves 3 to 4 in. long.- Chaparral belt of the s. Sierra Nevada.

Quercus kelloggii

California Black Oak. Oak.

Q. kelloggii Newb. CALIFORNIA BLACK OAK Fig. 309. Graceful tree with broad rounded crown, 30 to 80 ft. high; trunk bark dark, checked into small plates; leaves deeply and mostly sinuately parted, with about 3 lobes on each side ending in 1 to 3 or more coarse bristle-tipped teeth, lustrous green

above, lighter beneath, often white with a fine tomentum when young, 4 to 10 in. long, $2\frac{1}{2}$ to 6 in. wide; cup large, $\frac{1}{2}$ to 1 in. deep, $\frac{3}{4}$ to $1\frac{1}{8}$ in. broad, its scales thin, with a membranous and sometimes ragged margin; nut oblong, rounded at apex, deeply set in the cup, 1 to $1\frac{1}{2}$ in. long and $\frac{3}{4}$ in. thick, covered at first with a fine fuzz.- Mountain slopes and gravelly valleys, 1,500 to 6,500 ft. or sometimes ascending to 8,000 ft. or descending to 200 ft.; high mts. of S. Cal.; Sierra Nevada; Coast Ranges, but not near the sea; n. to southwestern Ore.

Salix scouleriana

Nuttall Willow

Willow

S. scouleriana Barr. NUTTALL WILLOW. Shrub 2 to 15 ft. high or a small tree to 25 ft. high; branchlets with whitish or commonly with very dark bark; leaves broadly obovate or oblong-obovate, entire, rounded at apex or shortly acute, 1 to $1\frac{1}{2}$ (or 4) in. long, $\frac{1}{2}$ to $1\frac{1}{2}$ in. broad, yellow-green and lustrous above, yellow-veined, glabrate or densely short-silky beneath; petioles 4 lines long; catkins appearing before the leaves, oblong or elliptic, $\frac{1}{2}$ to 1 in. long, 5 to 7 lines thick, sessile; bracts obovate, rounded at apex, black or black tipped, covered with white hairs; stamens 2, conspicuously long-exserted, filaments glabrous; ovary white-silky; style none, stigmas broadly linear, sometimes notched at apex; capsule less silky than the ovary.- Montane, 4,000 to 10,000 ft., San Bernardino Mts. and Sierra Nevada; along the immediate coast from Monterey Co. and Alameda Co. to Del Norte Co.; n. to Alas., e. to the Rocky Mts. (*S. flavescens* Nutt. *S. brachystachys* Nutt. *S. scouleriana* var. *crassijulis* And.)

<u>Botanic Name</u>	<u>Common Name</u>	<u>Family</u>
<u>Evergreen Trees</u>		

Arbutus menziesii

Madroño

Heath

A. menziesii Pursh. MADRONO. Fig. 728. Widely branching tree 20 to 125 ft. high; bark polished, crimson or terra cotta, or on old trunks dark brown and fissured into small scales; leaves narrowly elliptic or ovate, 3 to 6 in. long, glabrous, dark green and polished above, glaucous beneath, entire, or on vigorous shoots, finely serrate, 3 to 6 in. long; flowers white; corolla 3 lines long, with 5 very small lobes recurving from the small opening, and 10 semitransparent glands in a circle at base; berry somewhat depressed-globose, 4 to 5 lines in diameter, fleshy but rather dry, red or orange color.- Foothills and mts., 300 to 4,000 ft.; local in S. Cal. (Palomar, San Bernardino, San Gabriel and Santa Inez mountains); Coast Ranges from Monterey Co. to Del Norte Co.; Sierra Nevada from Tuolumne Co. to Shasta Co.; n. to B. C.

Castanopsis chrysophylla

Giant Chinquapin

Oak

C. chrysophylla A. DC. GIANT CHINQUAPIN. Tree 50 to 115 ft. high with the very thick trunk bark broken into longitudinal furrows; leaves oblong, tapering to base and also to apex (commonly abruptly long-pointed), entire, dark green or the upper surface, at first golden with a fine tomentum below, later light olive-yellow, $2\frac{1}{2}$ to $5\frac{1}{2}$ in. long, $\frac{3}{4}$ to $1\frac{1}{2}$ in. wide, the nerves straightish, forking well inside the margins; burr chestnut-like, irregularly 4-valved, containing 1 or sometimes 2 subtriangular nuts 4 or 5 lines long with hard shell and sweet kernel. - Mendocino and Humboldt Cos.; n. to Ore. Var. MINOR Benth. Golden Chinquapin. Fig. 311. Shrub 3 to 15 ft. high; leaves trough-like (partly folded along the mid-rib), very golden below, 2 to 3 in. long.- Rocky ridges and slopes: Monterey to Humboldt Co., mostly near the coast.

Lithocarpus densiflora

Tan Oak

Oak

- L. densiflora* (H. & A.) Rehd. TAN Oak. Fig. 310. Large tree 50 to 150 ft. high; leaves oblong, acute, strongly parallel-nerved beneath, the nerves ending in the teeth of the margin, $2\frac{1}{2}$ to $4\frac{1}{2}$ in. long, 1 to $1\frac{3}{4}$ in. wide; catkins slender, 2 to 4 in. long; acorns ripe in second autumn; cup $\frac{3}{4}$ to $1\frac{1}{2}$ in. broad; nut globose or short thick cylindric, 1 to $1\frac{1}{2}$ in. long, covered with a deciduous close woolly coat.- Fertile mt. slopes and ridges, Santa Ynez Mts. to Siskiyou Co., thence s. to Mariposa Co. It is associated with the Redwood, or in Mendocino and Humboldt Cos. it becomes most highly developed in the "Bald Hills" country just inside the Redwood Belt. (*Pasania densiflora* H. & A.) Var. ECHINOIDES Jepson. Scrub Tan Oak. Low shrub 1 to 10 ft. high, its thick leaves 1 to 2 in. long, entire, and with inconspicuous nerves.- Siskiyou region.

Quercus chrysolepis

Maul Oak

Oak

- Q. chrysolepis* Liebm. MAUL OAK. CAÑON OAK. Fig. 305a, c, d. Tree 20 to 60 ft. high with roundish or often spreading crown; trunk bark whitish rather smooth; leaves 1 to 2 (sometimes even 4) in. long, thick, green above, yellow beneath with a fine fuzz or powder, or eventually lead-color or dull white, ovate or oblong - ovate, acute at apex, entire, or with entire and toothed leaves frequently found on the same twig; typical cup thick and round-edged with a fine fuzzy or felt-like tomentum concealing the scales, the whole suggesting a yellow turban; nut ovate, globose, or cylindric, rounded at apex or sharply pointed, 1 to $1\frac{1}{2}$ in. long, $\frac{3}{4}$ to 1 in. thick.- Mountain ridges, slopes and cañons almost throughout Cal., extremely variable in habit and in the acorns. It has wider distribution and grows under more varied conditions than any other species of this family in Cal., but does not occur in the foothills. Called also Goldcup Oak, Mountain Live Oak, White Live Oak, Pin Oak and Hickory Oak. It furnishes the most valuable wood amongst our species, being strong, tough and close-grained. Var. NANA Jepson n. comb. Fig. 305b. Leaves ovate, acute, small ($\frac{3}{4}$ to $1\frac{1}{2}$ in. long).- Scrub form in the chaparral (f. nana Jepson.) Var. HANSENII Jepson n. comb. Fig. 305e. Low tree; nut slender-cylindric.- Amador Co. (f. hansenii

Jepson.) Var. *GRANDIS* Jepson n. comb. Fig. 305f. Tree 60 to 110 ft., high, usually with very tall trunks; cup rather thin, the pubescence thin, not concealing the scales.- Deep cañons, Mendocino Co. (f. *grandis* Jepson.) Var. *PENDULA* Jepson n. comb. Branchlets pendulous; leaves oblong-to broad-lanceolate, deep shining green above.- Upper San Benito River. (f. *pendula* Jepson.)

Quercus wislizenii

Interior Live Oak

Oak

Q. wislizenii A. DC. INTERIOR LIVE OAK. Fig. 308. Round-headed tree most commonly 30 to 75 ft. high; trunk 1 to 3 ft. in diameter with a thick brittle bark which is very smooth or sometimes roughly fissured; leaves typically oblong (varying to elliptic, ovate or ovate-lanceolate), either tapering to apex or rounded, 1 to $2\frac{1}{2}$ (or $4\frac{2}{3}$) in. long, glabrous, green and shining above, pale, yellowish green below, the margin entire or spiny-toothed; cup deeply cup-shaped to hemispherical, embracing $\frac{1}{2}$ to $\frac{3}{4}$ the nut, 6 to 7 lines broad, its scales thin, red-brown; nut cylindric and tapering to the apex or conical, often longitudinally banded with dark lines converging at the summit, $1\frac{1}{2}$ to $1\frac{5}{8}$ in. long.- Hill slopes or moist valley levels, 200 to 5,000 ft.; Great Valley; Sierra Nevada foothills from Kern Co. to Shasta Co., thence s. in the inner Coast Ranges to the Vaca Mts. and to Ukiah Valley. Var. *FRUTESCENS* Engelm. Scrub form in the chaparral usually 4 to 6 ft. high; branchlets very rigid; leaves small, thick.- Coast Range summits and ridges w. to the ocean and s. to S. Cal. and L. Cal. Var. *EXTIMA* Jepson n. comb. Acorns very small, the nut 6 to 9 lines long, 3 lines thick.- Kaweah River, 4,000 ft. (f. *extima* Jepson.)

Umbellularia californica

California Laurel

Laurel

U. californica Nutt. CALIFORNIA LAUREL. Fig. 391. Tree 20 to 60 ft. high with a dense crown of erect slender branches, or in the chaparral as a mere shrub; leaves oblong or oblong-lanceolate, entire, $2\frac{1}{2}$ to $4\frac{1}{2}$ in. long, on short petioles; umbels 4 to 9-flowered, but setting only 1 to 3 (rarely 6)

fruits; flowers 2 lines long; drupe subglobose or ovoid, 1 in. long, greenish, or when ripe, brown-purple.- Cañon walls, mountain slopes and stream flats; Coast Ranges and Sierra Nevada, s. to San Diego Co. and n. to southern Ore. It is most abundant and of greatest size on the alluvial river flats of northwestern California and adjacent Oregon. Also called Bay Tree and Bay Laurel, but in the woods of Mendocino and Humboldt the name "Pepperwood" is the only one in use, while in Oregon the name "Myrtle" replaces all others. The wood is prized by the cabinet-maker.

Botanic NameCommon NameFamilySHRUBS

Amelanchier alnifolia Western Serviceberry Rose

A. alnifolia Nutt. WESTERN SERVICEBERRY. Fig. 508. Shrub 3 to 12 ft. high; leaves mostly elliptic, sharply serrate near the apex or less commonly entire, $\frac{3}{4}$ to 1 $\frac{1}{4}$ in. long; petioles 4 to 6 lines long; racemes short and rather dense; petals narrowly oblong, or somewhat cuneate at base, 4 to 6 lines long; calyx tomentulose or white-hairy, more or less glabrate; fruit purplish, 2 $\frac{1}{2}$ to 3 $\frac{1}{2}$ lines in diameter.- Mountain slopes: High mts. of S. Cal. and Sierra Nevada, 5,000 to 8,000 ft.; Coast Ranges, 100 to 6,000 ft.; n. to Alas., to Rocky Mts. Variable as to pubescence, especially of flowering parts. The following are shadowy or wavering varieties only tentatively entered here: Var. *PALLIDA* Jepson n. comb. Leaves cuspidate, entire or less serrate at apex; calyx-lobes subglabrous outside.- Usually at lower and more arid situations: Sierra Nevada and Coast Ranges to mts. of S. Ca. (*A. pallida* Greene). Var. *VENULOSA* Jepson n. comb. Leaves conspicuously veiny, serrate at apex or above middle; calyx pubescent outside.- Arid mountain slopes: Warner Mts.; San Gabriel Mts.; San Bernardino Mts. (*A. venulosa* Greene.) Var. *COVILLEI* Jepson n. comb. Leaves obtuse, pointed at very apex; petals 2 $\frac{1}{2}$ to 3 lines long.- Panamint Mts. (*A. covillei* Sta.)

Aralia californica

Elk Clover

Aralia

A. californica Wats. ELK CLOVER. Fig. 672. Stems simple, stout, 6 to 10 ft. high, arising from a large rootstock with milky juice; herbage glabrous, subulate-scabrous on the main stem; leaves ternate, then pinnately 3 to 5-foliate, 1 to 5 ft. long; leaflets ovate, sometimes elliptic, serrate, acuminate, subcordate at base, $\frac{1}{2}$ to 1 ft. long; flowers 1 $\frac{1}{2}$ lines long, on pedicels $\frac{1}{2}$ in. long; panicle 1 to 1 $\frac{1}{2}$ ft. long; ovary red, becoming a globular black berry 2 $\frac{1}{2}$ lines in diameter.- Shaded cañons in moist spots and along living mountain streams: Coast Ranges (except the inner ranges)

from Humboldt and Trinity Co. s.; Sierra Nevada from Plumas Co. to Mariposa Co.; s. to coastal S. Cal.; n. to southwestern Ore. July.

Arctostaphylos manzanita

Parry Manzanita

Heath

A. manzanita Parry. PARRY MANZANITA. Fig. 729. Shrub 6 to 12 ft. high, commonly very erect, sometimes widely branched from the base with long straggling crooked branches, sometimes becoming almost elephantine in its proportions and up to 22 ft. high; branchlets, peduncles, and rachis finely and somewhat canescently puberulent; pedicels glabrous; leaves pale green, thick, glabrous or minutely puberulent, elliptic or oblong, acute or subacute at apex, acute or obtuse at base, 1 to 1½ in. long; panicles drooping; flowers white, sometimes pink-tinged; bracts triangular-acute, small and dry; berry dull white in early summer, becoming deep reddish brown in late summer and autumn, smooth and glabrous, 4 to 5 lines in diameter; nutlets irregularly coalescent or separate, keeled or ridged and roughened on back, and often with 2 small lateral ridges.— North Coast Ranges (only or mostly the middle and inner ranges), n. to Tehama Co., thence s. in the Sierra Nevada foothills to Tuolumne Co.; also on Mt. Diablo. The shrubs kill completely under chaparral fire and do not sprout from the root-crown.

Azalea (Rhododendron occidentale)

Western Azalea

Heath

Rhododendron occidentale Gray. WESTERN AZALEA. Fig. 723. Loosely or widely branching shrub 3 to 8 or 14 ft. high; leaves thin, narrowly or broadly obovate, 1 to 4 in. long, ciliate, otherwise nearly glabrous; calyx 5-parted, its lobes ovate or oval, 1 line long; corolla white or sometimes pink, 1½ to 1 7/8 in. long, 5-cleft, slightly irregular, the upper lobe with a large yellow splotch, the tube funnelform, glandular-viscid outside; stamens 5, exserted; ovary densely pubescent with whitish gland-tipped hairs.— Stream banks or moist flats, rarely on open slopes, rather common; Coast Ranges (excepting the inner ranges) from the Santa Cruz Mts. to Marin Sonoma and Shasta Cos., 50 to 3,500 ft.; Sierra

Nevada, 3,500 to 7,500 ft.; San Jacinto, Palomar and Cuyamaca mountains, 5,000 to 6,000 ft. May-July. Feared by sheepmen as poisonous Var. PALUDOSUM Jepson n. var. Flowers pink to white and yellow, calyx-lobes linear-oblong, 4 to 5 lines long.- Sedgy bogs, Humboldt coast (Fortuna, Jepson 1916, type.)

Berberis aquifolium (Mahonia) Mountain Grape Barberry

B. aquifolium Pursh. MOUNTAIN GRAPE. Stems erect, 1 to 3 ft. high; leaves thin-coriaceous, bright-green and glossy-shining above, duller beneath; leaflets plane, 3 to 5 or 7, elliptic-ovate to oblong-ovate, $1\frac{1}{2}$ to 3 in. long, the margin with many long slender spines; lowest pair of leaflets remote from base of petiole; racemes fascicled in the axils and at the summit, dense, 1 to 2 in. long; berries blue, glaucous, rather large.- North Coast Ranges from Napa Co. to Humboldt Co.; n. Sierra Nevada from Amador Co. to Modoc Co.; n. to B. C. Var. *DICTYOTA* Jepson. Erect, stout, $\frac{1}{2}$ to 1 ft. high, sparsely leafy; leaflets 5 to 7, broadly ovate, prominently reticulated, shining and yellow above, paler beneath, 1 to $2\frac{1}{2}$ in. long, undulate, sinuous-dentate, the 10 to 20 teeth with strong spines; lowest pair of leaflets close to base of petiole; racemes dense, $\frac{3}{4}$ to 1 in. long.- Rocky slopes, Marysville Buttes.

Calycanthus occidentalis Spice Bush Sweet Shrub

C. occidentalis H. & A. SPICE BUSH. SWEET SHRUB. Fig. 389. Erect branching shrub 5 to 9 ft. high; leaves ovate to oblong-lanceolate, acute, rounded at base, $1\frac{1}{2}$ to 6 in. long; sepals and petals linear-spatulate, $1\frac{1}{2}$ in. long or less, the upper $\frac{1}{2}$ or $\frac{1}{3}$ fading tawny or brown in age; filaments $\frac{1}{3}$ line long; fruiting receptacle cup-like, 1 to $1\frac{1}{2}$ in. long; achenes oblong-ovate, slightly oblique or curved, a trifle flattened and bordered all around with a granular margin, somewhat velvety-hirsute, 4 to 5 lines long.- Along cañon streams in the North Coast Ranges and Sierra Nevada foothills, 800 to 3,800 ft.

Castanopsis chrysophylla minor Golden Chinquapin Oak

C. chrysophylla A. DC. GIANT CHINQUAPIN. Tree 50 to 115 ft. high with the very thick trunk bark broken into longitudinal furrows; leaves oblong, tapering to base and also to apex (commonly abruptly long-pointed), entire, dark green on the upper surface, at first golden with a fine tomentum below, later light olive-yellow, $2\frac{1}{2}$ to $5\frac{1}{2}$ in. long, $\frac{3}{4}$ to 1 in. wide, the nerves straightish, forking well inside the margins; burs chestnut-like, irregularly 4-valved, containing 1 or sometimes 2 subtriangular nuts 4 or 5 lines long with hard shell and sweet kernel.- Mendocino and Humboldt Cos.; n. to Ore. Var. MINOR Benth. Golden Chinquapin. Fig. 311. Shrub 3 to 15 ft. high; leaves trough-like (partly folded along the midrib), very golden below, 2 to 3 in. long.- Rocky ridges and slopes; Monterey to Humboldt Co., mostly near the coast.

Ceanothus cuneatus Buck Brush Buckthorn

C. cuneatus (Hook.) Nutt. BUCK-BRUSH. Fig. 622. Rigid divaricately and densely branched shrub 4 to 14 ft. high, with gray bark; branchlets stout and short, often very unequal and interruptedly disposed; leaves oblong- or cuneate-obovate to broadly obovate, entire, light green above, paler beneath with a microscopic tomentum and often obscurely quilted, 2 to 7 (or 10) lines long, on very short petioles; umbels $\frac{1}{2}$ to 1 in. broad, borne on short spur-like branchlets; flowers white, with sweetish odor; capsules globose or slightly oblong, $2\frac{1}{2}$ to 3 lines long, with 3 short erect horns near the top.- Dry mountain slopes, ridges and semi-arid valleys, 300 to 4,000 ft.: throughout the Coast Ranges, Sierra Nevada and mts. of S. Cal.; n. to Oregon, s. to L. Cal. The most abundant and widely distributed species of the genus in Cal., it is commonly gregarious and forms extensive and impenetrable thickets on the driest or most rocky mountain sides. A constant species in the main parts of its range, it is somewhat variable on the margins of its distribution. The leaves

on young crown-sprouts are regularly and coarsely dentate and commonly occur in threes. Cattlemen use for it the general term, chaparral. Var. *RAMULOSUS* Greene. Possible hybrid with *C. rigidus*; branchlets more numerous; leaves somewhat floccose-tomentose beneath; flowers said to be scentless.- Napa Co. to Marin Co.

Ceanothus parryi

Lady Bloom

Buckthorn

C. parryi Trel. LADY-BLOOM. Shrub 4 to 6 (or 18) ft. high; branchlets angular and, when young, tomentose, the 1-year-old ones reddish; leaves pinnately veined, narrowly to broadly oblong, $\frac{3}{4}$ to $1\frac{1}{2}$ in. long, dark green above, cob-webby-tomentose beneath, the margin denticulate but seemingly entire because soon revolute; petioles 2 lines long; panicles simple, oblong or distinctly broader below, 1 to 3 in. long, on sparsely leafy peduncles twice as long; bractlets white, hairy; flowers blue; capsules globose, smooth, 2 lines broad.- Canons, Napa Range to Humboldt Co., frequent.

Ceanothus thyrsiflorus

Blue Blossom

Buckthorn

C. thyrsiflorus Esch. BLUE BLOSSOM. Fig. 618. Shrub 3 to 8 ft. high, or becoming a small tree up to 18 or 25 ft. high, rather straight-limbed, the branchlets strongly angled and mostly ascending; leaves elliptical or oblong-ovate, green on both surfaces, glabrous and shining above, paler and usually scantily hairy along the veins beneath, strongly 3-nerved beneath, the margin mucronate-serrate or serrulate with somewhat impressed glandular teeth, $\frac{3}{4}$ to 2 in. long; flowers blue, rarely varying to white, borne in panicles; panicles dense, $\frac{3}{4}$ to 3 in. long, on somewhat leafy peduncles 2 to 4 in. long; capsules globose, smooth, little lobed, $1\frac{1}{2}$ to 2 lines broad, glandular and black when ripe.- Canon sides, 10 to 1,500 ft., Coast Ranges from Monterey Co. to Del Norte Co.; n. to Ore. It follows very closely and is especially abundant in the Redwood belt. It is also called Blue Myrtle and California Lilac. Var. *GRISSEUS* Trel. Branchlets stout; leaves roundish-ovate to elliptic,

obtusish, silky beneath with dense short hairs, as much as $1\frac{3}{4}$ in. long, the margin revolute between the low teeth; panicles rather large ($1\frac{1}{2}$ in. long) but dense and compact.- Ft. Ross and Monterey. Var. CHANDLERI Jepson n. var. Branchlets slender; leaves small (10 lines long or less), puberulent beneath; panicles subglobose, 7 to 8 lines long on peduncles 2 to $3\frac{1}{4}$ in. long; flowers pale blue.- Pajaro Hills (Chandler 402, type).

Ceanothus Velutinus

Tobacco Brush

Buckthorn

C. velutinus Dougl. TOBACCO BRUSH. Stems several or many from the base, commonly diffusely spreading and forming a low rounded shrub 2 to 5 ft. high, rarely tree-like and up to 12 ft. high; herbage with a strong cinnamon odor; leaves round-ovate or elliptic, obtuse at apex, rounded or subcordate at base, glandular-serrulate, 1 to $3\frac{1}{2}$ (mostly $1\frac{1}{2}$ to $2\frac{1}{2}$) in. long, dark green, glabrous and usually glandular-varnished above, often drying chocolate-brown, pale and with a very minute close pubescence beneath, the veins puberulent, strongly 3-nerved, the lateral nerves with marked marginal veins; panicles $\frac{3}{4}$ to $3\frac{3}{4}$, commonly 2 to 3 in. long; flowers white; capsules lobed at top, very sticky-glandular, 2 lines broad, crests small or almost none.- Mountain slopes, often extensively gregarious (especially northward): Sierra Nevada, 5,000 to 7,000 ft., from Tulare Co. to Modoc Co.; thence w. to Siskiyou and Del Norte Cos.; n. to Wash. and northern Rocky Mts., e. to Nev. Also called Snow Brush, Mountain Balm and Sticky Laurel. Var. LAEVIGATUS T. & G. Veins beneath glabrous.- Mt. St. Helena to Humboldt Co. and n. Var. LORENZENII Jepson n. var. Leaves smaller, 1 to $1\frac{1}{2}$ in. long, the two sides less unlike, not varnished above; panicles smaller.- Mt. Shasta (L. N. Lorenzen); near Junction Mdw., Kern Cañon (Jepson 5021, type).

Cercis occidentalis

Western Red-Bud

Pea

C. occidentalis Torr. WESTERN RED-BUD. Fig. 509. Stems usually clustered, 8 to 15 ft. high; leaves round, cordate at base with nearly closed sinus,

2½ to 3½ in. broad; pod 2 to 2½ in. long and 8 lines wide.- Foothills, 1,000 to 4,000 ft.; inner North Coast Ranges from Solano Co. to e. Mendocino Co. and Shasta Co., s. through the Sierra Foothills to Tulare Co. and the mts. of S. Cal.; e. to Tex. Mar.-Apr.

Cercocarpus betuloides

Hard Tack

Rose

C. betuloides Nutt. HARD TACK. Fig. 499. Spreading shrub 5 to 8 ft. high, or a small tree up to 22 ft. high; leaves obovate, serrate above the middle, cuneate and entire towards the base, conspicuously feather-veined, dark green above, pale or whitish pubescent beneath, not resinous, ½ to 1 in. long; clusters 2 or 3-flowered; flowers 3 lines broad; calyx strigulose-pubescent; calyx-tube in fruit reddish, 6 lines long, borne on a pedicel 1 to 4 lines long; tail of achenes 2 to 3 (or 4) in. long.- Dry slopes in the foothills and mts., 500 to 4,000 ft., throughout cismon-tane Cal.; n. to Oregon., e. to Rocky Mts., s. to L. Cal. Also called Sweet Brush, Ironwood, and Birch-leaf Mahogany. Apr.-June. Var. *MACROURUS* Jepson n. comb. Leaves 1½ to 2½ in. long; calyx tomentulose.- Siskiyou Co. to Modoc Co. (*C. macrourus* Rydb.) Var. *MULTIFLORUS* Jepson n. var. Leaves 1 to 1½ in. long; flowers 5 to 15 in a cluster.- Santa Catalina Isl. (Avalon, Jepson 3041, type).

Cornus californica pubescens

Creek Dogwood

Dogwood

C. californica C. A. Mey. CREEK DOGWOOD. Fig. 715. Shrub 5 to 15 ft. high with smooth purplish branches and branchlets; leaves commonly ovate, varying to elliptical, acute, thinly puberulent, 2 to 4 in. long; cymes 1½ to 2 in. broad; petals oblong, acute, 2 lines long; styles glabrous; drupe white, subglobose, 3 lines in diameter; stone mostly oblique, somewhat flattened, with furrowed edges, each side with 4 less obvious or shallower channels.- Stream banks in cañons and along rivers in the valleys, 10 to 6,000 ft.; coastal S. Cal. (rare); Coast Ranges; Great Valley; Sierra Nevada foothills (*C. pubescens* var.

californica C. & E.). Var. PUBESCENS Jepson n. comb. Inflorescence shaggy-pubescent.- Tulare Co.; Mendocino Co.; n. to Ore. (C. pubescens Nutt.). Var. NEVADENSIS Jepson n. var. Inflorescence scantily puberulent; drupe blue.- Sierra Nevada, 3,000 to 4,000 ft. (Rich Pt., Middle Fork Feather River, Jepson 10,629, type).

Cytisus scoparius (naturalized) Scotch Broom Pea

C. scoparius Link. SCOTCH BROOM. Shrub 3 to 6 ft. high, with angular broom-like leafless branches or sparingly leafy; leaves palmate, the leaflets 2 to 4 lines long; flowers bright yellow, solitary or in pairs in the axils, forming leafy racemes; pods pilose along the margins.- Native of Eur., sparingly spontaneous: w. Sonoma Co.; Millbrae, San Mateo Co.

Dendromecon rigidum Tree Poppy Poppy

D. rigida Benth. BUSH POPPY. Fig. 400. Stems few to many from the base, 2 to 4 (or 8) ft. high, the main stem bark shreddy; branches whitish; leaves yellowish green, oblong - to linear-lanceolate, reticulate, minutely denticulate, mucronate, 1 to 3½ in. long, borne on very short petioles which, by a twist, bring the blade vertical; flowers on peduncles 1 to 3 in. long; corolla 1 to 2½ in. in diameter; capsule 2 to 4 in. long.- Dry slopes and ridges at middle altitudes (1,000 to 3,000 ft.): Coast Ranges and Sierra Nevada, n. to Shasta Co. and s. to cismontane S. Cal. May-June. Var. HARMFORDII K. Bdg. Tree-like or shrubby, 6 to 10 (or 18) ft. high, the branches more or less drooping; leaves elliptic, 1½ to 5½ in. long, entire, rarely minutely roughened.- Santa Barbara Isl.

Diplacus aurantiacus Bush Monkey Flower Figwort

D. aurantiacus Jepson n. comb. BUSH MONKEY-FLOWER. Fig. 860. Low shrub 2 to 4 ft. high; leaves oblong-lanceolate, 1½ to 5 lines wide, revolute, denticulate, deep green and nearly glabrous above, pubescent beneath with branching hairs;

pedicels slender, commonly glandular-puberulent, about $\frac{1}{2}$ in. long; calyx tubular, the plicate throat spreading but little, the orifice margined with branching hairs; corolla buff or salmon-color, $1\frac{1}{2}$ to $1\frac{3}{4}$ in. long, the throat narrow-funnelform, the lower lip shorter than upper, the lobes emarginate, with more or less irregular margin; capsule linear-oblong, 5 to 9 lines long.- Dry hills and cañon sides, 20 to 1,500 ft.: Ventura co. to Del Norte Co.; Sierra Nevada foothills from Tuolumne Co. to Placer Co. Apr.-Sept. (*Mimulus aurantiacus* Curtis. *Diplacus glutinosus* Nutt.)

Eriodictyon californicum

Yerba Santa

Phacelia

E. californicum (H. & A.) Greene. YERBA SANTA MOUNTAIN BALM. Fig. 796. Shrub, 2 to 8 ft. high; leaves oblong to oblanceolate, tapering below and frequently above, dentate except at the base or below the middle, very glutinous-resinous, as if varnished, the areas between the veins and cross-veinlets on the under surface with a close dense felt; calyx 1 line long with linear lobes; corolla white or pale blue, tubular-funnelform, 4 to 6 lines long; stamens and styles included.- Dry mountain slopes and ridges, 500 to 4,000 ft., common and often abundant and gregarious over extensive areas: Coast Ranges from Monterey Co. to Siskiyou Co.; Sierra Nevada from Tulare Co. to Eldorado Co.; n. to southern Ore. May-June. (*E. glutinosum* Benth.)

Eriogonum gracile

Wild Buckwheat

Buckwheat

E. gracile Benth. Stems strictly branched and forming a narrow panicle or more diffuse, $\frac{1}{2}$ to $2\frac{1}{2}$ ft. high; thinly tomentose throughout, becoming floccose; leaves oblanceolate or broadly oblong, attenuate to a slender petiole, $\frac{1}{2}$ to 2 in. long, tomentose on both sides or less so above; involucres distributed along the elongated branches, glabrous or nearly so, barely exceeding the bracts and half concealed by them, $\frac{3}{4}$ to 1 line long, cylindric-campanulate, the teeth acute, prominent, spreading; calyx white, receptacle or yellow-green, obovate, 1 line long.

rose-color or yellowish, glabrous, $\frac{3}{4}$ line long.-
Dry Plains, valleys and low hills; Great Valley
and Coast Ranges to S. Cal.; s. to L. Cal.

Eriogonum nudum

Tibinagua

Buckwheat

E. nudum Dougl. TIBINAGUA. Fig. 333. Tall and slender, 1 to 3 ft. high, the stems glabrous, peduncle-like, often fistulous, sometimes inflated, branching into a usually large panicle, the leaves all at base on the short woody caudex; leaves broadly ovate or oblong, obtuse, cordate or abruptly cuneate at base, undulate, densely tomentose beneath, glabrate above, 1 to 2 in. long on slender petioles; involucre 2 or 3 lines long, glabrous or nearly so, 2 to 6 in each cluster; calyx glabrous, at least outside, 1 to $1\frac{1}{2}$ lines long, usually white, sometimes rose-color or yellow; filaments a little hairy at base.- Very common on dry hills, valley flats or mt. slopes: coastal S. Cal.; Coast Ranges; Sierra Nevada; n. to Ore. July-Oct. Herbage used as "sour dock" for pies by settlers in Shasta Co. Var. *DEDUCTUM* Jepson. Stems many from the base, 5 to 13 in. high, umbellately trichotomous above, glabrous, leaves oval, $\frac{1}{2}$ to $\frac{3}{4}$ in. long, on petioles, 3 to 4 times as long.- High Sierra Nevada, 7,500 to 9,500 ft. Seems no more than a slightly reduced state of the common form of the species prevailing at lower altitudes in the Sierra. Var. *SCAPIGERUM* Jepson. Like var. *deductum* but the inflorescence reduced to single heads terminating the slender scape-like stems.- High mts. about the upper Kern River. Var. *PUBIFLORUM* Benth. Stems $1\frac{1}{2}$ to 3 ft. high, often inflated, glabrous, the branches elongated; involucre 1 to 3 in a place; calyx deep yellow, hairy towards the base.- Arid or desert region; Pahute Peak; Mt. Pinos; Independence; Goose Valley, Modoc Co.; Yreka. Var. *PAUCIFLORUM* Wats. Stems often inflated, indefinitely dichotomous, the involucre scattered along the slender branches or occasionally in pairs; calyx white.- S. Cal.: San Jacinto and San Bernardino mountains. Var. *OBLONGIFOLIUM* Wats. Stems and involucre whitish tomentulose, the stems above twice di- or tri-chotomous, the branches rather strict;

leaves broadly oblong, $\frac{1}{2}$ to $2\frac{1}{2}$ in. long, abruptly contracted to slender petioles $1\frac{1}{2}$ to 3 in. long; calyx white or rarely pale yellow, somewhat pubescent on the inner lobes.- Napa Co. to Humboldt Co. and e. to Modoc Co., thence s. to Nevada Co. Var. *SULPHUREUM* Jepson. Like the preceding var. but the branches of the inflorescence more spreading; calyx pale yellow or white, a little hairy at base.- Mendocino Co. to Siskiyou Co. Var. *AURICULATUM* J. P. Tracy. Stems $\frac{1}{2}$ to $2\frac{1}{2}$ ft. high; somewhat caudex-like at base, the caudexes set with leaves or old leaf-bases, $\frac{1}{2}$ to 4 in. high, each giving rise to a glabrous glaucous peduncle bearing a dichotomous panicle; peduncles sometimes strongly fistulous; leaves oblong to elliptic, obtuse, truncatish or subcordate at base, crenulate-undulate margined, densely white-lanate below, soon glabrescent and deep green above, 1 to $2\frac{1}{2}$ in. long; panicle usually large, the heads large, terminal and lateral, less commonly in the forks.- Dry rocky hills, central Coast Ranges. Var. *GRANDE* Jepson. Tall (3 to 5 ft. high) with a woody base; leaves ovate-oblong, the margin undulate-revolute, white lanate below, $1\frac{1}{2}$ to 3 in. long; involucres 3 lines long; calyx nearly or quite glabrous inside.- Santa Barbara Isls.

Euonymus occidentalis

Western Burning Bush Burning Bush

- E. occidentalis* Nutt. WESTERN BURNING BUSH. Fig. 607. Erect shrub. (or sometimes a small tree) with slender often straggling branches, 6 to 18 ft. high, the greenish branchlets 4-angled; leaves glabrous, thin, ovate or often broadest above the middle and abruptly acuminate, serrulate, $1\frac{1}{2}$ to 4 in. long, on petioles 3 to 7 lines long; peduncles 1 to $2\frac{1}{2}$ in. long, 1 to 5-flowered; flowers 4 to 5 lines broad; petals roundish, brownish-purple, finely dotted and with scarious margins; capsule depressed, smooth, deeply 3-lobed.- Redwood region from the Santa Cruz Mts. to Marin and Humboldt Cos.; Plumas Co.; Washoe Co., Nev.; n. to Wash. May-June. Var. *PARISHII* Jepson n. comb. Bark whitish; peduncles 3 to 6-flowered.- S. Cal. mts., 5,000 to 6,000 ft.: Mt. San Jacinto; Palomar; Cuyamaca Mts. (*E. parishii* Trel.)

Garrya elliptica

Silk Tassel Bush

Silk Tassel

G. elliptica Dougl. SILK TASSEL BUSH. Fig. 714. Commonly a shrub 5 to 8, or rarely a small tree up to 20 ft. high; leaves elliptical or narrower, the margin undulate and more or less revolute, glabrous above, tomentose beneath with short curly or wavy hairs, $1\frac{1}{2}$ to $2\frac{1}{2}$ in. long; catkins solitary or clustered, the staminate 4 to 7 in. long, with truncate or acute silky bracts and the calyx-segments cohering at tip, the pistillate shorter, 2 to 4 in. long, with acute or acuminate bracts; ovary sessile; fruit globose, 3 to 5 lines in diameter, densely white-tomentose, in extreme age glabrate; seed oval, 2 lines long.- Common, Coast Ranges, especially the seaward ranges, from Monterey Co. to Humboldt, Co., 100 to 2,500 ft. Feb. Foliage suggestive of *Quercus agrifolia*.

Garrya fremontii

Bear Brush

Silk Tassel

G. fremontii Torr. BEAR BRUSH. Shrub 5 to 7 (or 10) ft. high; leaves elliptical, varying to oblong, tapering to each end, glabrous and shining above, gray-puberulent or white-tomentose beneath, in age often very glabrous and yellow, particularly on the under surface, not undulate, $1\frac{1}{2}$ to $2\frac{1}{2}$ in. long, on petioles 6 lines long; catkins solitary or in clusters of 2 to 6, with acute somewhat silky bracts; staminate catkins 2 to 3 in. long; pistillate catkins about $1\frac{1}{2}$ in. long, the ovary and young fruit very silky; fruiting catkins $1\frac{1}{2}$ to $3\frac{1}{2}$ in. long; mature fruit purple to black, glabrous, 3 lines long, short-pedicelled; seeds subglobose or oval, $1\frac{1}{2}$ lines long.- Dry ridges and slopes, 2,500 to 7,000 ft.: North Coast Ranges; Sierra Nevada; coastal S. Cal. Mostly in the dry inner ranges and a member of the chaparral. Feb. In the S. Sierra Nevada there are intergrades to no. 4.

Gaultheria shallon

Salal

Heath

G. shallon Pursh. SALAL. Fig. 727. Slender shrub with erect or spreading stems 1 to 6 ft. high;

leaves ovate or orbicular, slightly cordate at base, finely serrate, 2 to 4 in. long; petioles 1 to 2 lines long; racemes axillary or terminal, 3 to 6 in. long, pubescent (as also calyx and corolla) with short glandular hairs; bracts scaly, ovate, concave, often reddish; pedicels declined, bearing 2 bractlets below the middle; calyx reddish; corolla white or pinkish, oval-urnshaped, 5-toothed at the narrow orifice, 4 to 5 lines long; fruit globose, black.- Woods along the coast, especially in the Redwood belt; Santa Inez Mts.; Santa Lucia Mts.; Santa Cruz Mts. to Del Norte Co.; n. to B. C. Mar.-May. In Mendocino and Humboldt Cos. commonly abundant and covering thickly the forest floor.

Holodiscus discolor

Cream Bush

Rose

H. discolor (Pursh) Maxim. CREAM BUSH. Fig. 474. Shrub 3 to 6 ft. high; leaves ovate to ovate-elliptic in outline, green above, whitish beneath with soft hairs, coarsely serrate or incised above the entire broadly cuneate (or sometimes subtruncatish) base, $\frac{3}{4}$ to 3 in. long, on petioles 2 to 6 lines long; panicle ample, 3 to 8 in. long, often half drooping in anthesis; flowers $1\frac{1}{2}$ lines long; follicles about 1 line long.- Cañons in the hills, 5 to 4,000 ft., from Los Angeles through the Coast Ranges to Siskiyou Co.; occasional in the Sierra Nevada, 3,500 to 6,600 ft.; n. to B. C. June. Var. *DUMOSUS* Dippel. Lower, more compact; leaves 3 to 7 lines long; panicle narrow; less diffuse.- Rocky places, high montane, 6,000 to 9,000 ft.: mts. of S. Cal.; Panamint Range; Sierra Nevada; Yollo Bolly Mts. July. Var. *GLABRESCENS* Hel. Diffuse, 2 to 4 ft. high; leaves sparingly pubescent and glandular-dotted, especially beneath.- Mt. Shasta; n. to Ore. e. to Utah.

Lonicera involucrata

Twinberry

Honeysuckle

L. involucrata Banks. Low upright shrub 2 to 3 ft. high; leaves ovate, more or less abruptly attenuate at apex, hairy-pubescent beneath, $1\frac{1}{2}$ to 3 or 5 in. long, on short petioles; peduncles 6

to 8 (or 12) lines long, the flowers subtended by large and conspicuous broad bracts which become reddish in age; corolla clear yellow, viscid-pubescent, 6 to 8 lines long, its spreading lobes subequal, about 1 line long, its tube saccate-gibbous at base; tips of anthers exerted; style puberulent; berries black, 3 to 5 lines in diameter, disagreeable to the taste.- Montane, 6,500 to 9,500 ft.; Sierra Nevada from Tulare Co. to Tuolumne Co.; n. to B. C. Var. *LEDEBOURII* Jepson n. comb. Fig. 901. Erect, 4 to 7 ft. high; bracts crimson in age; corolla dull yellow or reddish-tinged, its tube saccate at base; anthers included.- Canon bottoms and river flats, Coast Ranges near the sea from Santa Barbara to Humboldt Co. Mar.- June. (*L. ledebourii* Esch.)

Lupinus arboreus

Tree Lupine

Pea

L. arboreus Sims. Appressed-pubescent to glabrate, rarely villous, branching shrub with a distinct trunk or rarely low and caespitose, 4 to 24 dm. tall; leaves short-petioled, leaflets 6 to 11, appressed-pubescent both sides or glabrate above; racemes 10 to 30 cm. long; flowers 14 to 18 mm. long, scattered or whorled, bracts early deciduous, pedicels 6 to 10 mm. long, spreading-pubescent; petals broad, commonly bright yellow, but sometimes lilac, blue or violet, banner glabrous, keel curved, ciliate along upper edges; pods dark brown, appressed-pubescent, 5 to 8 cm. long by 8 to 12 mm. wide, ovules 8 to 12, seeds oblong, dark brown, unmarked or obscurely mottled, but with a pair of pale spots enclosing the micropyle.- Coastal sands and cañons, Humboldt Co. to Santa Barbara Co. (*L. propinquus* Greene.) Var. *EXIMIUS* C. P. Sm. More or less villous. Internodes of season's growth much shortened; leaves and flowers crowded; racemes usually only 5 to 10 cm. long; wings blue, banner largely yellow.- Exposed slopes near summit of Montara Mts., San Mateo Co. (*L. eximius* Davy.)

Myrica californica

Wax Myrtle

Sweetgale

M. californica Cham. WAX MYRTLE. Thickly branched shrub or small tree, 8 to 30 ft. high; leaves thickish, dark green, glossy, oblong, or oblanceolate-oblong, tapering above to an acute apex, narrowed below to a petiole, $2\frac{1}{2}$ to 5 in. long, remotely serrate or almost entire; catkins 2 to 9 (or 12) lines long, the pistillate in the upper, the staminate in the lower, axils; catkins with pistillate flowers above and staminate at base often occur between; stamens 5 to 16, united by their filaments into a cluster longer than the scale; fruit berry-like but really a small globose nut coated with resinous-waxy grains, 2 lines in diameter, the bractlets at the base minute.- Sand-dunes, moist flats or hillsides, Redwood forest slopes, or rocky declivities near the ocean; Santa Monica Mts. to the Santa Cruz Mts. and Del Norte Co.; n. to Wash. Mar.-Apr.

Osmaronia cerasiformis

Oso Berry

Rose

O. cerasiformis (T. & G.) Greene. OSO BERRY. Fig. 503. Erect, 3 to 9 ft. high; leaves glabrous, broadly oblong, narrowed to each end, mucronate, $1\frac{1}{2}$ to $2\frac{1}{2}$ in. long when mature, short-petioled; petals 2 to 3 lines long; drupes blue-black, 5 to 7 lines long.- North slopes of canons: near the coast from Santa Lucia Mts. to Humboldt Co., 300 to 1,500 ft.; Sierra Nevada from Tulare Co. to Shasta Co., 1,500 to 4,000 ft. Mar.-Apr. Pulp bitter but not poisonous.

Photinia arbutifolia

Christmas Berry

Rose

P. arbutifolia Lindl. CHRISTMAS BERRY. TOYON. Fig. 507. Shrub, rarely a small tree, 5 to 15 ft. high; leaves oblong, acute at base and apex, dark green, lighter beneath, 2 to 4 in. long, on petioles $\frac{1}{2}$ to $\frac{3}{4}$ in. long; panicle in anthesis rather dense, 2 to 3 in. high; corolla $2\frac{1}{2}$ lines broad; fruit 3 to 4 lines long.- Rocky mountain slopes and deep soil of cañon bottoms, 10 to 3,500 ft.; Sierra Nevada foothills from Butte Co. to Mariposa Co.; Coast Ranges from

Humboldt and Shasta Cos. s. to San Diego Co.;
s. to L. Cal. (*Heteromeles arbutifolia* Roem.)
Var. *CERINA* Jepson n. var. Berries yellow.-
San Luis Obispo Co. (Templeton, Pearl C. Jared,
type) to n. Monterey Co.

Physocarpus capitatus

Ninebark

Rose

P. capitatus (Pursh) Ktze. NINEBARK. Fig. 472.

Erect or straggly shrub 3 to 5 ft. high; leaves roundish or ovate, 3-lobed and irregularly serrate, glabrous, or stellate-pubescent beneath, 1 to 3 in. long, on petioles $\frac{1}{2}$ to $1\frac{1}{2}$ in. long; leaves of sterile shoots similar but larger; corymbs hemispherical, $\frac{3}{4}$ to 1 in. high; petals $1\frac{1}{2}$ to 2 lines long; pods divergent, commonly 3 to 4 lines long.- Common along streams in the hills, or often gregarious on steep north slopes, 500 to 4,500 ft.; Santa Cruz Mts. to Humboldt Co. and Mt. Shasta, thence s. at scattered stations in the Sierra Nevada, n. to B. C., e. to Atlantic.

Pyrus rivularis

Oregon Crab Apple

Rose

P. rivularis Dougl. OREGON CRAB APPLE. Small Tree or many-stemmed shrub 10 to 30 ft. high; leaves ovate, pointed, serrate, or some 3-lobed or with a coarse tooth on each side, green above, pale, pubescent and eventually rusty beneath, 1 to $3\frac{1}{4}$ in. long; corymbs 4 to 10-flowered; petals white, elliptical, 3 to 5 lines long; carpels commonly 3; fruits oblong or oblong-ovoid, 6 to 7 lines long; yellowish (or pinkish on one side), aging purple-black.- Near the coast: Napa Range and Sonoma Co. to Humboldt Co.; n. to Wash.

Rhamnus californica

Coffee Berry

Buckthorn

R. californica Esch. COFFEE BERRY. Fig. 615. Shrub commonly 4 to 6 ft. high; leaves scattered along the branchlets, narrowly or broadly oblong, serrulate, usually acute, glabrous or slightly puberulent, dark green when dried, $1\frac{1}{2}$ to $2\frac{1}{2}$ in. long; flowers mostly 5-merous; peduncles 1 to 10 lines long; berry green when young, turning red or

reddish and finally black when ripe, globose or oval, 3 to 4 lines in diameter, containing 2 (rarely 3) outlets.- Cañons, hill and mountain slopes, 10 to 4,000 ft.: Coast Ranges from Mendocino Co. to San Luis Obispo Co. and s. to the San Gabriel and San Bernardino mountains. June-July; fr. Sept.-Oct. Also called Pigeon Berry and Yerba del Oso. Very variable in foliage, various climatic areas having developed fairly distinctive leaf forms. Var. *TOMENTELLA* B. & W. Leaves 2 to 3 in. long, elongated, oblong, varying to elliptic obscurely serrulate or entire, abruptly acute or acuminate, usually conspicuously feather-veined, finely tomentose on the under side or even silvery, typically very olive-like; peduncles $\frac{1}{2}$ to $1\frac{1}{4}$ in. long.- Dry foothills, 500 to 5,000 ft.: Sierra Nevada foothills; inner North Coast Ranges; Santa Cruz Mts. and Mt. Hamilton Range; s. to S. Cal. mts. (San Bernardino, San Jacinto, Palomar and Cuyamaca Mts.); L. Cal. Var. *VIRIDA* Jepson n. var. Leaves obovate or oblong, obtuse or very shortly acute, $\frac{3}{4}$ to $1\frac{1}{4}$ in. long, dark green above, velvety beneath to the touch but scarcely to the eye; umbels sessile or shortly peduncled.- Desert slopes, Inyo Co. (Cottonwood Creek, 7,500 ft., Jepson 5086, type). Var. *OBTUSISSIMA* Jepson n. comb. Leaves elliptic or broadly oblong, very obtuse, serrulate, 1 to $1\frac{1}{2}$ in. long, often puberulent beneath, slightly yellowish when dried; umbels disposed to be sessile.- Sierra Nevada, 3,500 to 5,500 ft., n. to Mt. Shasta, s. to Mt. San Jacinto. (R. *obtusissima* Greene.) var. *CRASSIFOLIA* Jepson n. var. Shrub 3 to 8 ft. high; branchlets and petioles very stout; leaves oval or elliptic, obtusish at apex, or sometimes shortly acute, rounded or obscurely cordate at base, very thick and leathery, very prominently parallel-nerved beneath, $1\frac{1}{2}$ to 3 in. long, 1 to nearly 2 in. wide, finely tomentulose below, microscopically so above; leaf-scars prominent.- Inner North Coast Range foothills from Colusa Co. (ridge w. of Bear Valley, Jepson 8974, type), to Tehama Co., in the chaparral. Var. *OCCIDENTALIS* Jepson n. comb. Foliage yellowish; leaves oval or elliptic, obtuse or shortly acute, entire, $1\frac{1}{2}$ to $2\frac{1}{2}$ in. long, glabrous; peduncles 1 to 6 lines long.- Three Creeks, n. Humboldt Co., Cal., to

Josephine Co., Ore. Well-marked local form. (*R. occidentalis* Howell).

Rhamnus purshiana

Cascara Sagrada

Buckthorn

R. purshiana DC. CASCARA SAGRADA. Small tree or shrub 8 to 20 ft. high; leaves in a tuft at end of branchlets, thinnish, deciduous, elliptic-oblong, obtuse or slightly cordate at base, obtuse or abruptly blunt-pointed at apex, serrulate, $2\frac{1}{2}$ to 5 (or 8) in. long; petioles tomentulous; flowers 5-merous; berry black, with 3 (rarely 2) nutlets.- Mountain slopes and canons, Mendocino and Humboldt Cos. near the coast; n. to Wash. Var. *ANONAIFOLIA* Jepson n. comb. Leaves obovate or oblong, the larger 4 to 7 in. long and $1\frac{1}{2}$ to $2\frac{1}{2}$ in. wide, mostly cuneately tapering at base.- Bear Valley, Nevada Co., to Mt. Shasta. (*R. anonaefolia* Greene.)

Rhododendron californicum

California Rose Bay

Heath

R. californicum Hook. CALIFORNIA ROSE BAY. Fig. 724. Rather closely erect shrub 4 to 8 ft. high, or in the northern Redwoods a small tree up to 26 ft. high; leaves coriaceous and evergreen, oblong or elliptic, shortly acute, green above, rusty or lighter beneath, $2\frac{1}{2}$ to $5\frac{1}{2}$ in. long; calyx 5-lobed, its lobes low, obtuse, $\frac{1}{2}$ line long; corolla turbinate-campanulate, rose-purple, $1\frac{1}{2}$ in. long, its broad lobes undulate, the upper lobe greenish-dotted within; stamens 10, not exserted; ovary densely red-silky.- Along the coast: Malpaso Creek; Waddell Creek; Pescadero; Mt. Tamalpais; abundant on the Mendocino and Humboldt coasts; w. Siskiyou Co.; to Wash. Reported poisonous to sheep.

Ribes bracteosum

Green-flowered Currant

Saxifrage

R. bracteosum Dougl. STINK CURRANT. Tall erect shrub 4 to 8 or 14 ft. high; leaves large deeply 5-lobed with doubly serrate divisions, 2 to 8 or 10 in. broad, nearly glabrous but the upper side minutely strigulose, the under side sprinkled with resin dots; petioles long; racemes erect,

5 to 7 in. long, with numerous (30 or more) "greenish-white" flowers; bracts persistent, filiform or lanceolate, the lower petioled; calyx rotately expanding or saucer-shaped; petals minute; stamens very short; berry black, covered with a bloom, resin-dotted, 4 lines long.- Stream banks and bottoms along the coast: Mendocino Co. to Del Norte Co.; n. to Ore. and Alas. May-June.

Ribes sanguineum var. *glutinosum* Flowering Currant Saxifrage

R. sanguineum Pursh. FLOWERING CURRANT. Stems slender, erect or spreading, 4 to 9 ft. high; bark brownish, shreddy; foliage sticky when young; leaves roundish-cordate in outline, 3-lobed or with 2 supplementary lobes, rather finely serrate, $1\frac{1}{2}$ to 3 in. broad, green above, pale pubescent or tomentulose beneath; stipules glandular-bristly; racemes erect, rather long-peduncled; bracts crimson; flowers blood red, 6 to 7 lines long; calyx funnelform, its lobes ascending; petals short-spatulate; ovary sprinkled with short stipitate glands, otherwise glabrous, rarely puberulent; berry blue-black, with bloom, 4 to 5 lines in diameter.- High montane: Siskiyou and Del Norte Cos.; n. to B. C. Var. *GLUTINOSUM* Loud. Fig. 465. Racemes drooping; flowers deep or pale pink.- Cañons or on northward slopes near the coast from San Luis Obispo Co. to Berkeley and Mt. Tamalpais and n. to Del Norte Co.; common. Var. *DEDUCTUM* Jepson n. comb. Six to 16 ft. high; leaves thin; flowers pale or whitish, few in a mostly loose drooping raceme; berry ripening slowly.- Very dense shade of forests; San Mateo Co.; Berkeley; Eureka. Local ecological form, perhaps not of even varietal value. (*R. deductum* Greene.)

Rosa californica California Wild Rose Rose

R. californica C. & S. CALIFORNIA WILD ROSE. Fig. 494. Stout, 3 to 6 ft. high; prickles few or numerous, mostly stout and recurved, usually also with one or a pair below the stipules; leaves puberulent or pubescent, especially beneath, and more or less glandular; stipules narrow, with

lanceolate tips, sometimes glandular-denticulate; flowers few to many, often 20 to 40 in a panicle; calyx-tube glabrous, its lobes mostly prolonged into foliaceous serrate appendages; petals obcordate, $3/4$ to 1 in. long; pedicels hairy and more or less glandular; hips globose or ovoid, 4 to 8 lines broad, somewhat constricted below the calyx-lobes.- Common everywhere along river and creek banks and margins of springs at the lower and middle altitudes throughout Cal., often forming small thickets. May-Nov., flowering most freely in June. It is a highly variable species in pubescence, number of flowers and shape of hips. Prickles often 3 to 6 lines long at base and 3 to 5 lines high. (*R. alder-sonii* Greene). Var. *ULTRAMONTANA* Wats. Tomentose but not glandular; pedicels glabrous.- E. side of the Sierra Nevada; Nev.

Rosa gymnocarpa

Wood Rose

Rose

R. gymnocarpa Nutt. WOOD ROSE. Slender, 1 to 3 ft. high, glabrous or puberulent, the branchlets and rachis of the leaves densely armed with long slender straight prickles, or sometimes nearly unarmed; leaves 2 to 3 in. long; leaflets $1/2$ to $3/4$ (or 1) in. long, elliptic or roundish, obtuse or acute, doubly serrate, the minute teeth gland-tipped; flowers generally solitary or in clusters of 2 to 3; petals 5 to 7 lines long; pedicels glabrous or more frequently clothed with gland-tipped hairs, drooping or curving in fruit; calyx-lobed at length deciduous; hips ovate or pear-shaped or globose, red, 4 to 8 lines long.- Shady woods or bushy north slopes, often near streams, 400 to 5,500 ft.; Coast Ranges from Monterey Co. to Humboldt Co.; Sierra Nevada from Mariposa Co. to Siskiyou Co.; n. to B. C. Var. *PINETORUM* Jepson n. comb. Calyx-lobes persistent.- Monterey coast. (*R. pinetorum* Mel.)

Rosa nutkana

Wild Rose

Rose

R. nutkana Presl. Stout, 2 to 5 ft. high; prickles stout, usually straight, or sometimes unarmed; leaves resinous-pubescent beneath; stipules subequal in width from base to apex, mostly glandular-ciliate; flowers solitary or 2 to 4 together, the

pedicels often prickly and glandular; calyx-tube glabrous, its lobes prolonged into foliaceous, serrate or laciniate appendages; petals obcordate, $\frac{3}{4}$ to 1 in. long; hips globose or depressed-globose, 5 to 7 lines in diameter.- Humboldt and Siskiyou Cos.; n. to Alas., e. to Utah. May-June. The largest flowered western species. Var. *HISPIDA* Fer. Calyx-tube with gland-tipped bristles.- Eureka.

Rubus parviflorus

Thimble-Berry

Rose

- R. parviflorus* Nutt. THIMBLE-BERRY. Fig. 476. Stems erect, 3 to 6 ft. high; bark eventually shreddy; leaves deciduous, circular in outline, palmately 5-lobed, cordate at base, unequally serrate, 3 to 7 in. broad, puberulent to almost glabrous, the petioles and stems hispidulose and more or less glandular; flowers about 4 to 7 in terminal corymbs, white (rarely pinkish), 1 to 2 in. broad; calyx-lobes 5, sometimes 6 or 7, ovate, terminated by a tail-like or sometimes foliaceous appendage; petals of the same number as the calyx-lobes, elliptic; berry scarlet, 6 to 8 lines broad.- Common along canon streams and in open woods; mts. of S. Cal. and Sierra Nevada, 3,000 to 7,000 ft.; hill country near the coast, 50 to 2,000 ft. (Santa Lucia Mts. to Del Norte Co., leaves often velvety pubescent beneath-var. *velutinus* Greene); n. to Alas., e. to Mich. and N. Mex.

Rubus spectabilis

Salmon-Berry

Rose

- R. spectabilis* Pursh. SALMON-BERRY. Stems erect, 3 to 9 ft. high, with reddish brown bark and sparingly armed, or the canes (sterile shoots) very prickly; prickles short, straight; leaves 3-foliolate, deciduous; leaflets ovate, doubly serrate, often more or less lobed, 1 to $3\frac{1}{2}$ in. long; flowers 1 to 3 in a cluster, 1 to $1\frac{3}{4}$ in. broad; petals red; berry ovoid, red or yellow, glabrous, 7 to 9 lines broad.- Margins of woods and along streams, vicinity of the ocean; Mendocino Co. to Humboldt Co.; n. to Alas. Var. *MENZIESII* Wats. Leaves more or less silky-pubescent beneath.- Santa Cruz Mts.; San Francisco; Tomales Bay. Passing into the usual form northward. Apr.

Sambucus glauca

Blue Elderberry

Honeysuckle

- S. glauca* Nutt. BLUE ELDERBERRY. Fig. 898. Roughish thickety bush 6 to 10 ft. high, or eventually developing into a small tree with distinct trunk, up to 25 ft. high; leaves glabrous; leaflets 5 to 7, ovate to oblong-lanceolate, serrate except at the abruptly acuminate apex, 1 to 3½ in. long; cymes flat-topped, 2 to 6 or 9 in. broad; flowers white, 2½ to 3½ lines broad; berries 2 to 3 lines in diameter, blue beneath the white bloom.- Open woods, cañons or moist flats of the lower hill country or middle altitudes, and along stream-banks in the valleys, 10 to 5,400 ft.; throughout cis montane Cal.; n. to B. C., e. to Utah. May-Aug., fr. Aug.-Sept. (*S. coerulea* Raf.) Var. ARIZONICA Sarg. Leaves 3 (or 5)-foliolate; leaflets elliptic, acuminate, glabrous or puberulent.- Stream-banks: coastal S. Cal.; Kern Co.; e. to N. Mex. (*S. mexicana* Sarg.)

Sambucus racemosa-callicarpa

Red Elderberry

Honeysuckle

- S. racemosa* L. Thick spreading bush 1 to 3 (or 4) ft. high; leaves thin, glabrous or nearly so; leaflets 5, ovate to elliptic, equal-sided at base, narrowed at apex to a slender entire point, serrate, 1½ to 3 (or 5) in. long; cymes round-ovate, 1½ to 3 in. high; flowers cream-color; berries red, 2½ lines in diameter.- Moist places and especially margins of surface streams on mountain slopes, 7,000 to 10,500 ft.; Sierra Nevada from Tulare Co. to Placer Co.; n. to B. C., e. to Atlantic and Eur. July. Var. CALLICARPA Jepson. Fig. 899. Low shrub or small tree 8 to 14 or 20 ft. high; leaves thinnish, pubescent beneath and often above with short appressed hairs; leaflets thinnish, oblong-ovate or obovate, acuminate, sharply serrate to the very apex, 2 to 7 in. long; berries scarlet, without bloom, 2 lines broad; fruiting clusters 2 to 5 in. across, very showy.- Cañon beds or flats along the coast: San Mateo Co. to Humboldt Co.; n. to Wash. (*S. callicarpa* Greene.)

Solanum umbelliferum

Blue Witch Nightshade

Nightshade

- S. umbelliferum* Esch. BLUE WITCH. Fig. 840. Stems more or less woody at base, deep green

mostly 5-angled or -ridged, 2 to 3 ft. high; herbage finely pubescent-tomentose, the hairs branched; leaves elliptic-ovate, rarely pinatifid at base, 1 to 2 in. long or less, thickish, on petioles 2 to 3 lines long; peduncles short or almost none; corolla blue, sometimes white, 10 lines broad, shallowly 5-lobed with 5 pairs of greenish glands near the base; berry, when fully ripe, dull white with a greenish zone toward the base, 4 to 8 lines in diameter.- Hill country, especially along gulches or in cañons; Coast Ranges near the coast from Mendocino Co. to Santa Barbara Co. May-June, but often flowering at all seasons.

Spiraea douglasii

Pink Spiraea

Rose

S. douglasii Hook. Erect, 2 to 6 ft. high, with stoutish branches and reddish brown bark; leaves oblong, serrate at apex, green above, white-tomentose beneath, 1 to 3 (or in shade even 4) in. long; panicles narrow, usually elongated, 2 to 5 in. long; calyx-lobes mostly reflexed; petals ovate.- N. Cal. mts., about 5,000 ft.: Plumas Co. to Modoc Co., w. to seashore at Humboldt Co., thence n. to B. C.

Stachys chamissonis

Swamp Hedge Nettle

Mint

S. chamissonis Benth. Fig. 824. Stem erect, simple, ending above in 1 to 3 racemes, 3 to 8 ft. high, the angles of the stems retrorsely scabrous, the hairs pustulate, often viscid; leaves soft-pubescent, ovate, 3 to 6 in. long; calyx clavate-tubular, 5 to 7 lines long; corolla red, its tube 8 to 15 lines long, much exserted, with a hairy ring near base.- Swamps or wet places near the coast: San Luis Obispo Co.; Santa Lucia Mts.; Pilarcitos, San Mateo Co.; San Francisco; Pt. Reyes; Mendocino Co.; Elk River Valley, Humboldt Co.; n. to Ore. The herbage has a clinging disagreeable odor.

Symphoricarpos albus

Snow Berry

Honeysuckle

S. albus. (L.) Blake. SNOW BERRY. Fig. 900. Erect or spreading shrub with slender branches, 2 to 4 (or 6) ft. high; leaves round-oval to ovate or

oblong, entire or on the same branchlets sinuately few-toothed or saliently lobed, glabrous or the lower surface pubescent, commonly 1 (less commonly as much as 2) in. long, short-petioled; calyx-lobes ciliate; corolla pinkish, distended on the lower side, 2 lines long, 5-1 lobed above the middle, densely villous-hirsute within; berry globose, 4 to 6 lines in diameter; pulp snowy, nearly tasteless.- Foothills, 10 to 2,000 ft.: Coast Ranges; Sierra Nevada foothills; n. to B. C., e. to N. Eng. and Pa. May-June. (*S. racemosus* Michx.) The leaves of sterile shoots are very variable in size, shape, toothing and lobation.

Vaccinium ovatum

California Huckleberry

Heath

V. ovatum Pursh. CALIFORNIA HUCKLEBERRY. Fig. 732. Erect evergreen shrub 4 to 8 ft. high; leaves coriaceous, shining above, oblong-ovate, serrate, $\frac{1}{2}$ to 1 $\frac{1}{2}$ in. long, short-petioled; flowers in 1 to 5-flowered racemes, shorter than the leaves; pedicels 2 to 3 lines long; corolla pink, broadly bell-shaped, 3 to 3 $\frac{1}{2}$ lines long; berry black, without bloom, globose-ovoid, 3 to 4 lines long.- N. slopes of hills near the coast: Purisima Hills, Santa Barbara Co.; Monterey Co. to Del Norte Co.; n. to B. C. Often the dominant under-shrub in extensive areas in the Redwood region. Var. *SAPOROSUM* Jepson n. var. Berry glaucous.- Mendocino coast (Gualala; Rebt. Brandt, type). The berry ripens earlier than in the species and has a better flavor.

Vaccinium parvifolium

Red Bilberry

Heath

V. parvifolium Sm. RED BILBERRY. Shrub, 3 to 12 or 18 ft. high; branches and branchlets slender, very sharply angled, green, articulated; leaves thin, mostly oval, pale beneath, entire, 5 to 8 or 12 lines long; pedicels 2 to 4 lines long, deflexed in fruit or sometimes curved; calyx slightly 5-lobed; corolla globular, greenish; berry bright red, 3 to 4 lines in diameter, pleasant flavored.- Redwood region from the Santa Cruz Mts. to Humboldt Co.; Sierra Nevada, 4,500 ft., from Mariposa Co. to Shasta Co. but rare; n. to Alas.

Botanic NameCommon NameFamilyFern*Adiantum emarginatum*

California Maidenhair

Fern

- A. *emarginatum* Hook. CALIFORNIA MAIDENHAIR. Fig. 8. Similar to no. 1; stalks stouter; pinnules broadly fan-shaped, reniform to cuneate at the entire base, above serrulate in the sterile pinnules, or with only 1 to 3 very short clefts in the fertile pinnules, 6 to 8 (or 13) lines broad; indusia marginal, transversely elongated, only slightly interrupted around the whole upper portion of the pinnule.- Moist places at low altitudes; cismontane S. Cal.; Coast Ranges; rare in the Sierra foothills (American River).

Adiantum pedatum

Five-finger Fern

Fern

- A. *pedatum* L. FIVE-FINGER FERN. Fig. 9. Leaves 1 to 2½ ft. high, the stalks forked at the top, the outwardly curving forks each bearing 3 to 8 pinnae; pinnae long-oblong, 3 to 9 in. long; pinnules oblong, incised on the upper margin, entire below, short-stalked; indusia long-oblong.- Moist cool places throughout the state; N. Am., Asia. Var. *ALBUTICUM* Rupr. Pinnae fewer and more strict; pinnules longer-stalked, more deeply cleft.- Rare, high Sierra Nevada, 7000 to 10,000 ft.; n. to Alas.

Athyrium filix-foemina
californicum

Lady Fern

Fern

- A. *filix-foemina* (L.) Roth var. *californicum* Butters. LADY FERN. Fig. 25. Leaves in large clumps, 2 to 4 ft. high; fronds ovate or lance-ovate, 1 to 2½ ft. long, mostly 6 to 10 in. broad; pinnae oblong-acute or oblong-lanceolate; pinnules oblong, acute, pinnatifid with the lobes toothed at apex, 6 to 14 lines long; sori oblong to oval; indusia toothed or ciliate on the free edge.- Moist usually shady places in the mts., 4,000 to 8,000 ft. (San Bernardino Mts.; Sierra Nevada and n. to Modoc and Siskiyou Cos.), or along the coast (Santa Barbara Co. to Humboldt Co.); e. to Ida. and Col., s. to Mex.; Eur., Asia. Very variable

in leaf form. Var. *ANGUSTUM* (Willd.) Jepsen
n. comb. Fronds narrow ($2\frac{1}{2}$ to 3 or 4 in. wide).
the pinnae ascending or curved upward.- San
Mateo Co.; Lake Co.; Siskiyou Co. Var. *SITCHENSE*
Rupr. Swamp Fern. Fronds mostly very large and
broad; pinnules narrowly lanceolate, revolute;
sori roundish.- Monterey Coast; San Francisco;
lower Klamath River; n. to Alas.

Aspidium rigidum argutum California Wood Fern Fern

A. *rigidum* Swz. Var. *argutum* Eat. CALIFORNIA
WOOD FERN. Fig. 31. Plants in tufts, evergreen,
about 1 to $2\frac{3}{4}$ ft. high, the stalks very chaffy;
fronds subcoriaceous, ovate-lanceolate, bipinnate,
10 to 18 in. long (4 or) 6 to 10 in. wide; pinnae
lanceolate or oblong-lanceolate, acuminate, 2 to
 $4\frac{1}{2}$ in. long, sessile by a narrow or mostly a broad
base; pinnules oblong, mostly obtuse, incised or
doubly serrate, cuspidate-toothed, 5 to 7 lines
long, the lower basal one usually with a semi-
cordate base; sori in 2 rows on the pinnules; in-
dusia orbicular, the margin minutely glandular.-
Half-moist stony woods or half-shady slopes in
the mountains, 500 to 5,000 ft., rather common;
San Diego Co. to the San Bernardino Mts. and San
Gabriel Mts.; Santa Barbara Is.; Sierra Nevada;
Coast Ranges (most common in the fog belt); n.
to B. C.

Aspidium spinulosum dilatatum Common Wood Fern Fern

A. *spinulosum* (Mull.) Swz. var. *dilatatum* Hoffm.
COMMON WOOD FERN. Fig. 32. Plants 1 to $1\frac{1}{2}$ or
3 ft. high; scales of stalks large; fronds sub-
coriaceous, broadly ovate or triangular-ovate,
bipinnate or partly tripinnate, about 1 to 2 ft.
long, 5 to 15 in. wide; secondary rachises
obscurely wing-margined; pinnae lanceolate or
linear-lanceolate or the lower pairs triangular;
pinnules oblong-ovate, acute, pinnatifid,
spinulose-serrulate, 4 to 9 (or 12) lines long;
sori small, borne on the back of the free veins;
indusium delicate, round-reniform.- Near the
coast on fallen logs in the shade of dense woods,
from Marin Co. (Bear Valley) to Humboldt Co.
(Alton); n. to Alas., e. to N. Eng.

Gymnogramme triangularis

Gold Fern

Fern

G. triangularis Kaulf. GOLD FERN. Fig. 1. Five to 10 in. high; stalks dark brown, polished; fronds pentagonal or deltoid in outline, partly or twice pinnate, 2 to 4 (or 5) in. long; lower pair of pinnae the larger, pinnate; pinnules oblong, nearly entire to pinnately lobed; sori more or less confluent and largely covering the backs of the pinnae.- Damp rock crevices or moist places, 100 to 4,500 feet: Coast Ranges; Sierra Nevada; cismontane S. Cal.; desert ranges; n. to B. C., e. to Ariz. (*Ceropteris triangularis* Underw.). Var. *VISCOSA* Eat. Upper surface of leaves viscid.- San Diego Co.

Lomaria spicant

Deer Fern

Fern

L. spicant Desv. DEER FERN. Fig. 23. Leaves erect, glabrous, the sterile ones nearly sessile or on short stalks, lance-linear, $\frac{1}{2}$ to 2 or 3 ft. high, pinnatifid to the rachis, the pinnae numerous, closely placed, oblong or oblong-linear, acute or obtuse, often upwardly falcate, $\frac{1}{2}$ to $1\frac{1}{2}$ in. long; fertile leaves taller than the sterile, more erect, long-stalked, pinnate, the pinnae less crowded, very narrowly linear, sessile by a suddenly dilated base; mature sporangia nearly covering the back of the pinnae.- Redwood belt from Santa Cruz Co. to Del Norte Co.; rare in the Sierra Nevada (Eldorado Co., along alpine streams); n. to Alas.; Eur. Asia. Eaten by deer in the spring.

Pellaea andromedaefolia

Coffee Fern

Fern

P. andromedaefolia Fee. COFFEE FERN. Fig. 20. Plants very loose or open, 10 to 22 in. high, evergreen; stalks straw-color, slightly chaffy; fronds 4 to 7 in. long, bi-pinnate or partially tri-pinnate; pinnae with 3 to 5 pairs of pinnules or the lower one or two pairs replaced by secondary pinnae of 3 pinnules; pinnules oblong, obtuse, 2 to 5 (or 6) lines long, the lateral sessile or nearly so, the terminal one with a long petiolule.- Rocky soil in the foothills, 1,000 to 4,000 ft.; cismontane S. Cal.; Coast Ranges n. to Mendocino Co.; Sierra Nevada foothills (Tulare Co. to Amador Co.); Marysville Buttes; s. Ore. Also called Sheep Fern,

the wiry stalks breaking into needle-like pieces when eaten by sheep and penetrating the intestines, just as in the case of the Black Fern.

Polypodium vulgare
occidentalis

Licorice Fern

Fern

P. vulgare L. var. *occidentale* Hook. LICORICE FERN. Fig. 4. Stalk slender, 2 to 5½ in. long; fronds thin-membranous, 6 to 11 in. long, pinnatifid almost to the midrib; pinnae lanceolate or oblong-lanceolate, often somewhat curved, tapering to an acuminate point, 1 to 2½ in. long; sori about 2/3 line broad, distinct.- On trees or in moist soil in the Redwood belt of Humboldt Co.; n. to Wash. Apparently also in Marin Co. Roots roasted as a confection. (*P. occidentale* Max.) Var. *INTERMEDIUM* (H. & A.) Fer. California Polypody. Stalks somewhat slender, 2 to 4 in. long; fronds ovate or ovate-oblong, pinnatifid almost to the midrib, 3½ to 10 (or 14) in. long; pinnae oblong, tapering to an acute apex, serrulate 1½ to 3 in. long; sori 1 to 1½ lines broad, distinct or confluent.- Mossy banks, crevices of rocks, rarely on trees: Sierra Nevada foothills from Butte Co. to Fresno Co. (1,500 to 4,000 ft.); near the coast from Humboldt Co. to San Luis Obispo Co. (50 to 1,500 ft.); coastal Mts. of S. Cal. (100 to 4,000 ft.). Var. *KAULFUSSII* (Eat.) Fer. Plants smaller (3 to 5 or 7 in. high); pinnae mostly obtuse.- Headland slopes facing the sea, Marin Co., San Francisco and s.

Polypodium scoleri

Leather-leaf Fern

Fern

P. scoleri H. & G. LEATHER-LEAF. Fig. 5. Fronds ovate, coriaceous, 4 to 10 in. long, parted to the midrib; stalks stout, 4 to 6 in. high; pinnae oblong, rounded at apex, obscurely serrulate, 1½ to 2½ in. long, the terminal pinna distinct, much longer than the upper lateral ones, often the largest of all; sori roundish, 1½ to 2 lines broad, distinct or eventually more or less confluent.- On trees or rocks: Redwood belt from San Mateo Co. to Del Norte Co.; Santa Barbara Isls.; n. to B. C.

Polystichum munitum

Sword Fern

Fern

P. munitum Presl. SWORD FERN. Fig. 26b, c. Plants in heavy stools, 1½ to 5 ft. high, evergreen; stalks with brown lanceolate or subulate scales; fronds lanceolate, simply pinnate, 2/3 to 2 2/3 ft. long; pinnae linear-acuminate, nearly sessile, auricled on the upper side at base and obliquely truncate on the lower, serrate with incurved spinulose teeth, 1½ to 2½ in. long, all or only the upper fertile; sori abundant, at length confluent.- Stony slopes or marshy flats in the hills and mountains throughout the state, 100 to 7,000 ft., common. Var. *NUDATUM* (Eat.) Jepson n. comb. Fronds small (6 to 8 in. long), the stalks scaly only below; pinnae remote, oblong-oval, lobed or slightly auricled on the upper side at base; sori scanty, confined to the ends of the highest pinnae.- Sierra Nevada from Nevada Co. to Mariposa Co. Var. *IMBRICANS* (Eat.) Max. Small; rachis and stalk naked, but the stalk very chaffy at base; pinnae crowded, ascending-imbricated, cuspidate-tipped; sori confined to the upper pinnae.- Mendocino Co.; Plumas Co.; Yosemite.

Pteris aquilina lanuginosa

Bracken

Fern

P. aquilina L. var. *lanuginosa* (Bory) Hook. Fig. 10. Plants 1 to 4 ft. high; fronds ternate at the summit of an erect stout stalk, then twice pinnate, tomentulose beneath; pinnules oblong-lanceolate, the upper undivided, the lower more or less pinnatifid.- Common throughout the state in the foothills, ascending in the mountains to the Yellow Pine belt. The young shoots were eaten by the native tribes and the fronds are used by white settlers for thatching summer shelter. (*Pteridium aquilinum* (L.) Kuhn var. *lanuginosum*.)

Woodwardia radicans

Chain Fern

Fern

W. radicans Sm. CHAIN FERN. Fig. 24. Leaves long-stalked, standing in a circle, 4 to 6 or 8 ft. high, oblong-ovate in outline; pinnae oblong-lanceolate, deeply pinnatifid, 6 to 11 in. long,

their segments lanceolate, slightly falcate, spinulose-serrulate or sometimes pinnatifid.- Springy spots where there is all-the-year seepage, foothills and mostly lower altitudes in the mountains, 100 to 4,500 (or 800) ft., almost throughout Cal., but not frequent in the Sierra Nevada (Yosemite, Little Chico Creek); Mex., S. Am., Afr., Asia. (*M. spinulosa* Mart. & Cal.)

Botanic NameCommon NameFamilyVINES:*Clématis ligústicifòlia*

Virgin's Bower

Buttercup

C. ligústicifòlia Nutt. YERBA DE CHIVATO. Nearly glabrous, except the inflorescence; leaflets 5 to 7, ovate, cordate or obtuse at base, 3-lobed or coarsely toothed about midway, or nearly entire, mostly 1 to 3 in. long; peduncles 1 to 4 in. long, bearing a panicle of many to numerous flowers; flowers $\frac{1}{2}$ to 1 in. in diameter; sepals narrowly oblong, acute, tomentulose; tails of the achenes 10 to 13 lines long; fruiting panicles corymbose to long-paniculate, 2 to 15 in. long.- Valleys, foothills and mts., 100 to 3,500 ft.; S. Cal; Sierra Nevada; Coast Ranges; n. to Ore. It climbs high over shrubs and sometimes ascends trees. An infusion of the herbage is used by Spanish-Californians as a healing wash for cuts in horses.

Echinocýstis oregànus

Hill Man-Root

Gourd

E. oregànus Cogn. HILL MAN-ROOT. Stems 4 to 25 ft. long, often climbing over trees and shrubs, mostly smooth; leaves muriculate-scabrous, especially on the upper surface, or almost smooth, reniform or round-cordate, 3 to 7 (or 9) in. broad shallowly or deeply 5 to 7-lobed; staminate racemes 6 to 10 in. long, the pedicels (3 or) 6 to 11 lines long; corolla 6 to 7 lines broad, clear white; pistillate flowers with abortive stamens (staminodia), the pedicels 3 to 6 lines long, or in fruit to 1 in. long; ovary ovate, 2 or 3-celled; ovules 1 to 4 in each cell, attached to the outer side; fruit ovate, 2 to 3 $\frac{1}{2}$ in. long, somewhat attenuate at each end, often markedly beaked at apex, nearly smooth or sparsely covered with short weak spines; spines 2 to 3 lines long; glabrous or puberulent; seeds 6, horizontally placed, nearly circular, markedly flattened, 10 to 11 lines long, 3 to 4 lines thick.- Hill country, Santa Clara Co. to Humboldt and Siskiyou Cos.; n. to Ore. (*E. marah* Cogn.)

Lonicera hispidula
californica

California Honeysuckle

Honeysuckle

1. *hispidula* Dougl. var. *californica* Jepson. Fig. 903. CALIFORNIA HONEYSUCKLE. Stems slender, $\frac{1}{4}$ to $\frac{1}{2}$ in. in diameter, climbing bushes or trees 6 to 20 ft. high; leaves oblong, ovate, or elliptic-oblong, truncate or subcordate at base, green above, white-glaucous below, $1\frac{1}{2}$ to 3 in. long, short-petioled; uppermost leaves connate-perfoliate, the others except the lowest with connate-perfoliate stipule-like (often conspicuous) appendages; spikes very glandular, especially in fruit; corolla pink, 6 to 8 lines long, glandular-hispidulous without, the tube within and the lower portion of the filaments very hairy; berries scarlet.- Cañons and along streams in the foothills, 100 to 2,000 ft.; Sierra Nevada foothills; Coast Ranges; rare in S. Cal. July-Aug.

Botanic NameCommon NameFamily

GROUND COVER PLANTS:

Asarum canadatum

Wild Ginger

Birthwort

- A. *canadatum* Lindl. WILD GINGER. Leaves cordate-reniform, shortly acute or obtusish, pubescent below and above on the veins, 2 to 6 in. broad, on petioles 3 to 7 in. long; peduncles 6 to 12 lines long; calyx-lobes triangular or oblong, attenuate into a tail which is 1 to 2½ in. long; filaments stout, the free apex of the connective much shorter than the anther; styles united equaling the stamens.- Deep shade of Coast Range woods, in Cal. following rather closely the Redwood belt from the Santa Cruz Mts. to Del Norte Co.; n. to B. C. -- Jepson.

Rootstocks.- Creeping; aboveground. Leaves.- Alternate; two to four inches long; heart-shaped; not mottled; shining green. Flowers.- Raisin-colored. Perianth.- With spherical tube and three long-pointed lobes, thirty lines long. Stamens.- Twelve. Filaments more or less coherent in groups, adherent to the styles, and produced beaklike beyond the anthers. Ovary.- Six-celled. Styles united; equaling the stamens. Hab.- The Coast Ranges, from Santa Cruz to British Columbia.

The beautiful long-stemmed leaves of the wild ginger stand upon the borders of many a shaded cañon stream, seeming to enjoy the gossiping of the brook as it gurgles by. The leaves and roots of these plants are aromatic, and the former when crushed emit a pleasant fragrance, similar to that of the camphor-laurel. The branching rootstocks, creeping along the surface of the ground, grow from their tips, which are swathed in the undeveloped silky leaves.

In the spring a warm hue comes among these closely folded leaves, and presently a curious dull-colored bud begins to protrude its long tip from their midst. This bud looks as though some worm had eaten off its end; but we soon see that its blunt appearance is due to the fact that the long prongs of the sepals are neatly folded in upon themselves, like the jointed leg of an insect. It must require considerable force in the flower to

Micromeria chamissonis

Yerba Buena

Mint

M. chamissonis (Benth.) Greene. YERBA BUENA. Fig. 822. Stems slender, $\frac{1}{2}$ to 2 ft. long; herbage slightly pubescent; leaves round-ovate, crenate, glandular-punctate, especially on the under surface, $\frac{1}{2}$ to 1 in. long; petioles 1 to 3 lines long; flowers $3\frac{1}{2}$ to 4 lines long; calyx and corolla exteriorly short-hairy; lower pair of stamens longer.- Common in woods near the coast; Humboldt Co.; Marin Co.; Berkeley; Santa Cruz Mts. Monterey and s. to Santa Monica Mts. June. The trailing stems root at the tips in winter and thus multiply the plant vegetatively. (*M. douglasii* Benth.) -- Jepson.

Aromatic trailing vines. Stems.- Slender; one to four feet long. Leaves.- One inch long; round-ovate. Flowers.- Solitary; axillary; white or purplish. Calyx.- Five-toothed; two lines long. Corolla.- Five lines long; bilabiate. Stamens.- Four; in pairs on the corolla. Ovary.- Of four seedlike nutlets. Style filiform. Stigma unevenly two-lipped. Hab. Vancouver Island to Los Angeles County.

The yerba buena is as dear to the Californian as the Mayflower to the New Englander, and is as intimately associated with the early traditions of this western land as is that delicate blossom with the stormy past of the Pilgrim Fathers. Its delicious, aromatic perfume seems in some subtle way to link those early days of the Padres with our own, and to call up visions of the long, low, rambling mission buildings of adobe, with their picturesque red-tiled roofs; the flocks and herds tended by gentle shepherds in cowls; and the angelus sounding from those quaint belfries, and vibrating in ever-widening circles over hill and vale.

Before the coming of the Mission Fathers, the Indians used this little herb, placing great faith in its medicinal virtues, so that the Padres afterward bestowed upon it the name of "yerba buena" - "the good herb." It is still used among our Spanish-Californians in the form of a tea, both as a pleasant beverage and as a febrifuge, and also as a remedy for indigestion and other disorders.

They designate this as "Yerba Buena del Campo" - i.e. the wild or field yerba buena, - to distinguish

it from the "Yerba Buena del Pozo"-"the herb of the well," -which is the common garden-mint growing in damp places.

Aside from its associations and medicinal virtues, this is a charming little plant. In half-shaded woods its long, graceful stems make a trailing interlacement upon the ground and yield up their minty fragrance as we pass. -- Parsons.

Oxalis oregana

Redwood Sorrel

Oxalis

- O. oregana* Nutt. REDWOOD SORREL. Fig. 582. Scapes and leaves from a creeping rootstock; herbage more or less rusty-villous; scapes 2-bracted near the top, commonly 1-flowered; leaflets broadly obcordate, broader than long, 1 to 1½ in. long; petals oblong-obovate, slightly retuse or obtuse, pink, white, or rose-color, often veined with purple, 9 to 12 lines long; capsules linear, 9 lines long.- Shady woods in the Redwood belt from the Santa Lucia Mts. to Del Norte Co.; n. to Wash. Mar.-Apr. Var. TRACYI Jepson n. var. Flowers small, 4 lines long; petals white, obtuse.- Humboldt Co. and n. to Curry Co., Ore. (Tamba Ranch, Chetco River, Jepson 9366, type). -- Jepson.

Herbs with sour juice. Leaves.- With three leaflets; petioles two to even twelve inches long. Leaflets one or two inches broad; usually light-blotched. Scapes.- One to six inches long; one-flowered. Sepals.- Five. Petals.- Five; nine to twelve lines long; white or rose-colored; often veined with darker color; usually having an orange spot at base. Stamens.- Ten. Ovary.- Five-celled. Styles five. Hab.- Coast woods, from Santa Cruz to Washington.

In deep woods, "where no stir nor call the sacred hush profanes," the beautiful leaves and delicate flowers of the redwood-sorrel cover the ground with an exquisite tapestry, which catches the shimmer of the sunlight as it shifts down through the tall trees. If the goddess Nanna in passing left the print of her pretty fingers upon the clover, perhaps some wood-nymph may have touched the leaves of this charming plant. Each day as twilight deepens, the leaflets fold gently together and prepare to sleep.

The small yellow oxalis-*O. corniculata*. L.- becomes a troublesome weed in our lawns. -- Parsons.

Vancouveria hexandra

Vancouveria

Barberry

V. hexandra (Hook.) Morr. & Dec. Flowering stems 7 to 21 in. high; leaves sparingly pubescent with short scattered hairs, perishing after the maturing of the fruit; leaflets thinnish, ovate to oval or roundish in outline (seldom broader than long; $\frac{3}{4}$ to $1\frac{1}{2}$ in. long, cordate at base with open sinus, 3-lobed at apex (the middle lobe largest); panicle glabrous, 10 to 25-flowered; flowers 6 lines long; sepals 3 lines long; sepals and petals pearly white; stamens covered with small stipitate gland; ovules 3 in each cell.- Woods, 500 to 3,000 (or even 4,000) ft.: Mendocino Co. to Siskiyou Co.; to Wash. Commonly in deeper shade than *V. parviflora*. May-June. -- Jepson.

Stems.- One or two feet high. Leaves.- All radical; twice to thrice ternately compound. Leaflets.- One to two inches broad; rich shining green; persisting; undulate and membrane-margined. Flowers.- Twenty-five to fifty, in loose panicles; small; with six to nine sepal-like bracts. Parts in sixes, all in front of one another. Sepals.- Petaloid; two lines long! Petals.- White to lavender. Stamens.- Erect; closely appressed to the pistil. Ovary.- One-celled. Style stoutish. Hab.- Coast Ranges of central California.

There is no more exquisite plant in our coast woods than the American barrenwort, or *Vancouveria*. Its delicate thread-like stems, which are yet strong and wiry, hold up its spreading evergreen leaves, every leaflet in its own place. There is a likeness in these leaves to the fronds of our California maidenhair, and one could easily imagine the maidenhair amplified, strengthened, and polished into this form. Owing to this resemblance, it is in some localities known as "flowering fern." The leaflets are also somewhat ivy-like in form.

In June its delicate, airy panicles of small white blossoms appear. These are especially interesting as belonging to the Barberry family,

where all the floral organs stand in front of one another, and the anthers open by cunningly contrived little uplifting valves. These plants are said to grow upon bushy hillsides, in masses sometimes several feet across. But I have never seen it with other than an exclusive and rather solitary habit, growing in shaded forests. We have one or two other species. - Parsons.

Botanic NameCommon NameFamily

THE MORE ORNAMENTAL ANNUALS AND PERENNIALS:

Achlys triphylla

Deer-Foot

Barberry

- A. *triphylla* (Sm.) DC. DEER-FOOT. Plants about 1 ft. high; leaflets fan-shaped, sinuate-dentate, 2 to 6 in. broad.- Woods near the coast, 100 to 2,500 ft., Mendocino Co. to Humboldt Co.; n. to B. C. Also called Sweet Leaf. Settlers on the Humboldt Coast, prizing the delicate fragrance, hang bunches of the leaves in their houses.-- Jepson.

Actaea spicata arguta

Baneberry

Buttercup

- A. *spicata* L. var. *arguta* Torr. Fig. 376. Stems one to several, $1\frac{1}{2}$ to 3 ft. high, arising from the scaly terminal buds of the rootstock; leaves all cauline, none basal, $\frac{1}{2}$ to 2 ft. long; leaflets broadly to narrowly ovate, rather deeply incised and sharply serrate, 1 to $2\frac{1}{2}$ in. long; petioles rather short; racemes terminal, $\frac{3}{4}$ to 1 in. long, or with 1 or 2 small lateral racemes in the axils of the upper leaves; sepals $1\frac{3}{4}$ lines long; their tips often pinkish; petals none, or 1 to 7 (or 9) and white, oval to rhombic-spatulate, slender-clawed; stamens 11 to 35, 2 to 3 lines long; berries ellipsoid or sub-globose, red or white, with polished surface, 3 to 5 lines long.-- Wooded or brushy hills, mostly north slopes; Coast Ranges (mostly near the coast, commonly 100 to 2,000 ft., from Santa Lucia Mts. to Siskiyou Co.); or in the higher mts., 4,000 to 8,200 ft. (San Bernardino Mts.; Sierra Nevada from Tulare Co. n. to Modoc Co.); n. to Alas., e. to Rocky Mts. -- Jepson.

Allium unifolium

Wild Onion

Lily

- A. *unifolium* Kell. Scape stout, 1 to 2 ft. high, rising from a deeply seated short horizontal rootstock bearing one or a few corns, only the rootstock or base of scape rooting; reticulation of corn coats irregular to vertical undulate;

leaves 4 or 3; bracts 2, large, acuminate, membranous; umbels 10 to 30-flowered, the pedicels, 1 to $1\frac{1}{2}$ long; flowers lavender-pink; segments broadly oblong-ovate, 5 to 7 lines long, $\frac{1}{3}$ longer than the stamens and styles; ovary lobes quadratish, creased or grooved down the middle.- Rich moist lands in the valleys or open hills; Coast Ranges, 20 to 400 ft., from Monterey Co. n. to Humboldt Co. Local. -- Jepson.

Anemone deltoidea

Wind-flower

Buttercup

- A. *deltoidea* Hook. Stems 3 to 12 in. high; root-stocks filiform, or whip-like, several in. long; basal leaves and involucral leaves 3-foliate; leaflets broadly ovate or rhombic, crenately toothed above the entire base, some sparingly incised, 1 to 3 in. long; sepals commonly 5, white, 6 to 11 lines long; achenes hirsute-pubescent, with straight style.- Woods, 600 to 5,500 ft.: Humboldt Co. to Siskiyou Co.; n. to Wash. May-July. -- Jepson.

Aquilegia truncata

Columbine

Buttercup

- A. *truncata* F. & M. Stems several, erect, branching, $1\frac{1}{2}$ to $3\frac{1}{2}$ ft. high; herbage glabrous; leaves bi-ternate, the leaflets $\frac{3}{4}$ to $1\frac{3}{4}$ in. long, broad or roundish in outline, 3-cleft or -divided, or incised, crenately toothed; flowers scarlet, tinged with yellow, pendulous in anthesis, the spurs, therefore, erect, 8 to 9 lines long, truncate at the orifice, the blade almost none; sepals widely spreading, 9 to 11 lines long; follicles 8 to 10 lines long, conspicuously veined, the long styles persistent.- Moist shaded places in the lower hills, or at middle altitudes in the mts., almost throughout Cal. May-July. Var. *PAUCIFLORA* Jepson. A more compact plant; leaves mostly basal, these and the nearly naked stems forming a dense heavy tuft; stems 1 to $1\frac{1}{2}$ ft. high, few-flowered.- High montane in the Sierra Nevada. -- Jepson

Stems.-- One to three feet high; very slender.
Leaves.-- Mostly radical; divided into thin, distant leaflets. Flowers.-- Scarlet; tinged with yellow; eighteen to twenty-four lines across. Parts in fives. Sepals.-- Petaloid; rotately spreading.

Petals.- Tubular; produced into long spurs or horns. Stamens.- Numerous on the receptacle; much exerted. Pistils.- Five; simple. Hab.- Almost throughout California.

To enjoy the exquisite airy beauty of this lovely flower, we must seek it in its own haunts- for there is a touch of wildness in its nature that will not be subdued; nor will it submit to being handled or ruthlessly transported from its own sylvan retreat.

Fringing the stream, peering over the bank, as if to see its own loveliness reflected there, or hiding in the greenest recesses of the woodland, it is always a welcome blossom, and the eye brightens and the pulse quickens upon beholding it. It is far more abundant in mountain meadows than in the lowlands.

This species is at home throughout our borders; but there is another form which is said to be found occasionally in our very high mountains-A. caerulea, James. This is plentiful in the Rocky Mountains, and is the State flower of Colorado. Its blossoms, which are blue or white, are large and magnificent, with slender spurs an inch and a half or two inches long. -- Parsons.

Antirrhinum vagans

Snapdragon

Figwort

A. vagans Gray. Fig. 845. Stem at first simple and erect, at length branching and very diffuse, the branches $\frac{1}{2}$ to $1\frac{1}{2}$ ft. long; branchlets slender; herbage varying greatly from copiously to sparingly glandular-hirsute; leaves ovate, mostly 3 to 5 lines long, oblong to lanceolate and mostly $\frac{1}{4}$ to 1 in. long, the uppermost (especially those of the prehensile branchlets) reduced and 1 line long or less; calyx-segments very unequal, linear, except the large uppermost one, this oblong or elliptic-oblong, 2 to 4 lines long, nearly equaling the corolla-tube; corolla purple to whitish, $4\frac{1}{2}$ to 6 lines long, the lips not strongly unequal, the palate glandular-pubescent, the tube saccate or shortly spurred; filaments dilated at apex; gland obtuse; style slender, as long as the capsule; seeds muriculate-roughened or muriculate-reticulate to fimbriate-favose.- Open or brushy slopes in the foothills, 500 to 2,500 ft.: Eldorado Co. to Tuolumne Co.; Coast Ranges from

Lake Co. to Los Angeles Co. Var. RIMORUM Jepson n. var. Lower part of stem with spreading white bristles; raceme dense, secund; seeds densely muriculate.- Morrison Cañon, Niles (Jepson, type). Var. BREWERI Jepson. Slender and less diffuse, the leaves linear-oblong to ovate, $\frac{1}{2}$ to 1 in. long; raceme often secund; corolla smaller (3 to 5 lines long)? considerably exceeding the less unequal sepals.- North Coast Ranges from Napa and w. Solano Cos. to Siskiyou Co., thence s. in the Sierra Nevada foothills to Tuolumne Co. July-Sept. -- Jepson.

Herbs with prehensile branchlets. Leaves.- Alternate; short-petioled; lanceolate to oblong-ovate; entire; an inch long. Flowers.- Six lines long; lavender. Sepals.- Five; upper one large, oblong; the others small, linear. Stamens.- Four; in pairs; on the corolla. Filaments slender. Anthers with two diverging cells. Ovary.- Two-celled. Style awl-shaped. Hab.- Throughout the western part of the State.

When the first dryness of summer is beginning to make itself felt, the tall wandlike sprays of the little lilac snapdragon begin to appear along our dusty roadsides. A curious feature of this plant is to be found in the long threadlike branchlets produced in the axils of the leaves. These are like so many little arms, apparently waving about in aimless abandon, but in reality vigilant of any opportunity to grasp some convenient object of support.

Another species.- A. glandulosum, Lindl.-is common from Santa Cruz southward. This may be known by its pink and yellow flowers, its very viscid, leafy stems, three to five feet tall, and its lack of prehensile branchlets. This has somewhat more the look of the familiar garden species. Its anthers are arranged like teeth in the roof of its mouth, and the children by slightly pinching the sides of its funny little countenance, can make it open its mouth in quite a formidable manner.

Sir John Lubbock, writing of the fertilization of flowers, says of our large garden species:- "Thus the Antirrhinum, or snapdragon, is completely closed, and only a somewhat powerful insect can force its way in. The flower is in fact a strong-box, of which the humble-bee only has the key.-- Parsons.

Brodiaea capitata

Blue Dicks

Lily

B. capitata Benth. BLUE DICKS. Fig. 263. Scape erect, $\frac{1}{2}$ to $1\frac{1}{2}$ (or 2) ft. high, ending in a head-like umbel of 4 to 10 flowers, with about 4 dark purple or metallic bracts; flowers blue, 5 to 8 lines long; perianth segments elliptic-ovate, obtuse, a little longer than the tube; stamens with anthers 6; filaments opposite the inner perianth segments with a broad membranous wing extended beyond the anthers as two lanceolate appendages; stamens opposite outer perianth segments with filaments dilated toward the base only, their anthers less than $\frac{1}{2}$ the size of those of the other set; appendages convergent or connivent, forming a corona and more or less concealing the anthers.- Very common on hillsides and plains through the Coast Ranges, Great Valley, Sierra Nevada foothills and S. Cal. Not in the higher mountains, and rare in, though not wholly absent from, the deserts. S. Ore., Ariz., L. Cal. -- Jepson.

Corm.- Small; scaly-coated. Leaves.- Linear; a foot or more long; passing away early. Scapes.- Four inches to over two feet high. Flowers.- Deep violet to white; six to ten lines long. Bracts.- Sometimes deep, rich purple. Perianth.- With oblong tube and campanulate, six-parted limb. Stamens.- Six; on the corolla; the inner with an appendage on each side; the outer naked. Ovary.- Three-celled. Style stout. Stigma three-lobed. Hab. Throughout California.

This beautiful brodiaea grows all over the hills in early spring, and steals into cultivated fields, where it luxuriates in the freshly stirred soil and lifts its fine violet-colored clusters above the waving grain. It holds quite as warm a place in our affections as the more gorgeous poppy. These blossoms will keep a long time after being gathered, and are used every year in lavish profusion in the decorations of the flower carnivals.

The little bulbs, eaten raw, are quite palatable, and are eagerly sought by the children, who call them "grass-nuts." The early Spanish-Californians also appreciated them, and knew them as "saitas." They have a number of other common names,

such as "Spanish lily," "cluster-lily," "wild hyacinth," and "hog-onion;" but I must protest against the injustice of this latter, and beg all flower-lovers to discountenance it.

Closely resembling the above, is *B. multiflora*, Benth. It has, however, but three stamens, the other three being represented by staminodia, which are entire and of the same length as the stamens.

B. congesta, Smith, another similar species, is often four feet tall. It also has three stamens and three staminodia; but the latter are deeply cleft and exceed the anthers. This is called "ookow" by the Indians. -- Parsons.

Brodiaea coronaria

Harvest Brodiaea

Lily

B. coronaria (Salisb.) Jepson. HARVEST BRODIAEA.

Fig. 261. Scape stout, (5 or) 7 to 20 in. high; umbel 3 to 11-flowered, its pedicels 1 to 3½ in. long; perianth violet-purple, 1½ to 1¾ in. long; segments narrowly oblong, longer than the tube, in age withering and becoming caudate; anthers 4 to 5 lines long, exceeding or at least equaling the oblong-lanceolate mostly acute staminodia; staminodia erect, the anthers approximate in center around style; ovary with strongly developed angles or shoulders.- Common on rolling plains, in the foothills and mts., Coast Ranges and Sierra foothills, Sacramento and San Joaquin valleys, s. to cismontane S. Cal.; n. to Vancouver Isl., flowering in May and early June at the time of the hay harvest when the hills and fields are turning brown. Altitude 200 to 2,500 ft., or up to 4,500, or even 8,000 ft. towards the s. Rarely occurs near the coast. Var. *MUNDULA* Jepson. Fifteen to 18 in. high; pedicels 3 to 6 or 8 lines long; umbels compact.- Soulsbyville, Tuolumne Co. -- Jepson.

Corm.- Fibrous-coated. Leaves.- Narrowly linear; somewhat cylindrical. Scape.- Four to twelve inches high. Pedicels.- Three to ten, rarely one; unequal. Perianth.- Violet; waxen; ten to twenty lines long; broadly funnel-form; six-cleft; lobes recurving. Stamens.- Three; opposite the inner segments. Staminodia.- Three; strap-shaped; entire; white; erect; about equaling

the stamens. Ovary.-- Sessile; three-celled. Style stout. Stigma three-lobed. Hab.-- From Ventura to the British boundary in the Coast Ranges and Sierras.

In the latter part of May and early in June, just as the grain is mellowing in the fields, the dry grasses of our hill-slopes and roadsides begin to reveal the beautiful blossoms of the "harvest brodiaea." Seen at its best, this is one of our finest species. It sends up a scape a foot high, bearing from five to ten of the large lily-like, violet flowers. They are somewhere described as varying to rose. I have never seen them of this color, though a flash of them caught when riding by a field is often suggestive of a pink flower.

These plants vary considerably in size, in some localities blooming when but an inch or two high, and in others having their tall scape crowned with as many as ten of the fine blossoms. These have their segments nerved with brown upon the outside. The clear-white stamens stand opposite the outer segments, alternating with the white staminodia. The leaves have dried away before the coming of the blossoms.

B. terrestris, Kell., common throughout central California, is always found in sandy soil. Its perianth is less than an inch long, and its staminodia are yellow, with inrolled edges. This is clearly distinguished by these characteristics, added to the fact that its flower-cluster has no common stalk or scape, but seems to sit upon the ground, giving the separate flowers the appearance of coming from the ground.
-- Parsons.

Brodiaea hyacinthina

White Brodiaea

Lily

B. hyacinthina (Lindl.) Baker. WHITE BRODIAEA.
Fig. 259. Scape 1 to 1 $\frac{3}{4}$ ft. high; umbel 10 to 40-flowered; pedicels $\frac{1}{2}$ to 2 in. long; perianth open-campanulate, cleft below the middle, white or bluish white with green mid-veins, 5 to 7 lines long, filaments with broadly triangular and slightly united bases, attenuate above and tipped with an anther $\frac{1}{2}$ line long; ovary short-stipitate, with 3 glandular pits towards the

summit.- Common in low moist places; Sierra Nevada, Sacramento and San Joaquin valleys, and Coast Ranges from Monterey Co. to Siskiyou Co.; n. to Vancouver Isl. -- Jepson.

Bulb.- Six lines in diameter. Leaf.- Solitary; about equaling the scape; three to six lines broad. Scape.- Six to eighteen inches high. Flowers.- Yellow; fifteen to sixty umbels. Perianth.- About an inch across. Stamens.- Six; with cup-shaped appendages. Ovary.- Three-celled. Style club-shaped. Stigma three-lobed. Hab.- The Coast Ranges, from Monterey to San Diego.

Just as the floral procession begins to slacken a little before the oncoming of summer, the fields suddenly blossom out anew and twinkle with millions of the golden stars of the bloomeria. These plants are closely allied to the brodiaeas, and by some authorities are classed as such. They are especially characterized by the structure of the stamens, which rise out of a tiny cup. Under a glass this cup is seen to be granular, somewhat flattened, and furnished with two cusps, or points. The anthers are a very pretty Nile or peacock green....

There is another plant which closely resembles the bloomerias. This is the "golden brodiaea"-Brodiaea ixioides, Wats. But the filaments, instead of having a cuplike appendage, are winged, with the little anthers swinging prettily upon their summits. This is found in the Coast Ranges, from Santa Barbara northward, also in the Sierras. It is a beautiful flower; especially when seen starring the velvet alpine meadows in August.

Another plant-Brodiaea lactea, Wats.-the "white brodiaea," has flowers similar to the above, but pure white (sometimes lilac), with a green mid-vein. This is common in late spring from Monterey to British Columbia. Its flowers are beautiful and keep a long time in water.-- Parsons.

Brodiaea ida-maia

Firecracker Plant

Lily

B. ida-maia (Wood) Greene. FIRECRACKER PLANT. Scape slender, erect, 1 to 3 ft. high, bearing an umbel 6 to 12 (or 23)-flowered, its pedicels $\frac{3}{4}$ to $1\frac{1}{2}$ in.

long; flowers pendulous, erect after anthesis; leaves linear; perianth-tube scarlet, persistent, broadly tubular, slightly 6-saccate at the truncate base, slightly constricted above, 1 to 1½ in. long; segments chrome-green, short, erect or sometimes reflexed or revolute, erect in age, 2 to 3 lines long; stamens 3, inserted on the throat opposite the inner segments, their filaments very short and broad; anthers innate; staminodia 3, white; capsule triangular-ovate, acuminate, its stipe 2 or 3 lines long; seeds angular, black.- Wooded foothills and mountain slopes from Marin Co. to Shasta and Siskiyou Cos., 1,000 to 4,000 ft. July. A showy and curious species. -- Jepson.

Leaves.-- Grasslike, a foot or two long. Scape.-- One to three feet high; six- to fifteen-flowered. Perianth.-- An inch or two long; rich crimson; the limb of six green or yellowish oblong lobes. Stamens.-- Three; on the perianth. Filaments adnate to its tube. Anther tips exserted. Staminodia.-- Three; broad; short; white; on the throat of the perianth, alternating with the stamens. Ovary.-- Three-celled. Style exserted. Stigma three-lobed. Syn.--Brevoortia coccinea. Wats. Hab.-- The mountains from Mendocino County to Shasta County.

When our northern valleys have become parched by the first heat of summer, many beautiful flowers are still to be found in deep canon retreats, where the streams, overarched by great shadowing oaks, gush downward through leafy copses of hazelwood and thimble-berry by beds of moss and fern. Upon the walls of such charming gorges the firecracker flower rears its slender stem and shakes out its bunch of brilliant crimson blossoms. These are a prophetic symbol of our national holiday rather than an aid to its celebration-for they have often passed away before the Fourth of July.-- Parsons.

Brodiaea laxa

Grass Nut

Lily

B. laxa (Benth.) Wats. GRASS NUT. Fig. 256. Scape 1 to 2½ ft. high, rigid and stoutish, from a usually deep-seated edible corm; umbel 8 to 48-flowered; pedicels 1 or mostly 2 to 3½ in. long;

perianth violet-purple, rarely white, $1\frac{1}{4}$ to $1\frac{3}{4}$ in. long, funnelform, clavate at base, its segments shorter than the tube; stamens 6, all anther-bearing; filaments inserted in 2 rows high on the perianth-tube, 2 lines long; anthers ovate-lanceolate with a 2-lobed base, $1\frac{1}{2}$ lines long; ovary on a slender stipe $\frac{1}{2}$ to $\frac{3}{4}$ in. long.- Showy and beautiful species, common in adobe fields or on adobe hillsides; Coast Ranges from Santa Cruz and Santa Clara Cos. n. to Humboldt and Tehama Cos., thence s. in the Sierra Nevada foothills (500 to 4,600 ft.) to Tulare Co. Apr.-June. Very variable in stature, size of umbels and color of flowers. Called Wally-Basket in Tuolumne Co. Ithuriel's Spear is a parlor name. Var. CANDIDA Jepson. Pedicels abruptly bent at summit so that flowers all face horizontally in one direction; flowers white, sometimes blue.- Sierra Nevada foothills, Fresno Co. to Kern Co. Var. NIMIA Jepson n. var. Flowers 9 to 11 lines long, intense or deep blue; ovary very long-stiped.- Marin coast (Jepson 567, type). Var. TRACYI Jepson n. var. Flowers blue, $1\frac{1}{4}$ to $1\frac{1}{2}$ in. long, the perianth very narrow at base (almost stipe-like).- Humboldt coast (Big Lagoon, Tracy, Jepson 9412a, type). -- Jepson.

Corm.- Small; fiber-coated. Leaves.- Usually two; radical; linear; channeled. Scapes.- Six inches to two feet high. Umbels.- Of ten to thirty or more purple or violet, or even white, flowers. Pedicels.- One to three inches long. Perianth.- Twelve to twenty lines long. Stamens.- Six; in two rows; the upper opposite the inner lobes of the perianth. Ovary.- Three-celled; on a stalk six lines long. Hab.- From Kern County to northern Oregon.

After the delicate collinsias have stolen away, the beautiful flowers of Ithuriel's Spear begin to claim our attention in open grassy spots on the borders of rich woodlands. The common name is a happy one; for there is something commanding about this tall blossom-crowned shaft. It will perhaps be remembered that the angel Ithuriel possessed a truth-compelling spear. When Satan, disguised, went to the Garden of Eden to tempt Eve, Ithuriel and Zephon were sent to expel him.-- Parsons.

Baeria chrysostoma

Gold Fields

Sunflower

B. chrysostoma F. & M. GOLD FIELDS. Stems slender, mostly erect, simple or freely branching, 5 to 9 in. high (or $1\frac{1}{2}$ to 3 in. high in depauperate forms); herbage villous-pubescent to hirsutulous; leaves linear, entire, 3 to 18 lines long, $\frac{1}{4}$ to 1 line wide; heads $2\frac{1}{2}$ to 4 lines high; rays and bracts of the broad involucre 7 to 15, or in depauperate plants fewer; rays 3 to 4 lines long; achenes linear-clavate, smooth (seldom pubescent) and shining, or papillate; pappus typically none.- Lower foothills, valleys and plains, 100 to 2,500 ft.; throughout cismontane Cal.; n. to southern Ore. It is everywhere abundant, often coloring leagues and leagues of interior hills. Var. GRACILIS HALL. Habit of the species; pappus of 1 to 4 awns from small ovate or lanceolate paleae.- Open hills, 500 to 4,000 ft.; Humboldt Co. and Nevada Co. to coastal S. Cal. (*B. gracilis* Gray. *Burrielia gracilis* DC.) -- Jepson.

Boykinia elata

Boykinia

Saxifrage

B. elata (Nutt.) Greene. Fig. 451. Stem slender, erect, $1\frac{1}{2}$ to 2 ft. high; herbage a little hairy, the petioles and stems very rusty-hairy at base; leaves thin-membranous, shallowly lobed or incised, serrate, 1 to 4 in. broad; petioles long, dilated at base and bearing stipule-like bristles or subulate lobes; flowers slightly irregular, borne in a panicle of secund racemes; lower portion of calyx-tube glandular-hairy, upper portion nerved or somewhat ridged; calyx in age urn-shaped; calyx-lobes lanceolate-triangular.- Woods near the coast, Santa Lucia Mts. to Del Norte Co. (*B. occidentalis* T. & G.)

Calochortus caeruleus maweanus

Pussy Ears

Lily

C. caeruleus (Kell.) Wats. BEAVERTAIL GRASS. Stems short (1 to 7 in. high), the basal leaf 1 to 3 times as long; flowers 2 to 4 (or 10) in umbels; pedicels very slender; bracts small; petals rhombic-ovate, $3\frac{1}{2}$ to 6 (or 7) lines long, white or pale blue, lilac-dotted and lined with blue, hairy, the margin fringed; gland narrow,

transverse, curved, shallow, covered by an appressed somewhat fringed scale and crested by a row of short scales; these latter scales narrow, often hair-like, frequently lacinate or incised; capsule orbicular or nearly so, obtuse, 6 lines long.- Open woods, middle altitudes of the Sierra Nevada from Eldorado Co. to Shasta Co., and in the high North Coast Ranges from n. Lake Co. to Siskiyou Co., June. Var. MAWEANUS Jepson. Pussy Ears. Sepals commonly very blue; petals purplish blue to white, 7 to 11 lines long, the margin entire or nearly so; gland horseshoe-shaped or semicircular, narrow, more or less pocketed; crest usually rather dense.- Marin Co. to Humboldt Co.-- Jepson

Hab.- The Coast Ranges from San Francisco Bay northward into Oregon.

This is an exceedingly pretty little calochortus, much resembling C. Benthami in form, but having pure-white or purplish-blue flowers, which are also covered with hairs and delicately fringed with hairs on the margin. Its stems are low, slender, and graceful, without bulblets at the base; its petals are six to eight lines long; and the gland upon the petals has a transverse scale covering its upper portion.

This plant belongs to the section of Calochortus whose species are known as "star-tulips." In the Coast Ranges, in early spring, the blossoms are found in moist meadows near the sea, where they nestle amid the grasses.

The children are especially fond of them, and know them as "cat's-ears" and "pussy's-ears."

C. uniflorus, Hook. and Arn., found in wet meadows from Monterey northward, has lilac to rose-purple flowers. Its petals are hairy on the lower third, and its stems bear small bulblets at the base underground.

C. umbellatus, Wood., is very similar to C. Maweanus; but its pure-white petals are almost without hairs, and its stem is without bulblets. This is found blooming in March and April on the low mountains of Contra Costa and Marin counties. -- Parsons.

Calochortus luteus

Yellow Mariposa

Lily

C. luteus Dougl. YELLOW MARIPOSA. Fig. 267a. Stem erect, slender, often branching, $\frac{1}{2}$ to 1 or 2 ft. high;

bulblets inclosed within basal sheath of stem; basal leaves linear, 1 to 3 lines wide; sepals yellowish within; petals fan-shaped, as long as broad, $\frac{3}{4}$ to 2 in. long, yellow or orange, rarely white, with or usually without a central brown blotch but with horizontal series of vertical pencilings radiating from gland to center of petal; gland transverse, broadly linear or crescent-shaped or nearly half-moon shaped, usually not reaching quite to edges of petal, densely hairy, with ascending matted yellow hairs; hairs below middle of petal few and scattering; capsule linear-oblong, $1\frac{1}{2}$ to $1\frac{3}{4}$ in. long.- Foothills and low rolling gravelly or dry land, 150 to 2,500 ft.: Coast Ranges from Mendocino Co. s. to San Luis Obispo Co.; borders of the Sacramento and San Joaquin valleys; Sierra Nevada foothills. May-June. The most abundant species; extremely variable in color and markings; commonly in the hardest gravel-packed soil. Var. *OCULATUS* Wats. Fig. 267b, c. Petals white or cream with a central round or transverse brown spot bordered with yellow.-North Coast Ranges to the Sierra foothills. Var. *VESTAE* Jepson. Fig. 268. Petals pure white above the purple brown eye-spot, heavily penciled between the eye-spot and the gland; gland very narrow, extending in a long arching curve from side to side of the petal and notched or as if interrupted at the summit of the arch (that is doubly crescent-shaped).- Blue adobe soil, interior Sonoma Co. to Humboldt Co.

Stems.- Four to twelve inches high; bearing a single bulblet inclosed in the stem-sheath.
Leaves.- Very narrow; one to three lines wide.
Flowers.- Erect, cup-shaped; yellow; comparatively small; not oculated, but the petals striated with brown lines, especially on the middle third. Gland.- Transversely oblong to lunate; densely hairy with orange-colored ascending hairs, with scattered spreading hairs about it. Capsule.- Broad at the base; tapering upward. Hab.- Clay soil; Coast Ranges from Mendocino County to San Diego.

The typical *C. luteus*, as described above, is the least beautiful of all the mariposa tulips, being lower of stature and smaller of flower than most of the others; but among its varieties may be found some of the most charming flowers of the

genus, the true butterfly-tulips of the early Spanish, often oculated and marked in a wonderful manner. In color and marking they often run closely into forms of *C. venustus*, the only constant characters by which to distinguish them being found in the shape of the gland and the capsule and the character of the soil in which they grow.

There are two well-marked varieties-*citrinus* and *oculatus*-besides numerous other forms, where the species seems to have run riot in color and marking. The var. *citrinus* is a strong, vigorous-growing plant, with flowers of a deep lemon-yellow, with a large distinct, very dark maroon eye on each petal. It is exceedingly beautiful.--Parsons.

Calochortus pulchellus

Golden Lantern

Lily

C. pulchellus Dougl. GOLDEN LANTERN. Fig. 278. Stem flexuous, usually dichotomously branching, $\frac{1}{2}$ to $1\frac{1}{4}$ ft. high, 2 or 3 to 12-flowered; basal leaf $\frac{1}{2}$ to $\frac{3}{4}$ in. wide, equal to or taller than the stem, green, glossy, sometimes tinged with purple; bracts linear-lanceolate, equaling or exceeding the flowers; flowers sub-globose, nodding; sepals greenish or brownish-yellow, ovate-lanceolate to elliptic-ovate, abruptly acute, 10 to 15 lines long, slightly shorter than the sub-orbicular petals; petals golden yellow, strongly arched or incurved, their apices overlapping and the margins bluntly incised or fringed; gland in a deeply set pocket (visible from the outside as a convex ridge), its upper fold bearing 2 or 3 rows of appressed glandular yellow hairs crossing each other over the opening of the pocket; petals with scattered hairs above the gland or rarely almost glabrous; anthers oblong, acute, 2 lines long, usually a little shorter than the filaments; capsule elliptical, abruptly short-beaked, winged, $\frac{3}{4}$ to $1\frac{1}{4}$ in. long.--Wooded hills: Mt. Diablo; North Coast Ranges from Marin and Solano Cos. to Humboldt and Tehama Cos. Apr.-May. Also called Golden Lily Bell and Fairy Lantern.--Jepson.

Stems.-- Stout; forking in pairs; eight to twelve inches high; glaucous. Radical leaves.-- Ten inches long, four to six lines wide; lanceolate-acuminate,

Flowers.- Clear yellow; nodding. Sepals.- Three. Petals.- Three; ovate, with short claw, obtuse at apex; naked, but margined with a close row of short stiff hairs; strongly arched, and with tips overlapping each other; with a deep gland showing on the outside as a knob, and lined within with short stiff hairs, crossing each other. (See Calochortus.)
Hab.- Coast Ranges, from San Francisco Bay to Trinity County.

We have no more charmingly graceful flower than the yellow globe-tulip. A single long grasslike leaf precedes the flexuous stem, with its quaintly arched and delicately fringed blossoms. There is a certain quizzical look about these flowers - something akin to the inquiring look of Diogenes, as he thrust his lantern into all sorts of out-of-the-way places in broad daylight. The margins of the petals look as though they had been snipped into a very fine, delicate fringe, unlike the slender, tapering hairs of C. alba.

The Indians are fond of the bulbs, which they eat with great relish, calling them "bo."

Another species, - C. pulchellus, Dougl., - found in the Mt. Diablo region, has for many years been confused with the above, but may readily be distinguished by its more globular flowers, its petals, silky-haired within, and of a much lighter canary yellow. -- Parsons.

Chrysanthemum leucanthemum Field Daisy Sunflower

C. leucanthemum L. OX-EYE DAISY. perennial; stem erect, simple or branched above, 1 to 3 ft. high; herbage essentially glabrous; lower leaves obovate or spatulate, tapering to a long petiole, coarsely toothed; cauline leaves oblanceolate, clasping $\frac{1}{2}$ to $2\frac{1}{2}$ in. long, dentate; bracts lanceolate, edged with a brown line and scarious-margined; heads $1\frac{1}{2}$ to 2 in. wide; rays white.- Fields, nat. from Eur.: Eureka; Sisson; Crescent City. Aug.-Sept.--Jepson.

Cirsium occidentale coulteri Thistle Sunflower

C. occidentale (Nutt.) Jepson. Stem stout, branched, $1\frac{1}{2}$ to 3 ft. high; herbage mostly white with a coating of cottony wool, the upper side of the leaves greenish and merely thin-tomentulose;

leaves lanceolate to oblong, 2 to 10 in. long, sinuate-dentate to pinnatifid, prickly, or sometimes the prickles few and weak; heads subglobose, $\frac{1}{2}$ to 2 in. high; involucre bracts subulate-lanceolate, straight, with short spines, not widely spreading, densely festooned with cobwebby hairs; corollas reddish or purple, the segments longer than the throat; anther-tips narrow and acuminate; pappus rather scanty.- Sand dunes or sandy hills along the coast from Mendocino Co. and San Francisco to San Diego; also interior valleys and hills of Coast Ranges and coastal S. Cal. Apr. - July. This seacoast species passes by intergrades into the first variety. Var. *COULTERI* Jepson n. comb. Fig. 1020. Stem stout, erect, 2 to 4 ft. high, ending above in a few long cymose branches bearing single long heads; heads mostly subglobose; involucre arachnoid-woolly to glabrate, their bracts gradually narrowed into a slender spine; outer-bracts appressed at base, then spreading, the upper portion either incurved or straight or deflexed; innermost bracts erect; corollas red, white or lavender.- Dry warm montane slopes, 2,500 to 8,000 ft.: n. Los Angeles Co.; Coast Ranges; Sierra Nevada; e. to Nev. May-July. (*C. coulteri* Harv. & Gray.) Var. *VENUSTUM* Jepson n. comb. Fig. 1021. Similar to var. *coulteri* but the heads campanulate or even tending slightly to cylindric and noticeably constricted at the middle; involucre not woolly, merely thinly tomentulose or arachnoid; corolla bright crimson. - Dry hill and mountain slopes, 500 to 2,000 ft.: middle and inner North Coast Ranges. (*Carduus venustus* Greene.) Var. *CANDIDISSIMUM* Moeb. Stem very stout; herbage almost snowy white with a commonly persistent felt-like tomentum; outer and middle involucre bracts rigid, at length squarrose-spreading or reflexed, heavily festooned with wool; corollas crimson.- Dry slopes, 400 to 5,300 ft.: Mendocino, Siskiyou and Modoc Cos.; e. to Nev. (*Carduus candidissimus* Greene.) -- Jepson.

Clarkia concinna

Red Ribbons

Evening Primrose

C. concinna (F. & M.) Greene. RED RIBBONS. Fig. 661. Stems simple below or diffusely much branched from the base, $\frac{1}{2}$ to 2 ft. high; herbage nearly glabrous;

leaves ovate-oblong to oblong, $\frac{3}{4}$ to $1\frac{1}{2}$ in. long; calyx-tube above ovary 8 lines long; calyx-lobes crimson, linear-lanceolate, 9 lines long, abruptly recurved from the middle; petals rose-purple, 7 to 12 lines long, cuneate-obovate, 3-lobed, 3 upper petals are commonly approximate and ascending, the lower one opposite these and declined, thus making a corolla which is physiologically irregular and as if 2-lipped; filaments not at all or scarcely dilated at base or apex, the anthers recurved after dehiscence and sparsely short-ciliate; capsule sessile, nearly straight, $\frac{3}{4}$ to 1 in. long; seeds short subcylindric, pointed at one end, the other end oblique and margined with a dense row of short teeth.-- Wooded districts, especially on hillslopes where the surface soil is loose or sliding, 50 to 2,000 ft.: Coast Ranges from Humboldt and Colusa Cos. to Santa Barbara Co. May-June. The common name received from Julia Harbison.-- Jepson.

Stems.-- Several inches to two feet high. Leaves.-- One or two inches long. Flowers.-- Axillary; sessile; parts in fours. Calyx.-- Red-pink; tube an inch or more long. Petals.-- Rose-pink; six lines to over an inch long. Ovary.-- Four-celled. Syn.-- Eucharidium concinnum, Fisch. and Mey. Hab.-- The Coast Ranges, from Santa Barbara to Mendocino County.

In June these charming blossoms may be found in the company of the maidenhair fern fringing the banks of shady roads or standing in glowing masses under the buckeye-trees. In them Nature has ventured upon one of those rather daring color combinations of which we would have hardly dreamed, and the result is delightful. The petals are bright rose-pink, while the sepals are of a red pink.-- Parsons.

Clintonia andrewsiana

Clintonia

Lily

C. andrewsiana Torr. Leaves commonly 5, sometimes 6, narrowly or broadly elliptic, rather abruptly short-pointed, 7 to 13 in. long, 2 to $4\frac{1}{2}$ in. broad; peduncle 15 to 20 in. high, bearing a terminal umbel of many flowers and with 2 to 4 supplementary clusters borne laterally, the

lateral clusters 1 to 9-flowered or rarely none; flowers 5 to 8 lines long, rose-red or pink; filaments slightly pubescent below the middle.-- Shady woods near the coast: Monterey Co. to Del Norte Co. The berries suggest small-sized old-fashioned bluing balls.-- Jepson.

Leaves.-- Radical; oblong; six inches to one foot long; two to four wide. Flower-stem.-- One or two feet high; with one leafy bract. Flowers.-- Pink; many; in a terminal compound cluster on pedicels an inch or less long. Perianth.-- Campanulate; four to seven lines long. Segments.-- Six; gibbous at the base. Stamens.-- Six. Ovary.-- Two or three-celled. Fruit.-- Beautiful, large, dark-blue berries. Hab.-- The Coast Ranges, from Santa Cruz to Humboldt County.

This is one of the most distinguished-looking plants of our deep coast woods. Its large leaves, of a rich polished green, arrange themselves symmetrically around the short stem, seeming to come from the ground--and so fine are they, that if no blossom appeared, we should feel the plant had fulfilled its mission of beauty. But in April a blossom-stalk shoots up from their midst, bearing upon its summit a cluster of deep rose-colored, nodding bells. These are succeeded later by a bunch of superb dark-blue berries, which might be made of lapis lazuli or the rarest old delft china. I remember a beautiful spot upon the Lagunitas Creek, where the stream, flowing over a brown, pebbly bottom, passes among the redwoods where their tall shafts make dim cathedral aisles,--

. . . "forest-corridors that lie

In a mysterious world unpeopled yet."

Here little yellow violets and the charming wood-sorrel carpet the ground, the fetid adder's tongue spreads its mottled leaves, while groups of the lovely Clintonia put the finishing touches to an already beautiful scene.-- Parsons.

Collinsia bicolor

Chinese Houses

Figwort

C. bicolor Benth. CHINESE HOUSES. Fig. 846.
Simple or branching from the middle, $\frac{1}{2}$ to $1\frac{1}{2}$ ft.

high, glabrous or finely pubescent and often viscid above; leaves broadly oblong, or the upper with the broad base narrowed to the apex, serrulate, 1 to 2 in. long; pedicels shorter than the oblong-acute or lanceolate calyx-lobes; corolla rather less than 1 in. long, with lower lip violet or rose-purple, the upper lilac or white, a little shorter than the lower, the lobes recurved-spreading and with low but distinct crests at the point of junction with the tube, saccate throat very oblique to the tube, bristly within, usually with 3 longitudinal purple lines beneath each lobe of the upper lip; whole corolla sometimes varying to white; gland conical; seeds reticulate-rugose, about 6 in each cell.- Very common in the edges of woods in the foothills, 50 to 2,800 ft., throughout cismontane Cal. from San Diego Co. to Tulare, Calaveras, Shasta and Humboldt Cos. Apr.-June. Var. CONCOLOR Jepson n. comb. Leaves linear or oblong-linear; calyx-tube hoary with long villous arachnoid pubescence, the segments obtuse; flowers smaller.- San Diego Co. (C. concolor Greene.) -- Jepson.

Stems.-- A foot or so high. Leaves.-- The lower oblong; the upper ovate-lanceolate. Calyx.-- Unequally five-cleft. Corolla.-- Nine lines long. Upper lip lilac or white; lower of three lobes; the middle folded into a keeled sac containing the stamens and style; the two lateral rose-purple. Stamens.-- Four; in two pairs on the corolla. Upper filaments bearded. Ovary.-- Two-celled. Style filiform, Hab.-- Throughout western California.

Where spreading trees cast a dense shade and the moisture still lingers, companies of lovely collinsias stand amid the fresh green grasses, their delicate, many-storied blossoms swaying upon the idle breezes. In the north these are in the rear guard of spring flowers, and make their appearance just before the godetias bid farewell to spring; but in the south they come earlier. They vary much in color, from the typical rose-purple and white or lilac to all white.

We have a number of species; but *C. bicolor* is the most showy and wide-spread. A white-flowered species, *C. tinctoria*, Hartweg, is very beautiful and abundant in the Yosemite Valley. It has a glandular pubescence that stains the fingers.-- Parsons.

Cynoglossum grande

Hound's Tongue

Borage

C. grande Dougl. WESTERN HOUND'S TONGUE. Fig. 798.

Stems erect, glabrous, 1 to 3 ft. high; leaves mostly basal or borne on the lower part of the stem, hirsutulose beneath, 3 to 8 in. long, on petioles often as long; calyx-lobes narrowly oblong, obtuse, densely pubescent, 2 to 4 lines long; corolla 4 to 7 lines long, the tube often purple, the lobes elliptic; nutlets depressed.-- Wooded cañons, 100 to 4,000 ft.: Coast Ranges from the Santa Lucia Mts. to w. Alameda Co.; North Coast Ranges from Marin Co. and the Vaca Mts. to Siskiyou Co., thence so. in the Sierra Nevada foothills to Eldorado Co. and Tuolumne Co., recurring in Tulare Co.; n. to Wash. Feb.-May.-- Jepson.

Stem.-- Two feet or so high. Leaves.-- Alternate; long-petioled; ovate-oblong; pointed usually rounded at base; often a foot long. Flowers.-- Bright blue; in a terminal panicle. Calyx.-- Deeply five-cleft. Corolla.-- Rotate; with short tube and five-lobed border; having five beadlike crests in the throat. Stamens.-- Five; on the corolla, alternate with its lobes. Ovary.-- Four-lobed. Style undivided. Fruit.-- Four prickly nutlets. Hab.-- From Marin County to Washington in the Coast Ranges.

Among the first plants to respond to the quickening influence of the early winter rains, is the

hound's-tongue, whose large, pointed leaves begin to push their way above ground usually in January. At first these are often quite velvety beneath and of a pinkish hue, and hold hidden within their midst the well-formed buds which a few warm, sunny days will call forth. The flowers, at first pink, become bright blue after fertilization has taken place.

The common name is a translation of the generic name, which is derived from two Greek words, signifying dog and tongue, bestowed because of the shape of the leaves. In the olden times a superstition was rife that if a person laid the hound's-tongue beneath his feet it would prevent dogs from barking at him.

The distribution of the seed is most cunningly provided for, as the upper surfaces of the nutlets are covered with tiny barbs, which a magnifying-glass reveals to be quite perfect little anchors, admirably adapted for catching in the hair of animals.

This plant should not be confused with the large mountain forget-me-not, described on p. 307.

The beautiful azure blue flowers of the latter are produced in much denser clusters and often grow in masses. - Parsons.

Delphinium hesperium Western Larkspur Buttercup

D. hesperium Gray. WESTERN LARKSPUR. Stem commonly simple, $1\frac{1}{2}$ to 3 ft. high, arising from a cluster of thick-fibrous roots or a single woody taproot; herbage shortly pubescent; leaves 2 to 3 times palmately cleft into oblong or linear spreading segments; raceme rather dense, virgate, 6 to 14 in. long; pedicels 2 to 6 lines long, or the lowest 1 in., strictly erect; flowers commonly blue, rarely pink or white or intermediate shades; sepals 4 to 6 lines long, equaled or exceeded by the straight spur, somewhat densely puberulent on the outside or the alternate ones with a rather definite puberulent band; petals little shorter than the sepals; follicles short-oblong, 3 to 5 (or 7) lines long, pubescent; seeds with a loose cellular whitish coat, which is produced into narrow wings

on the angles.- Dry open ground in the foothills: Coast Ranges (Humboldt Co. to Contra Costa Co. and Monterey Co.) Flowering at beginning of the dry season; rather common, but occurring as scattered individuals, rarely in colonies. Var. *RECURVATUM* Jepson. Habit of the species; leaves usually with narrower more acute divisions; flowers pink-lavender or lavender-white, rarely blue; sepals recurving.- Low, especially alkaline lands, Sacramento and San Joaquin valleys, and saline valleys of the inner South Coast Ranges. Var. *CUYAMACAE* Jepson. Leaves thickish or subcoriaceous, the sinuses with straight rather than curving sides, the lobes broad and mainly cleft at apex; raceme dense (like San Joaquin Co. specimens of var. *recurvatum*) or loose; flowers blue, like those of the species.- Cuyamaca Mts. Perhaps also on Mt. Pinos. Var. *SEDITIOSUM* Jepson. Leaves mostly basal, minutely pubescent or canescent, the segments filiform or narrowly linear, more or less revolute.- Monterey Co. towards the coast.-- Jepson.

Delphinium nudicaule

Red Larkspur Buttercup

D. nudicaule T. & G. RED LARKSPUR. Stems slender, 1 to 2 ft. high, few-leaved or quite naked; herbage glabrous or nearly so; leaves somewhat succulent 3 to 5-parted into broad mostly obtuse division, to divisions cleft, lobed or entire; racemes 2 to 12-flowered, loose and open; pedicels 1 to 3½ in. long, the lower often much longer than the upper; calyx red, glabrous or very sparsely puberulent; sepals 4 to 6 lines long, the spur nearly one-half longer; petals partly or mostly yellow, the upper narrowly obovate, sharply notched at summit, much larger than the small cleft lower ones; follicles glabrous, divergent-curving.- Banks of rivulets and rocky summits: Coast Ranges, 800 to 3,000 ft., from Santa Lucia Mts. to Siskiyou Co.; Sierra Nevada, 4,000 to 8,000 ft., from Mariposa Co. to Modoc Co.; s. Ore. Var. *LUTEUM* Jepson n. comb. Leaves sparsely short-hairy; flowers larger, pale yellow, pubescent; spur broader.- Marin and Sonoma coasts. (*D. luteum* Hel.) -- Jepson.

Stems.- A foot or two high; naked or very few-leaved. Leaves.- One to three inches in diameter;

deeply three- to five-cleft, or barely parted into obovate or cuneate divisions. Flowers.- Scarlet; in loose, open racemes; on pedicels two to four inches long. Sepals.- Five; petaloid; the upper prolonged upward into a spur containing the smaller spurs of the two upper petals. Spur six to nine lines long; Petals.- Usually four; the two lateral small, not spurred. Stamens.- Many. Pistils.- Mostly three; becoming divergent follicles. Hab.- The Coast Ranges from San Luis Obispo to Oregon.

Though not so intensely brilliant and striking as the southern scarlet larkspur, this is a delightful flower, the sight of which gracing some rocky canon-wall or making flecks of flame amid the grass, gives us a thrill of pleasure. It would require no great stretch of the imagination to fancy these blossoms a company of pert little red-coated elves clambering over the loose, slender stems. In our childhood we used to hear them called "Christmas-horns." -- Parsons.

Delphinium trolliifolium

Tall Blue Larkspur Buttercup

D. trolliifolium Gray. COW POISON. Stems coarse, 4 to 6 in. high; herbage glabrous; leaves thinnish, 2½ to 5 lines broad, orbicular in outline, 5 to 7-cleft into cuneate segments, the segments incised or with rounded teeth, the upper leaves with acute teeth or segments; racemes very loose below, sometimes dense above, ¾ to 1 or 2 ft. long; pedicels widely spreading, 1 to 1 ¾ in. long, or the lowermost 3 to 5 in. long, hairy or glabrous; bractlets narrowly lanceolate, 2 to 4 lines long; flowers deep blue; sepals 4 to 5 lines long, the very slender spur nearly half again as long; follicles glabrous, 9 to 12 lines long, only slightly spreading, or sometimes strongly recurved-spreading.- Moist ground on edges of woods near the coast: Humboldt Co.; n. to Ore. -- Jepson.

California is rich in beautiful larkspurs, but the species are very difficult of determination and not well defined as yet. We have two well-marked scarlet species; but confusion still reigns among the blue and the white. Some of the latter are poisonous to sheep and cattle, causing great losses to the herds every year in some localities.

Among the blue larkspurs are some of our handsomest spring flowers. Their slender wands, covered with magnificent large blossoms, rise abundantly on every side upon some of the mesas of our seashore, making charming flower-gardens upon the plains. They are so lavishly bestowed that every comer may gather his fill and still none be missed. In color they are matchless-of the richest of Mazarin blue and purple-blue.

Other species are to be found upon the slopes of interior valleys and scattered all through the Coast Ranges and the Sierra foothills. In midsummer, which is the vernal springtime of the mountains, many lovely species deck the alpine meadows and brooksides.

The Spanish-Californians have a pretty title for these blossoms- "espuela del caballero" - "the cavalier's spur." -- Parsons.

Dentaria integrifolia

Milk-Maids

Mustard

D. integrifolia Nutt. MILK-MAIDS. Stems mostly one from the rootstock, erect 6 to 21 in. high, the herbage rather fleshy; leaves thickish, the leaves or leaflets entire; basal leaves simple or trifoliate, the leaves or leaflets orbicular, ovate, or reniform, $\frac{1}{2}$ to 2 $\frac{3}{4}$ in. long; cauline 3 or 5-foliate, the leaflets orbicular to lanceolate or linear; raceme mostly single; corolla white, 6 lines broad; sepals green or dull red; pods flattened, 1 to 1 $\frac{1}{2}$ in. long, terminating in a stout style 1 $\frac{1}{2}$ to 2 lines long.- Valley floors or wet hillsides, always in open situations 50 to 500 ft.: Coast Ranges from Monterey Co. to Marin Co., often whitening low moist fields in Mar.-Apr. Var. CALIFORNICA Jepson n. comb. Leaves larger (1 to 2 $\frac{3}{4}$ in. long) and thinner, more commonly denticulate, sometimes pale purple beneath; flowers white or pale rose-color.- Shady banks or rich woods or thickets, 200 to 8,700 ft., common in the hill country throughout cismontane Cal. (*D. californica* Nutt.) Var. TRACYI Jepson n. var. Leaves a very dense deep purple beneath, the basal smaller than in var. californica; flowers deep rose-pink, slightly smaller.- Woods, Van Duzen River, Humboldt Co. (Blue Slide, Tracy 5426, type). Var. CARDIOPHYLLA Jepson n. comb. Leaves all undivided.- Vaca Mts.; Plumas Co. (Syn. Fl. 1:155). (*D. cardiophylla* Greene.) Var. PACHYSTIGMA Wats.

Raceme sessile or nearly so.- Plumas Co.--
Jepson.

Roots.- Bearing small tubers. Stems.-
Six inches to two feet high. Root-leaves.-
Simple and roundish or with three leaflets. Stem-
leaves.- Usually with three to five pinnate leaf-
lets, one to three inches long. Flowers.- White
to pale rose-color. Sepals and Petals.- Four.
Stamens.- Four long and two short. Ovary.- Two-
celled. Style simple. Pod.- Slender; twelve to
eighteen lines long. Syn.- Cardamine naucisecta,
Benth. Hab.- Throughout the Coast Ranges.

What a rapture we always feel over this first
blossom of the year!- not only for its own dear
sake, but for the hopes and promises it holds out,
the visions it raises of spring, with flower-
covered meadows, running brooks, buds swelling
everywhere bird-songs, and the air rife with per-
fumes.

It is like the dove sent forth from the ark,
this first tentative blossom, this avant courier
of the great army of Crucifers, or cross-bearers,
so called because their four petals are stretched
out like the four arms of a cross.

It is usually in some sheltered wood that we
look for this first shy blossom; but once it has
proved the trustworthiness of the skies, it is
followed by thousands of its companions, who then
come out boldly and star the meadows with their
pure white constellations.

The Latin name of this genus (from the word
dens, a tooth), translated into the vernacular
becomes toothwort, the termination wort signify-
ing merely plant or herb.

It was so named because of the toothed root-
stocks of many species.

The little tubers upon the root often have a
pungent taste, from which comes one of the other
common names-"pepperrroot." Various other names
have been applied to these flowers, such as "lady's
smocks," "milkmaids," and "spring blossoms." --
Parsons.

Disporum smithii

Fairy Lantern

Lily

D. smithii (Hook.) Piper. FAIRY LANTERN. One to 3

ft. high, soft-pubescent or almost glabrous; leaves round-ovate to ovate-lanceolate, rounded or subcordate (and often a little oblique) at base, at apex abruptly acute or attenuate, 2 to 4 $\frac{3}{4}$ in. long; perianth whitish, broad and cup-shaped at base, $\frac{3}{4}$ to 1 in. long, the tips of the segments erect; stamens $\frac{1}{3}$ shorter than the perianth; berry yellow, oblong-obovate, attenuate above into a short beak.- Stream banks, Coast Range woods very near the coast: San Mateo Co. to Del Norte Co.; n. to B. C. Apr.-- Jepson.

Dodecatheon hendersonii Shooting Stars Primrose

D. hendersonii Gray. MOSQUITO BILLS. SAILOR CAPS. Scapes red or reddish, 9 to 14 in. high, from a strong cluster of fleshy-fibrous roots; leaves roundish obovate to elliptic, the margin more or less crisped, 1 to 2 $\frac{1}{2}$ in. long, on petioles $\frac{1}{2}$ to 2 times as long; umbels 3 to 13-flowered, the pedicels $\frac{1}{2}$ to 3 $\frac{1}{2}$ in. long; flowers 5- or sometimes 4-merous; calyx cleft into ovate-lanceolate lobes; corolla-lobes oblong, 6 to 7 lines long, $\frac{3}{4}$ to 1 $\frac{1}{2}$ (or 2) lines wide, purple with a transverse yellow zone at base, which is edged above by white and bounded below by a black-purple band; filaments black-purple; anthers linear or clavate, 2 lines long; capsule oblong or short-cylindric, circumscissile well below the summit, then valvate.- Low slopes to high ridges in the foothills, the most common species: Coast Ranges from Monterey Co. to Siskiyou Co., thence s. in the Sierra Nevada foothills to Tulare Co. Feb.-Apr. Var. *BERNALIANUM* Jepson n. comb. Petals rose-purple with a white zone below, this bordering the dark purple band of the united base of the corolla-segments; anthers oblong, 1 $\frac{1}{2}$ lines long, retuse.- Open ridges, San Mateo Co. and San Francisco Co. The corolla-tube is closely reflexed, whereas in the species and in *D. patulum* its base is slightly folded over the base of the anthers. (*D. patulum* var. *bernalium* Greene.) Var. *GRACILE* Jepson n. comb. Corolla white; petals twisted (ex char.) - Santa Cruz Mts. (*D. patulum* var. *gracile* Greene.) -- Jepson.

Leaves.-- All radical; tufted; from obovate to lanceolate. Scape.-- Three to fifteen inches high;

umbel two- to twenty-flowered. Calyx.— Deeply five-cleft, the divisions reflexed in flower, erect in fruit. Corolla.— With extremely short tube, and an abruptly reflexed five-parted limb; white, rose-color, or purple. Stamens.— Five; opposite the corolla-lobes. Filaments short; united. Anthers standing erect around the long style, forming a beak; violet. Ovary.— One-celled. Hab.— Throughout the continent; exceedingly variable.

The shooting-star is one of our prettiest spring flowers, which arrives a little before the baby-eyes and just as the brakes are unrolling their green crossiers. There is something particularly pleasing in these blossoms. It seems as though Nature had taxed her ingenuity to produce something original when she fashioned them. The name Dodecatheon, from the Greek, is entirely a fanciful one, and means "the twelve gods."

Formerly D. Meadia, L., was considered the only species, embracing many widely varying forms; but of late botanists have made several of the forms into separate species.

D. Hendersoni (Gray), Ktze., is the species prevalent in our central and northern Coast Ranges. This has ovoid or obovoid, very obtuse, entire leaves, with broad petiole, equaling the blade, two inches long. Its flower-stem is from eight to twelve inches high, bearing a cluster of bright rose-purple flowers. The corolla has a short, dark-maroon tube, encircled by a band of yellow, sometimes merging into white. The variety cruciata, with very slender stems and the flower parts in fours, is common in the Bay region, and southward possibly to Santa Barbara. Its blossoms have a strong odor, suggestive of a tannery. In this species the capsule opens at the top, splitting into a number of little teeth, which soon turn downward....

In midsummer the wet meadows of the Sierras, particularly in the Yosemite region, are rosy with these flowers, which are peculiarly beautiful against the lush green grasses.

Among the children the various forms are known by a number of names such as "mad violets," "prairie-pointers," "mosquito-bills," and "roosters'-heads." The latter is said to be the designation of prosaic little boys who see in these blossoms gaming possibilities, and who love to hook them together and

pull to see which head will come off first.--Parsons.

Epipactis gigantea

Stream Orchis

Orchid

E. gigantea Dougl. STREAM ORCHIS. Stout, 1 to 3 (or 4) ft. high, nearly glabrous; leaves ovate below, lanceolate above, acute or acuminate, 3 to 7 in. long; raceme minutely pubescent; flowers 3 to 10, on pedicels 2 lines long; sepals greenish, 7 lines long (exceeding the petals), the upper concave and somewhat carinate; petals rose-color, purple-veined, particularly the lip; lower portion of lip with short erect lobes or wings and with many callous tubercles near the base, the upper portion ovate-lanceolate, crested or ridged toward the base.-- Moist stream banks: mts. throughout Cal.: n. to Wash., e. to Col. and Tex. May. -- Jepson.

Rootstock.-- Creeping. Stems.-- Leafy; one to four feet high. Leaves.-- Alternate; sessile; clasping; ovate below; lanceolate above; three to eight inches long. Flowers.-- Three to ten; in terminal racemes; greenish, veined with purple. Sepals.-- Three; petaloid; lanceolate; an inch or less long. Petals.-- The two upper about equaling the sepals. The lip concave; saccate; eared at base; with a jointed, pendulous tip. Anther.-- One; sessile upon the top of the column. Ovary.-- One-celled. Hab.-- Throughout California.

The casual observer usually alludes to this plant as a "lady's slipper," and he is not so very far wrong, for it is closely related to the *Cypripedium*, and resembles it much in habit, in the aspect of its leafy stems, and in the general form of its blossom. But instead of having its lip in the form of a sac, it is open and curiously jointed, the lower portion swinging freely, as upon a hinge.

When this lid is raised, one can fancy some winged seraph or angel enshrined within, but when lowered the semblance is more to a monk bowed in meditation.

These beautiful plants will be found abundantly fringing our streams in June and July, and the disciples of dear old Isaak Walton who then pass down the stream with rod and line are usually attracted by their quietly elegant colors. Dull purples and greens predominate, though the lip is tinged with orange or yellow.

In northern California and Oregon is occasionally

found a rare and curious plant-the "phantom orchis," Cephalanthera Oregana, Richenb.f. This plant is white and ghostlike throughout, has stems a foot or two high, but no leaves-only three to five scarious sheathing bracts. Its blossoms are very similar in size and shape to those of Epipactis gigantea.

I have never had the pleasure of finding this floral oddity myself; but one season a friend sent me the only plant which was found in a thicket near a pretty camp upon the Sacramento River, in the Shasta region.-- Parsons.

Epilobium angustifolium Fire-Weed. Evening Primrose

E. angustifolium L. FIRE-WEED. Fig. 655. Stem erect, mostly simple, 2 to 6 ft. high, glabrous, or puberulent above; leaves lanceolate, nearly entire, lateral veins confluent in submarginal loops, 4 to 6 in. long, sessile or nearly so, or the lower short petioled; flowers large, in long racemes with small slender bracts; calyx cleft almost to the ovary; corolla slightly irregular, lilac-purple; petals 5 to 8 lines long, entire or slightly emarginate; stamens purple, in a single row, with filaments dilated at base; style exceeding the stamens, hairy at base, at first recurved; capsule 2 to 3 in. long.- Moist or boggy ground, especially in fire-swept areas: Sierra Nevada and s. to the Cuyamaca Mts., 2,000 to 6,600 ft.; North Coast Ranges, 50 to 3,000 ft.; n.N. Am.; Eur. -- Jepson.

Stems.-- Often four to seven feet high.
Leaves.-- Scattered; willowlike. Flowers.-- Purplish-pink; an inch or more across. Calyx-tube.-- Linear; limb four-parted; often colored.
Stamens.-- Eight. Anthers purplish. Ovary.-- Four-celled. Seeds silky-tufted. Syn.-- E. angustifolium, L. Hab.-- The Sierras; eastward to the Atlantic; also in the North Coast mountains. Found also in Europe and Asia.

This plant has received one of its English names because its leaves are like those of the willow and its seeds are furnished with silken down, like the fluff on the willow.

It is our finest and most showy species of

epilobium, and is also found in the Eastern States, where it is still known by a former name.

E. angustifolium, L. Owing to the fact that it grows with special luxuriance in spots which have been recently burned over, it is commonly known as "fireweed." It may be found in perfection in the Sierras in August, where its great spikes of large pink flowers make showy masses of color along the streams and through the meadows, commanding our warmest admiration.

In the fall the tall, pliant, widely branching stems of the "autum willow-herb"- E. paniculatum, Nutt.- stand everywhere by the roadside. The small pink flowers, half an inch across, terminate the almost leafless stems, and later are replaced by the dry, curled remains of the opened capsules and the feathery down of the escaping seeds.--Parsons.

Eriophyllum lanatum arachnoideum Yellow Daisy Sunflower

E. lanatum (Pursh) ... var. ARACHNOIDEUM Jepson n. comb. Similar to var. achillaeoides; leaves 1 to 3 in. long, not so deeply parted, pinnately and usually irregularly incised, green and glabrate above, thinly tomentulose below or subglabrate.- Hill slopes, 50 to 1,500 ft.: Marin Co. to Humboldt Co. (Bahia arachnoidea Fisch. & Ave.- Lall.) High montane, 6,000 to 11,000 ft.: Sierra Nevada from Fresno and Mono Cos. to Plumas Co. (E. monoense Rydb.) -- Jepson.

E. arachnoideum, F. and M., is a very handsome species with solitary golden flower-heads an inch or so across. Its leaves are broader and not so finely divided, and some of the upper ones are linear and entire. This is found near the coast from Santa Cruz to Mendocino County. Its leaves are conspicuously white-woolly beneath.

Erigeron philadelphicus Skevish Sunflower

E. philadelphicus L. SKEVISH. Fig. 940. Stem simple, 2 to 3 ft. high, commonly branched only at or near the summit; herbage hispidly pubescent; leaves spatulate or obovate, serrate or coarsely few-toothed, the basal, (including the long margined

petioles) 4 to 11 in. long, the cauline with auriculate-clasping base, 1 to 4 in. long; heads corymbose, commonly on rather long peduncles, $\frac{1}{2}$ to 1 in. broad; rays white or pink, numerous, narrow.- Along streamlets and by springy places in the hills and valleys, 100 to 4,000 ft.: coastal S. Cal.; Coast Ranges; Sierra Nevada; n. to B. C., e. to the Atlantic.-- Jepson.

Hairy, perennial herbs. Stems.- One to three feet high; leafy to the top. Root-leaves.- Spatulate or obovate. Stem-leaves.- Oblong; sessile, with broad clasping base; irregularly toothed. Flower-heads.- In a loose corymb. Disks.- Yellow; three or four lines across. Rays.- Innumerable; very narrow; flesh-color to rose-purple; about three lines long. Hab.- Widely distributed on the Pacific and Atlantic coasts.

The feathery, daisy-like flowers of the common fleabane are of frequent occurrence in moist meadows or along the roadsides in spring. The ray-flowers are so narrow as to form a delicate fringe around the disk.

The common name arose from the belief that these plants were harmful to fleas.-- Parsons.

Eriogonum gracile

Wild Buckwheat

Buckwheat

E. gracile Benth. Stems strictly branched and forming a narrow panicle or more diffuse, $\frac{1}{2}$ to 2 $\frac{1}{2}$ ft. high; thinly tomentose throughout, becoming floccose; leaves oblanceolate or broadly oblong, attenuate to a slender petiole, $\frac{1}{2}$ to 2 in. long, tomentose on both sides or less so above; involucres distributed along the elongated branches, glabrous or nearly so, barely exceeding the bracts and half concealed by them, $\frac{3}{4}$ to 1 line long, cylindric-campanulate, the teeth acute, prominent, spreading; calyx white, rose-color or yellowish, glabrous, $\frac{3}{4}$ line long.- Dry plains, valleys and low hills: Great Valley and Coast Ranges to S. Cal.; s. to L. Cal.-- Jepson.

Erythronium californicum

Fawn Lily

Lily

E. californicum Purdy. PAWN LILY. Like preceding but leaves strongly mottled; flowers creamy white or somewhat yellowish, or white; median sacs 2, the lateral ones reduced to a transverse ridge.- Brushy or open hillslopes, 500 to 3,500 ft.: n. Sonoma Co. to Humboldt and Trinity Cos. Mar.-Apr. -- Jepson.

Eschscholtzia californica California Poppy Poppy

E. californica Cham. CALIFORNIA POPPY. Fig. 401. Stems scapose or leafy, erect or diffuse, $\frac{3}{4}$ to 2 ft. high; basal leaves ternately several times dissected into linear or oblong segments, on long or short petioles, the whole leaf $\frac{1}{3}$ to 1 ft. long; cauline smaller on short petioles; peduncles 2 or 3 to 6 in. long; petals fan-shaped, $\frac{1}{2}$ to 2 in. long, varying from deep orange or copper-color to straw-color; outer spreading rim of the receptacle commonly $\frac{1}{2}$ to 2 lines wide, the inner erect rim hyaline; capsule 1 to 3 or even 4 in. long.- Throughout dismontane Cal. in the valleys and foothills, 10 to 2,000 ft. Widely naturalized in Aust. and India.-- Jepson.

Stems.- Twelve to eighteen inches high; branching. Leaves.- Alternate; finely dissected; glaucous. Flowers.- Two or three inches across; usually orange; but ranging from that to white. Summit of the peduncle enlarging into a cup-shaped torus or disk, upon the upper inner surface of which are borne the calyx, corolla, and stamens. Calyx.- A pointed green cap, falling early. Petals.- Four. Stamens.- Numerous, in four groups, in front of the petals. Anthers linear. Ovary.- One-celled. Style short. Stigmas four to six; unequal. Capsule.- Cylindrical; ten-nerved; two or three inches long. Hab.- Throughout California.

It is difficult to exaggerate the charms of this wonderful flower. When reproduced in countless millions, its brilliant blossoms fairly cover the earth; and far away upon distant mountainslopes, bright patches of red gold denote that league after league of it lies open to the sun. It revels in the sunshine, and not until the morning is well advanced does it begin to unfurl its tightly rolled petals.

In the early days, when Spanish vessels sailed up and down the newly-discovered coast, the mariners, looking inland, saw the flame of the poppies upon the hills and called this "the land of fire." They said that the altar-cloth of San Pascual was spread upon the hills, and, filled with a devotional spirit, they disembarked to worship upon the shore.

This flower is now cultivated in many parts of the world. But one can form no conception of it, pale and languishing in a foreign garden. One must go to its native hillsides to get any idea of its prodigal beauty.

The common title, "California poppy," though it has been widely used, belongs more properly to another flower, Papaver Californicum. The generic name is dissonant and harsh. Why not replace it by one of the more euphonious Spanish titles- "amapola," "dormidera," "torosa," or, most charmingly appropriate of all, "copa de oro," -"cup of gold"?

There are many forms of Eschscholtzia, and of late the original species, E. Californica, has been divided into a number of new species, which are, however, difficult of determination.

The Indians of Placer County, it is said, boil the herbage, or roast it by means of hot stones, lay it in water afterward, and then eat it as greens. A drug made from this plant is used in medicine as a harmless substitute for morphine and as a remedy for headache and insomnia, and it has an especially excellent effect with children. The Spanish-Californians make a hair-oil, which they prize highly, by frying the whole plant in olive oil and adding some choice perfume. This is said to promote the growth of the hair and to make it glossy.--Parsons

Fritillaria lanceolata

Checker Lily

Lily

F. lanceolata Pursh. CHECKER LILY. Fig. 233.

Stem $1\frac{1}{2}$ to 2 (or 3) ft. high; scales few or none, the lower portion of the solid bulb covered with numerous rice-grain bulblets; leaves 6 to 10 in 2 or 3 whorls on the upper part of the stem, ovate-lanceolate, 2 to 4 in. long; raceme 1 to 4, sometimes to 13-flowered; perianth deeply bowl-shaped, 1 to $1\frac{1}{2}$ in. long,

dark purple mottled with greenish yellow, the segments ovate to oblong, deeply concave, with a very large ovate-lanceolate gland in the middle of the concavity; gland deep green, sharply defined, often with minute black dots; style cleft to below the middle; capsule broadly winged, $\frac{2}{3}$ in. long.- Near the coast, on oak-covered or brushy hills: San Mateo Co. to Humboldt Co.; n. to B. C. and Ida. Also called Rice-root Lily. -- Jepson.

Stem.- A foot or two high. Leaves.- In scattered whorls; lanceolate; two to five inches long. Flowers.- One to several; open campanulate; greenish or black-purple; variously checkered or mottled. Perianth-segments.- Strongly arched, with a large oblong nectary. Stamens.- Six. Ovary.- Three-celled. Hab.- The Coast Ranges from Santa Cruz northward into Marin County.

One of the oddest and most beautiful flowers of our rich woodlands is the brown lily, or fritillary. It is unrivaled in elegance, for every line of its contour is a study in grace. Nor do its charms cease with stem and leaf and flower; for, hidden away in the rich leaf-mold, is one of its most beautiful features, its bulb. This is pure, shining white, conical in form, and surrounded by many tiny bulblets, like grains of rice, which crumble away from it at a touch. If you go into the woods in early spring, you will often see certain handsome, broad, shining, solitary leaves, a foot or less long, close to the ground, and you will wonder what they are. Often near them there are many tiny leaves of the same sort pushing their way above ground; and sometimes among them all there is a solitary strong scape, with unfolding leaves and a promise of flowers. This is a colony of the beautiful brown lilies. The tiny leaves are the product of the little rice-grains, and are probably now seeing the light for the first time. Between these and the large leaves the breadth of the hand, are many sizes, in all stages. The broad leaves may be from bulbs four or five years old, but they will send up no blossom-stalk this year; for there is rarely or never a radical leaf and a blossom-stalk from the same bulb at once.

When the plant is about to flower, the

bulb sends up a tall stalk, with here and there a whorl of shining leaves, hanging at the summit its string of pendent bronze-bells. These are mottled and checkered, and are of varying shades, from dull green to black-purple, and often have a beautiful bloom upon them. Their modest colors blend so nicely into the shadowy scene about, that it is difficult to see them unless the eye is somewhat practiced.

Following the inflorescence comes a beautiful and unique seed-vessel, curiously winged and angled, and of a delicate papery texture when matured. It contains the thin, flat seeds, neatly packed in six ranks.

The flowers are usually an inch long, though they are sometimes two inches long. A plant was once found three and a half feet high, with a chime of nineteen bells.--Parsons.

Geranium richardsonii

Geranium

Geranium

G. richardsonii F. & T. Fig. 534. Stems rather slender, from a stout caudex, $1\frac{1}{2}$ to $2\frac{1}{2}$ ft. high; herbage appressed-pubescent, the stems and petioles pilose or hirsute, sometimes retrorsely so; basal leaves deeply 5-parted into toothed or cleft segments, the petioles 3 to 12 in. long; hairs of the pedicels tipped with purple glands; petals white, mostly roseate-veined, hairy within, 5 to 6 inches long.-- Mountain valleys or along cañon bottoms, 5,500 to 9,000 ft.; mts. of S. Cal.; Sierra Nevada from Tulare Co. to Siskiyou Co., thence s. to Humboldt Co. (800 ft.); e. to Rocky Mts., n. to Saskat. July.-- Jepson.

Gilia capitata

Blue *Gilia*

Gilia

G. capitata Dougl. Stem simple or commonly strictly branched above, $2\frac{2}{3}$ to 3 ft. high, the leaves basal and cauline, gradually reduced upwards; herbage glabrous to puberulent, sometimes minutely glandular; leaves 1 to 4 in. long, pinnate to bipinnate with linear lobes, petioled, the petioles 2 to 12 lines long; flowers in terminal heads on naked peduncles, the peduncles long (2 to 15 in.); heads 5 to 11 lines broad; calyx glabrous, rarely pubescent or woolly; corolla funnelform, white to

blue, purple and lavender, 3 to 4 lines long, its lobes linear; stamens inserted in the sinuses, exserted; capsule ovate, several-seeded; seeds showing spiracles when wetted.- Open slopes and flats, 500 to 5,000 ft.; Sierra Nevada; North Coast Ranges; n. to Wash.--Jepson.

Habenaria elegans

Rein Orchis

Orchid

H. elegans (Lindl.) Jepson. Slender, strict, 10 to 14 in. high; basal leaves oblanceolate to lanceolate, 2 to 3½ in. long, those of the stem reduced and acuminate or often almost none; spike slender, laxly flowered, attenuate at apex, 5 to 7 in. long; flowers whitish; upper sepal lanceolate; lip oblong-ovate, obtuse, spur as long as or a little longer than the ovary.- S. Cal. and Coast Range woods mostly near the coast from Monterey Co. n. to Humboldt Co.; Sierra Nevada.--Jepson.

Root.- An oblong tuber. Stem.- Rather slender; a foot or two high. Leaves.- Two; radical; oblong; three to six inches long; eighteen lines to two inches wide. Flowers.- Small; light green; in a dense but slender spike. Sepals and petals about equal; two lines long; obtuse. Lip.- Similar, with a filiform spur three to five lines long. (Otherwise like *H. leucostachys*.) Hab.- Near the coast, from Monterey to Vancouver Island.

In early summer the fragrant spikes of the reinorchis stand half-concealed under the trees and along the banks bordering wooded mountain roads. The little greenish flowers are inconspicuous, and reveal themselves only to those who have the habit of observation. Early in the spring the rather large lily-like leaves were far more noticeable and handsome; but they seemed to weary of waiting for the tardy arrival of the blossoms, and faded away long since. The little flowers are very deliberate about unfolding themselves; and I have sometimes watched them when they seemed for weeks at a standstill before yielding to the summer's invitation to come forth.

They are arranged in a three-sided spike, on two sides of which the long spurs interlace and

cross one another in quite a warlike manner.--
Parsons.

Helenium bigelovii

Bigelow Sneezeweed Sunflower

H. bigelovii Gray. BIGELOW SNEEZEWEED. Stem 2 to 4 ft. high, branching above into several erect peduncle-like branches, rarely simple; leaves lanceolate to broadly oblong-lanceolate or linear, thickish, 4 to 10 in. long, glabrous or minutely tomentose, not so conspicuously decurrent as in *H. puberulum*; rays showy, 7 to 9 lines long; disk brown or brownish yellow; pappus-paleae 5 to 8, ovate-lanceolate, tapering into a slender awn; achene sparingly hairy.--Marshy or springy ground: San Jacinto and San Bernardino mountains and Sierra Nevada, 3,500 to 7,500 ft.; North Coast Ranges, 5 to 3,500 ft.; e. to Ariz., n. to southwestern Ore.--Jepson.

Heuchera micrantha

Alum Root

Saxifrage

H. micrantha Dougl. Fig. 456. Plants 1 to 3 ft. high; petioles and stems pilose-hirsute, the leaves hirsutulous and the inflorescence glandular puberulent; leaves round- or ovate-cordate, 2 to 4 in. long, obtusely lobed and crenately toothed; flowers in an ample loose panicle; calyx shorter than the slender pedicels; petals narrowly oblong, curving, rather shorter than the calyx.--Near the coast, 100 to 1,500 ft., Monterey Co., to Humboldt Co.; Sierra Nevada, 2,200 to 7,000 ft., from Tulare Co. to Butte Co. and n. to Siskiyou Co.; n. to Wash.--Jepson.

Rootstock.-- Stout. Leaves.-- All radical; two to four inches long. Scapes.-- Often two feet high. Flowers.-- White; minute in loose panicles. Calyx.-- Five-toothed; one or two lines long. Petals.-- Five; one line long; on the sinuses of the calyx. Stamens.-- Five. Ovary.-- One-celled. Styles two. Syn.-- *Heuchera micrantha*, Dougl. Hab.-- Coast Ranges and Sierras from Monterey to British Columbia.

Upon almost any drive or walk along a shaded road we may find the alum-root hanging over a

mossy bank. Its large, airy panicle is composed of minute flowers, and appears in early summer. But it is more conspicuous for its exquisite foliage than for its flowers. The leaves are usually mottled in light green and richly veined in dark brown or red, and they often turn to a rich red later in the season.

The root is woody and astringent, to which latter fact the plant owes its English name, which it shares with the other members of the genus. These are very satisfactory plants to bring in from the woods, because they remain beautiful in water for many weeks. -- Parsons.

Hydrophyllum tenuipes viride Waterleaf Phacelia

H. tenuipes Hel. var. *viride* Jepson n. var. Plants erect, 10 to 20 in. high; herbage thinly hispidulose and the stems often conspicuously retrorse-bristly; leaves 4 to 7 in. wide, palmately-3-divided, the central division much larger and deeply 3-cleft, all the segments serrate and incised; corolla greenish-white. -- Shady woods along the coast, 20 to 500 ft.: Mendocino and Humboldt Cos. (Ft. Bragg, W.C. Mathews, type); n. to Wash. May-June. -- Jepson.

Iris douglasiana Mountain Iris Iris

I. douglasiana Herbert. MOUNTAIN IRIS. Stem $1\frac{1}{2}$ to 2 ft. high, much exceeded by the (3 to 9 lines wide) basal leaves, these reddish at base; bracts broader and less acuminate than in *I. macrosiphon*; flowers 2 or 3 in a pair of bracts, mostly cream-color, lavender or azure, often purple or lilac, the pedicels commonly 1 ($\frac{1}{2}$ to $1\frac{1}{2}$) in. long; perianth-tube usually $\frac{1}{2}$ sometimes to $1\frac{1}{2}$ in. long; petals 2 to 3 in. long; capsule narrowly oblong, sharply angled, $1\frac{3}{4}$ to 2 in. long; seeds spherical (or obovoid). -- Common in the Redwood belt and on chaparral slopes in the Coast Ranges near the coast from Monterey Co. n.; rare in the n. Sierra Nevada; Ore. May-June. The color of the flowers is exceedingly variable, but the species may be known from the next by its longer pedicels, shorter perianth-tube and stouter habit. Var.

ALTISSIMA Purdy. Three to 3½ ft. high. Half-moon Bay.-- Jepson.

Rhizomes.-- Stoutish; clumps not dense.
Radical leaves.-- Strongly ribbed underneath; dark, shining green above; one to three feet long; three to eight lines broad; flexile; rosy pink at base. Stems.-- Simple; two- or three-flowered.
Flowers.-- On pedicels six to eighteen lines long; deep reddish-purple, lilac, or cream.
Perianth-tube.-- Six to twelve lines long. Capsule.-- Narrowly oblong; acutely triangular; twenty lines long. Seeds nearly globular. (Otherwise as I. macrosiphon.) Hab.-- The coast, from Santa Cruz to Marin County.

On account of the bright and varied hues of its flowers, the genus Iris was named for the rainbow-winged messenger of the gods. In France it is known as "fluer-de-lis," a name whose origin has caused endless discussion and has been accounted for in many ways. There are many species, all of them beautiful. Orris-root is the product of the lovely white Florentine iris.

In California we have several comparatively well-known species, and a number of others which are without names as yet; but the Douglas iris is probably our most beautiful. It thrives well upon open mesas or upon well-drained hill-slopes in the shelter of the chaparral. But it is found at its best in the rich soil of moist woodlands, whose seclusion seems the most fitting abode for so aristocratic a flower. There, surrounded by the delicate greenery of fern-friends and a hundred other tender, springing things, it seems to hold a sylvan court, receiving homage from all the other denizens of the wood. There is a certain marked and personal individuality about these flowers which makes encountering them seem like meeting certain distinguished personages. In the shade of deep woods the flowers are usually cream-white, while in open chaparral or on grassy slopes they are more apt to be lilac. -- Parsons.

Layia platyglossa

Tidy Tips

Sunflower

L. platyglossa (P. & M.) Gray. TIDY TIPS. Fig. 971. Stem simple or more commonly branching be-

low, or erect sometimes diffuse, 4 to 16 in. high; herbage short-hirsute and stipitate-glandular; leaves linear and entire or the lower commonly pinnatifid into short linear or oblong lobes; peduncles turbinate-thickened beneath the heads; heads 1 to 1 3/4 in. broad; involucre bracts linear, denticulate-ciliate on the lower half; rays 13, 5 to 6 lines long, sulphur-yellow, the tips white; disk-achenes somewhat flattened, 1 1/2 lines long, densely clothed with upwardly pointing silky hairs; pappus-bristles 15 to 20, nearly as long as the corolla.- Valleys and foothills, 100, to 4,600 ft.: throughout cismontane Cal.; w. side Colorado Desert. Apr.-May.-- Jepson.

Stems.- A foot or so high; loosely branching. Leaves.- Alternate; sessile; the lower linear and pinnatifid, the upper entire. Flower-heads.- Solitary; terminal; of disk-and ray-flowers. Disk-flowers.- Yellow, with black stamens. Rays.- Bright yellow, tipped with white; six lines long; four lines wide; three-lobed. Hab.- Throughout western California; in low ground.

Among the most charming of our flowers are the beautiful tidy-tips. In midspring, countless millions of them lift themselves above the sheets of golden bacaria on our flower-tapestried plains. The fresh winds come sweetly laden with their delicate fragrance. Were they not scattered everywhere in such lavish profusion, we would doubtless cherish them in our gardens.

Growing among these blossoms is often found another flower, somewhat similar to them. This is Leptosyne Douglasii, DC., the false tidy-tips. It has not the clean, natty appearance of Layia platyglossa; for the gradual blending of the light tips into the darker yellow below gives it an indefinite, unattractive look. There is a difference in the involucre, which has two series of bracts; the leaves are parted into linear or filiform divisions, and there are no touches of black among the disk-flowers.--Parson.

Layia glandulosa

White Daisy

Sunflower

L. glandulosa (Hook.) H. & A. Stem simple or commonly branching from the base, erect or diffuse, 5 to 10 (or 14) in. high; leaves and stems (particularly

near the heads) with scattered or abundant stipitate dark glands, more or less hispid with white hairs; leaves lanceolate or linear, $\frac{1}{2}$ to $1\frac{1}{4}$ in. long, the lower pinnatifid or toothed, the upper entire; heads 1 to $1\frac{1}{2}$ in. broad; involucre 4 lines high; rays 8 to 10, pure white, 5 to 7 lines long; pappus bright white, of 10 to 12 scabrid narrowly lanceolate-subulate paleae, with straight hairs toward the base outside and woolly tangled hairs inside; achenes $1\frac{1}{2}$ to $2\frac{1}{2}$ lines long.- Plains and foothills, 50 to 1,500 ft.: throughout cismontane Cal.; w. side Mohave Desert; Modoc Co.; n. to B.C. Apr.-- Jepson.

Stems.- Six to twelve inches high; loosely branching; hairy; often reddish. Leaves.- Sessile; linear; the upper all small and entire; the lower often lanceolate and incised pinnatifid. Heads.- Usually large and showy. Ray-flowers.- Bright, pure white, sometimes rose-color; eight to thirteen; three-lobed; an inch or less long; six lines wide. Disk-flowers.- Golden yellow; five-toothed. Each scale of the involucre clasping a ray-flower. Hab.- Columbia River to Los Angeles.

These white daisies, as they are commonly called in the south, cover the fields and plains in early spring, jostling one another in friendly proximity and stretching away in an endless perspective. They are of a charming purity, and to me are more attractive than their sisters, the tidy-tips.

They love a sandy soil, and I have seen them flourishing in the disintegrated granite of old river-beds, where the dazzling whiteness of the stones was hardly distinguishable from the blossoms. The involucre is thickly studded with curious little glands, resembling small glass-headed pins. -- Parsons.

Lilium rubescens

Redwood Lily

Lily

L. rubescens Wats. CHAPARRAL LILY. Stem 2 to 5 ft. high; bulbs ovoid, rhizomatous, the scales not jointed; leaves broadly oblanceolate or obovate, mostly acute, 5 to 10 in a whorl, or the lower scattered; flowers several, nearly white, some-

what dotted with brown, aging to rose-purple; segments $1\frac{1}{2}$ to 2 in. long, the upper $\frac{1}{3}$ revolute; capsule obovoid with subtruncate apex and abruptly short-attenuate base, wing-angled, $1\frac{3}{4}$ in. long.- Chaparral slopes in the Coast Ranges, Santa Cruz Co. to Siskiyou Co. Near the coast called Redwood Lily; towards the interior Chaparral or Chamise Lily. -- Jepson.

Hab.- The Coast Ranges, from Marin County to Humboldt County.

This is the most charming of all our California lilies, even surpassing in loveliness the beautiful Washington lily; and it is said to be the most fragrant of any in the world. It resembles the Washington lily; but its flowers are fuller in form, with wider petals and shorter tube, and it has a smaller bulb. It sends up a noble shaft, sometimes seven feet high, with many scattered whorls of undulate leaves, and often bears at the summit as many as twenty-five of the beautiful flowers. These are at first pure white, dotted with purple, but they soon take on a metallic luster and begin to turn to a delicate pink, which gradually deepens into a ruby purple. Mr. Purdy mentions having seen a plant with a stalk nine feet high, bearing thirty-six flowers.

The favorite haunts of this lily are high and inaccessible ridges, among the chaparral, or under the live-oak or redwood. Comparatively few people know of its existence, though living within a few miles of it, because they rarely ever visit these out-of-the-way fastnesses of nature.

Mr. Burroughs has somewhere said: "Genius is a specialty; it does not grow in every soil, it skips the many and touches the few; and the gift of perfume to a flower is a special grace, like genius or like beauty, and never becomes common or cheap." Certainly these blossoms have been richly endowed with this charming gift, and their delicious fragrance wafted by the wind often betrays their presence upon a hillside when unsuspected before, so that one skilled in woodcraft can often trace them by it. -- Parsons.

Linanthus acicularis

Yellow Gilia

Gilia

L. acicularis Greene. Stem simple, somewhat rigid,

very slender, 1 to 4 in. high; near to but less pubescent than *L. parviflorus*; leaf-segments linear-acerose; corolla golden-yellow throughout, its tube slenderly filiform, about 6 lines long, obovate lobes not exceeding 1 line.-- Wooded hills, 200 to 2,300 ft., not common: Tehama and Humboldt Cos. to Alameda and San Benito Cos.; Sierra Nevada from Tuolumne Co. to Kern Co.; s. to Palomar Mt. (*L. parviflorus* var. *luteolus* Milliken.) -- Jepson.

Linanthus androsaceus

Gilia

Gilia

L. androsaceus (Benth.) Greene, Fig. 778. Stem simple or branched from the base, 3 to 14 in. high, puberulent; leaves palmately divided into oblanceolate or linear lobes, 2 to 12 lines long, commonly ciliate or sometimes puberulent; flowers in dense heads; bracts few to many; calyx herbaceous, membranous only in the sinuses; corolla salverform, white, pink, lavender or yellow, the tube 6 to 13 lines long, 4 to 6 times as long as the calyx, often darker in color than the corolla-lobes; corolla-lobes broadly obovate to oblong, 2 to 3 lines broad by 3 to 5 lines long; stamens little surpassing throat of corolla.-- Open hillslopes and valleys, 50 to 3,500 ft.: Coast Ranges from Humboldt Co. to Solano, Santa Clara and San Luis Obispo Cos. Apr.-- June. It is very variable as to size and color and not well differentiated from *L. parviflorus*. -- Jepson.

Linaria canadensis

Toad Flax

Figwort

L. canadensis Dum. TOAD FLAX. Annual or biennial; flowering stems one or several, erect, 6 to 18 in. high; leaves linear, mostly alternate or the lower ones and especially those of the procumbent basal shoots opposite or whorled and often broader; racemes loose; pedicels erect, short; corolla blue, 1 to 2 (or 4) lines long, the spur 2 lines long, upper lip greatly exceeding the lower.-- Sandy soil, rather uncommon, but widely scattered through the state; N. Am., S. Am.--Jepson.

Stems.-- Slender; six inches to two feet high.
Leaves.-- Mostly alternate on the flowering stems,

but smaller and broader ones often opposite or whorled on the procumbent shoots; linear; smooth. Flowers.- Blue; in terminal racemes; like those of *antirrhinum*, but the tube furnished with a long, downward-pointing spur at base. Hab.- Throughout California.

The delicate blue flowers of the toad-flax are not uncommon in spring, and the plants are usually found in sandy soil. The little blossoms are very ethereal and have a sweet perfume. I once saw a deep-blue band upon a mesa near San Diego which vied in richness with the ultramarine of the sea just beyond. It stretched for some distance, and at last curved around and crossed the road over which I was passing, when it proved to be made up of millions of these delicate flowers. The color effect seemed cumulative, for the mass was so much richer and deeper than the individual flowers.--Parsons.

Lupinus bicolor

Blue and White Lupine

Pea

L. bicolor Lindl. Usually villous, 1 to 4 dm. tall, erect and simple, or diffusely branched at the base; leaves pubescent both sides, petioles 3 to 7 cm. long, leaflets 5 to 7, 10 to 20 mm. long; verticils 1 to 3; flowers 8 to 12 mm. long, rarely scattered or umbellate by reduction of the raceme, pedicels 1 to 3 mm. long; petals blue and white, banner about 8 mm. long by 6 to 8 mm. wide, elliptic, rhombic, obovate to obicular-obovate, the white center changing to violet, the sides much reflexed, keel slender, ciliate along upper edges of slender acumen; pods appressed-hairy, 15 to 20 mm. long by 3 to 5 mm. wide, ovules 5 to 8, seeds 2 to 3 mm. long, variously colored and marked.- Mostly sandy soils, common coastwise from San Luis Obispo Co. to Vancouver Isl.; less common in the Sierra foothills. (*L. micranthus* var. *bicolor* Wats. *L. sabulosus* Hel. *L. strigosus* Gand.) -- Jepson.

Stems.- Slender; six to fifteen inches high, often branching from the base. Leaflets.- Five to seven; linear to oblanceolate; one-half to one inch long. Flowers.- Five or six lines long; blue and white, the white changing to red-purple after fertilization. Upper calyx lip

deeply cleft, lower usually with three teeth.
Keel.- Falcate, acute, ciliate toward the apex.
Fruit.- A small pod. See Lupinus, p. lxxxvi.
Hab.- Common everywhere in the Coast Range region.

In late spring the open fields about San Francisco take on a delicate, amethystine tinge, due to the blossoms of the blue-and-white lupine. After fertilization has taken place, the white in these blossoms turns to deep red, and this admixture gives the general lilac tone to the mass.--Parsons.

Lupinus polyphyllus

Tall Lupine

Pea

L. polyphyllus Lindl. Minutely appressed- or spreading-pubescent, erect, stout and fistulose, 3 to 10 dm. tall; leaves mostly long-petioled, glabrous or minutely hairy above, leaflets 10 to 17, 7 to 15 cm. long, 15 to 30 mm. wide; racemes 15 to 60 cm. long; flowers 12 to 14 mm. long, usually not crowded, more or less whorled, bracts early deciduous, pedicels 10 to 16 mm. long, usually appressed-pubescent; petals blue, purple, reddish, or yellowish, glabrous, keel falcate, non-ciliate; pods dark brown, loosely hairy, 25 to 40 mm. long, ovules 5 to 9, seeds 4 mm. long, variously marked.-- Moist soil, Lake Co.; n. to B. C. -- Jepson.

Maianthemum bifolium
kantschaticum

Oregon Colts-Foot

Lily

M. bifolium DC. var. *kantschaticum* (Gmel.) Jepson. OREGON COLTS-FOOT. Stem simple, erect, 4 to 14 in. high, often stout; leaves ovate- or triangular-cordate, 2 to 4½ in. long; basal leaf cordate, short-pointed, very large, very long-petioled, almost as tall as the flowering stem; raceme peduncled, ½ to 2 in. long; perianth segments oblong or broadest toward apex, slightly unequal, 1 to 1½ lines long, becoming deflexed; berry 3 lines in diameter.-- Woods near the coast from Marin Co. to Humboldt Co.; n. to Alas.; Asia.-- Jepson.

Melissa officinalis

Lemon Balm

Mint

M. officinalis L.

GARDEN BALM

Stems somewhat de-

cumbent at base, $\frac{1}{2}$ to 2 ft. high; stems and petioles short-villous; leaves hispidulous above, truncate at base, $2\frac{1}{2}$ in. long or less, the petiole $\frac{1}{3}$ to $\frac{1}{2}$ as long; calyx-teeth unequal; corolla 5 lines long.- Sparingly nat. from Eur., where it is cultivated as a culinary potherb; Marin Co.; Santa Rosa; Guerneville.--Jepson.

Mentha arvensis

Tule Mint

Mint

M. arvensis L. TULE-MINT. Fig. 831. Stems simple or much branched $1\frac{1}{2}$ to 4 ft. long, developing suckers at base; herbage tomentose-pubescent or hoary to greenish and almost glabrous; leaves ovate to oblong-lanceolate, sharply serrate, 1 to $2\frac{3}{4}$ in. long, tapering at base into a short petiole; whorls of flowers often shorter than the petioles; calyx pubescent, its teeth $\frac{1}{2}$ to $\frac{1}{3}$ as long as the tube; stamens well exerted.- Common in marshes and meadows of valleys and mts.: e. to the Atlantic. Aug.-Sept. Cymes sometimes raised out of the axils on peduncles. (*M. canadensis* Fl. W. Mid. Cal.) -- Jepson.

Montzelia laevicaulis

Blazing Star

Loase

M. laevicaulis (Dougl.) T. & G. BLAZING STAR. Fig. 641. Stout branching biennial, 2 to $3\frac{1}{2}$ ft. high, with shining white nearly smooth stems; leaves narrowly oblong or lanceolate, sinuately toothed, 3 to 7 in. long; flowers in clusters of 2 or 3 at the ends of the branches, 3 to 4 in. broad, light yellow; calyx-segments lanceolate, 1 to $1\frac{1}{2}$ in. long; petals broadly oblanceolate, $1\frac{3}{4}$ to $2\frac{1}{2}$ in. long, the numerous stamens almost as long; 5 stamens with petaloid filaments; capsule oblong, $1\frac{1}{2}$ in. long; seeds flat, with a broad thin margin or wing.- Gravelly summer beds of winter flood streams, 100 to 5,000 ft., almost throughout Cal.; n. to Ore., e. to Wyo. -- Jepson.

Stems.-- Stout; two or three feet high; light colored. Leaves.-- Alternate; sessile; lanceolate; sinuate-toothed; two to eight inches long. Flowers.-- Sessile, on short branches; light yellow or cream-colored; three or four inches across. Calyx-tube.-- Cylindrical; naked; limb

five-cleft nearly to the base. Petals.- About ten; oblanceolate; acute. Stamens.- Numerous on the calyx; almost equaling the petals. Ovary.- One-celled; truncate at summit. Style three-cleft. Capsule.- Fifteen lines long. Hab.- San Diego to the Columbia River, and eastward to Wyoming.

After most other flowers have departed, the magnificent blossoms of the montzelia come forth. It seems as though they had waited for the firmament to be clear of other stars before bursting upon the sight. Their enormous blossoms are crowned by the soft radiance of the long stamens, "like the lashes of light that trim the stars."

These plants are furnished with barbed hairs, which cause them to cling to whatever they come in contact with. They are of tall and spreading habit, and are often found in the dry beds of streams, where their flowers open in the daytime-unlike those of M. Lindleyi, which open at night.

M. Lindleyi, Torr. and Gray, is one of the most brilliantly radiant of all our flowers. Its charming blossoms, which open on the edge of evening, are of a delicate silken texture, and of the richest gold. When the flowers first open, the stamens lie flat upon the petals; but they gradually rise up, forming a large tuft in the center of the flower. The faded sepals crown the long seed-vessels, like the flame of the conventional torch seen in old pictures. This grows in the Monte Diablo Range; and Niles and Alum Rock are convenient places to find it. It is cultivated in Eastern gardens under the name of Bartonia aurea-. Parsons.

Mimulus guttatus

Common Monkey-Flower Figwort

M. guttatus DC. COMMON MONKEY-FLOWER. Fig. 868.

Annual or perennial by the production of stolon-like stems at base; stems simple or sometimes branching, one to several from the base, about 1 to 2 ft. high; herbage glabrous or slightly pubescent; leaves more or less elliptical, thinish, irregularly serrate or dentate, the lower petioled, the upper sessile; petioles mostly shorter than the blades; flowers in a terminal

raceme; pedicels shorter than or equaling the flower; calyx in anthesis 3 to 5 lines long, in fruit often nodding, somewhat longer and nearly or quite twice as broad; calyx-teeth often disposed to be approximate or connivent in age, the upper the longer; corolla yellow, with purple or brown dots in throat, $3/4$ to $1\frac{1}{2}$ in. long; capsule ovate, its walls thin-chartaceous. Moist rich soil along streams and ditches, 20 to 6,000 ft.; throughout Cal.; e. to Mont. and N. Mex., n. to Alas. Apr.-Aug. (*M. langsdorffii* Donn.) It is a highly variable but exceedingly interesting species, which in our region has developed an interesting array of forms.-- Jepson.

Glutinous shrubs two to six feet high.
Leaves.—Narrowly oblong to linear; one to four inches long; with margins at length rolled backward. Flowers.—Corn-color to red; eighteen lines to three inches long. Calyx.—Irregularly five-toothed. Corolla.—Funnel-form; five-lobed; the lobes gnawed. Stigma.—White. Syn.—*Mimulus glutinosus*, Wend. Hab.—San Francisco to San Diego, and southward.

During a walk upon the hills, at almost any time of year, we may find the corn-colored blossoms of the sticky monkey-flower, but they are most abundant in spring and summer. When in full flower the small bushes are very ornamental, as they are a perfect mass of bloom. They are said to be especially handsome as greenhouse plants.
 house plants.

The flowers vary through a wide range of color, from almost white to a rich scarlet, but the commoner hue is the corn-color. The scarlet-flowered form, found at San Diego, constitutes the var. *punicus*, Gray. Another form, with red-brown to salmon-colored flowers on very short pedicels, is the var. *linearis*, Gray. The very long-flowered form is the var. *brachypus*, Gray. The sensitive lips of the stigma close upon being touched or after receiving pollen.-- Parsons.

Mimulus cardinalis

Cardinal Monkey-Flower Figwort

M. cardinalis Dougl. Stems usually simple, 2 to 4 ft. high, arising from a perennial rootstock;

herbage heavily pubescent, viscid; leaves erose-dentate, the upper ovate, acute, the lowest obovate-lanceolate; pedicels 1 to 3 in. long; calyx long-campanulate, its lobes nearly equal, acute; corolla scarlet, $1\frac{1}{2}$ to 2 in. long, the upper lip erect with revolute lobes, the lower lip reflexed; stamens with anther-cells adorned with scale-like hairs; capsule ovate-acuminate, firm-walled, dehiscent.- Along streams and ditches, foothills and middle altitudes in the mts., 100 to 5,000 ft.: almost throughout Cal.: n. to Ore., e. to Utah and Ariz. -- Jepson.

Stout; viscid; hairy. Stems.- One to five feet high. Leaves.- Sessile; ovate to ovate-lanceolate; ragged-margined; several-nerved; two or three inches long. Peduncles.- Three inches long. Corolla.- Scarlet; two inches or more long. Upper lip erect; its two lobes turned back. Lower lip three-lobed; reflexed. Stamens.- Exserted. (See *Mimulus*.) Hab.- Throughout Oregon and California along water-courses.

One day in June, when riding upon the shores of Bolinas Bay, I came upon a spot where a canon stream flowed out upon a little flat at tide-level, making a small fresh-water marsh, in which mint, bulrushes, and scarlet mimulus were striving for the mastery. But the mimulus was the most wonderful I ever saw. It stood four or five feet high- a patch of it-strong and vigorous, and covered with its handsome, large scarlet flowers, a sight to be remembered. This species is often cultivated in gardens.-- Parsons.

Montia sibirica

Indian Lettuce

Purslane

M. sibirica (L.) Howell. Stems erect, 9 to 18 in. high; root fibrous and annual with a thick crown, or the crown persistent as a short root-stock; basal leaves ovate or obovate to suborbicular, acuminate or acute; rarely obtuse, 1 to 2 in. long, on petioles 3 to 5 in. long; cauline pair similar, distinct, sessile, or short-petioled; raceme very lax, 5 to 7 in. long, bracteate, the flowers on long (1 to $2\frac{1}{2}$ in.) pedicels; sepals orbicular to ovate, obtuse; petals white with

pink veins or pink with rose-purple lines, coarsely notched, 3 to 5 lines long, narrowed at base into a distinct claw.- Swampy places along the coast: Marin Co. to Humboldt Co.; n. to Alas. Feb.-June.-- Jepson.

Smooth, succulent herbs. Radical Leaves.-- Long-petioled; broadly rhomboidal; the earliest narrowly linear. Stems.-- Simple; six to twelve inches high, having, near the summit, a pair of leaves united around the stem. Flowers.-- White. Sepals.-- Two. Petals.-- Five, minute. Stamens.-- Five. Ovary.-- One-celled. Style slender. Stigma three-cleft. Syn.-- Claytonia perfoliata, Don. Hab.-- Throughout California.

Though our Indian lettuce is closely allied to the Eastern "Spring Beauty," one would never suspect it from its outward appearance and habit. The little flower-racemes look as though they might have pushed their way right through the rather large saucer-like leaf just below them. The succulent leaves and stems are greedily eaten by the Indians, from which it is called "Indian lettuce."

Mr. Powers, of Sheridan, writes that the Placer County Indians have a novel way of preparing their salad. Gathering the stems and leaves, they lay them about the entrances of the nests of certain large red ants. These swarming out, run all over it. After a time the Indians shake them off, satisfied that the lettuce has a pleasant sour taste equaling that imparted by vinegar. These little plants are said to be excellent when boiled and well seasoned, and they have long been grown in England, where they are highly esteemed for salads. -- Parsons.

Nemophila menziesii White Baby Blue-Eyes *Phacelia*
atomaria

N. menziesii H. & A. BABY BLUE-EYES. Fig. 782. Stems branching from the base, slender or succulent, diffuse or ascending, 3 to 18 in. long; herbage more or less hirsute-pubescent; lower leaves $1\frac{1}{2}$ to $3\frac{1}{2}$ in. long, pinnately divided into 5 to 9 mostly 2 or 3-lobed divisions; upper leaves less divided; peduncles twice as long as leaves; calyx-lobes 2 to 5 lines long; corolla

light to deep blue, often veined with purple, lighter and often dotted toward center, but seldom hairy, basin-shaped, divided about $\frac{3}{4}$ of the way to base, $\frac{1}{2}$ to $1\frac{1}{2}$ in. wide; scales broad and wholly adherent to narrow and part free, often enlarged at tip, laciniate, ciliate, or entire.- Moist spots on valley floors and hillsides, 20 to 5,000 ft., common: cismontane Cal. (*N. insignis* Benth. *N. intermedia* Bioletti.) Extremely variable. Var. *ATOMARIA* Chandler. Pale Baby Blue-eyes. More succulent and less pubescent, often nearly glabrous; calyx-lobes shorter and broader; corolla white or pale blue, rather smaller, somewhat more deeply divided, dotted or rarely only veined dark purple or black, hairy at center; scales very narrow or linear, usually hairy, often reduced to a mere line of hairs.- Moist places, Coast Ranges. (*N. atomaria* F. & M.) -- Jepson.

Leaves.- With petioles somewhat widened at base and ciliate; the upper all opposite. Corolla.- Nine to twelve lines wide; light blue to white; distinctly blue-veined or more or less sown with purple dots. Scales of the corolla long, narrow, hairy, with expanded tips extending nearly to the sinuses. Ovary.- Rounded; with twelve to twenty-four ovules. (Otherwise as *N. insignis*.) Syn.- *Nemophila Menziesii*, Hook. and Arn. Hab.- Rather wide-spread.

This beautiful nemophila is a more fragile flower than its sister, the baby-blue-eyes. Its delicate corolla is usually white in the center, blending to azure-blue upon the rim, and dotted and veined with the same. At its best, it is an inch across. It affects the borders of moist woodlands, rarely venturing far out into the openings. There it nestles amid the tender herbage, often producing its ethereal flowers in such profusion that it seems as though bits of the sky had fallen to earth. In the south these blossoms do not seem so truly at home-for they are never so large nor so fine. -- Parsons.

Orthocarpus lithospermoides

Cream Sacs

Figwort

O. lithospermoides Benth. CREAM SACS. Stem erect and simple, rarely with a few branches above the

base, 8 to 12 (or 14) in. high; herbage hirsute-pubescent above, less so below; lower leaves lanceolate, entire; upper oblong, with a few slender lobes; spike very dense and thick; bracts nearly equaling the flowers, the upper large, almost as broad as long, concealing the calyx, dilated at base, palmatifid into 7 or more narrow lobes; corolla rich cream-color, 9 to 13 lines long, strongly 3-saccate, the tube dilated upwards; capsule ovate.- Plains and low hills, 20 to 1,500 ft.: Coast Ranges from Santa Clara Co. to Humboldt Co.; Sacramento Valley and bordering foothills. -- Jepson.

Peltiphyllum peltatum Giant Saxifrage Saxifrage

P. peltatum (Torr.) Engler. Fig. 450. Stout plant 1 to 4 ft. high; leaves 1 to 2 ft. broad, 9 to 15-lobed, irregularly serrate, the petioles 1 to 3½ ft. high; flowers 6 to 7 lines broad. - Banks of rapid mountain streams, 1,400 to 5,600 ft., Sierra Nevada from Tulare Co. to Siskiyou Co., thence s. in the Coast Ranges to Humboldt Co.; n. to central Ore. June-July. The stout fleshy petioles, with the epidermis peeled off, were eaten by the native tribes and regarded as a delicacy. (*Saxifraga peltata* Torr.) -- Jepson.

Rootstock. - Thick; creeping. Leaves. - Radical; long-petioled; a foot or more across when mature; nine- to fourteen-lobed; centrally depressed. Scapes. - One to three feet high. Calyx. - Five-lobed. Petals. - Five; roundish; three lines or more long; purplish-pink. Stamens. - Ten. Ovaries. - Two; distinct. Stigmas capitate or reniform. Syn. - *Saxifraga peltata*, Torr. Hab. - The Sierras, from Mariposa County to Mt. Shasta; also Mendocino County.

Upon the borders of our swift-flowing mountain streams, where the water-ousel flies up and down all day, sometimes filling the air with melody as he passes, may be seen the large lotus-like leaves of this great saxifrage. They stand with their dark, warm stems in the water; or, poising upon the brink, they lean gracefully over it, making myriad reflections in the brown depths below, while every passing

breeze awakens a quick response among them.

Early in the season, before the coming of the leaves, these plants send up tall stems with dense, branching clusters of handsome purplish-pink flowers. The leaves, small at first, continue to grow until late summer, when they have reached their perfection; after which they begin to deepen into the richest of autumn hues.

This plant is commonly called "Indian rhubarb," because the Indians are extravagantly fond of the stalks of the leaves and flowers. It is now cultivated in Eastern gardens, where it thrives in artificial ponds. -- Parsons.

Pentstemon corymbosus

Scarlet Pentstemon

Figwort

P. corymbosus Benth. Stems 10 to 16 in. high, arising from depressed or low shrubby evergreen mats; herbage glabrous except the glandular-pubescent inflorescence; leaves oblong and acute at both ends or narrowly ovate or the lower obovate, denticulate or entire, $\frac{1}{2}$ to $1\frac{1}{2}$ in. long, short-petioled; flowers in terminal corymbs; sepals linear or somewhat narrowed above; corolla scarlet, tubular, 2-lipped, 1 to $1\frac{1}{2}$ in. long; lower lip abruptly spreading, 3-parted into oblong lobes, the upper lip erect, 2-cleft; filaments all pubescent at the very base, the sterile one bearded its whole length on one side. -- Rocky ledges and cliffs, 500 to 5,000 ft.: Coast Ranges from Mt. Hamilton Range, Santa Cruz Mts., Lake Co. and Mendocino Co. to Shasta and Siskiyou Cos. (*P. intensus* Hel.) -- Jepson.

Pentstemon heterophyllus

Violet Beard Tongue

Figwort

P. heterophyllus Lindl. Fig. 859. Stems erect or ascending, many from the base, often reddish, $\frac{3}{4}$ to 2 ft. high; herbage, pedicels and calyx minutely puberulent, sometimes glabrous and green; leaves narrowly linear to lanceolate or oblanceolate, 1 to 3 in. long, mostly $\frac{1}{2}$ to 2 lines wide; flowers spreading or horizontal, solitary in the axils of the opposite bracts and thus forming a strict or spike-like panicle, the lower clusters on peduncles commonly 2 to 6 lines long; sepals

ovate, acuminate; corolla blue or purple, rather abruptly ventricose-dilated above the narrowly tubular base, $7/8$ to $1\ 3/8$ in. long; upper lip short, more or less reflexed, the lower longer, spreading; sterile filament glabrous.- Open places, rocky hillslopes, flats in the hills or mountain valleys or in beds of winter streams, 200 to 5,500 ft.: Sierra Nevada foothills from Amador Co. to Mariposa Co.; Coast Ranges from Mendocino and w. Colusa Cos. to San Luis Obispo Co.; s. to Ventura and San Diego Cos. May-June. -- Jepson.

Woody at base; many-stemmed. Stems.- Two to five feet tall. Leaves.- Lanceolate or linear; or the lowest oblong-lanceolate; diminishing into narrow floral bracts. Panicle.- Narrow. Pedicels one-to three-flowered; short and erect. Corolla.- Rose-purple, or violet suffused with pink; an inch or more long; ventricose-funnel-form above the narrow, slender tube. (See Pentstemon.) Hab..- Western California, specially southward.

The beautiful flowers of the violet beard-tongue are often seen among the soft browns of our dusty roadsides in early summer. They are truly charming flowers, and we marvel how any one can pass them by unnoticed. I have seen them especially showy in the southern part of the State, in Santa Barbara and Ventura counties, where the plants often spread over two or three feet, sending up innumerable slender flower-covered wands. The undeveloped buds are of a characteristic greenish-yellow tone, making an unusual contrast to the expanded flowers and the rather pale foliage. The structure of the anthers is quite interesting, each cell consisting of a little bag with bristly margins, the two together being heart-shaped in outline. -- Parsons.

Peramium decipiens

Rattle Snake Plantain Orchid

P. decipiens (Hook.) Piper. Plants 11 to 15 in. high, glandular-pubescent, especially the scapes and inflorescence; leaves thickish, rosulate, oblong-ovate, acute at both ends, reticulated with white or light-colored veins or markings,

1½ to 2½ in. long, on petioles ½ to ¾ in. long; flowers 3 to 4 lines long; spike 3 to 5 in. long.- Coniferous woods, Sierra Nevada from Mariposa Co. n. to Modoc Co., thence w. to Humboldt Co. and s. along the coast to Marin Co.; n. to B. C., e. to Quebec. Also in Arizona (*Goodyeara menziesii* Lindl.) -- Jepsens.

Petasites palmata

Sweet Coltsfoot

Sunflower

P. palmata (Ait.) Gray. Fig. 1007. Stem erect 7 to 10 in. high, glandular-pubescent, its bract-like scales 1½ to 2½ in. long; leaves roundish in outline, palmately cleft to below the middle into 7 to 10 lobes, green and nearly glabrous above, densely white-tomentose beneath, at least when young, 5 to 16 in. wide, the lobes denticulate, sinuately toothed or 3-lobed at apex; petioles 4 to 16 in. long; heads 6 to 7 lines high; "sterile" heads with mostly perfect (sterile) flowers but the marginal ones pistillate; "fertile" heads with mostly pistillate flowers and few central perfect ones.- Deep shades of wooded cañons in ranges near the coast from the Santa Lucia and Santa Cruz mountains to Humboldt Co., thence e. to Siskiyou Co.; n. to Alas., e. to N. Eng. -- Jepsens.

Phacelia bolanderi

Blue Phacelia

Phacelia

P. bolanderi Gray. Stem stout, simple or sparingly branched, ½ to 2 ft. high; leaves broadly ovate to oblong, coarsely serrate or incised, 2 to 3 ¾ in. long, the lower commonly with 1 or 2 pairs of small leaflets towards summit of petiole; inflorescence terminal, the racemes in pairs and somewhat corymbosely or at length racemosely disposed; corolla nearly rotate, violet, very pale blue or white, ½ to 1 inch wide; scales narrow, attached throughout; stamens somewhat exserted, sparingly pilose; style cleft to middle or below.- Rocky soil or on cliffs along the coast from Sonoma Co. to Del Norte Co.: Gualala; Navarro River; Cottonaby; Kenny to Usal; Camp Grant; Idlewild; Stitz Creek; between Bluff Creek and Orleans. The herbage has a disagreeable odor; it stains paper brownish in drying. -- Jepsens.

Platystemon californicus

Cream Cups

Poppy

P. californicus Benth. CREAM CUPS. Figs 392, 393.

Branched from the base, the branchlets widely spreading and more or less decumbent, or often erect, 3 to 9 (or 12) in. high, the leaves often borne on the lower part (or wholly basal) and the peduncles therefore more or less scape-like and 2 to 7 (or 10) in. long; herbage pilose; buds round-obovoid, elliptic or oblong, long-hairy; petals commonly cream yellow, 3 or 6 to 11 lines long.- Foothills, plains and valleys, in sandy or clay soils, common almost throughout Cal., but absent from the deserts, except the w. margins of the Colorado and Mohave; e. to Ariz. and Utah, s. to L. Cal. Passes into the varieties. -- Jepsens.

Delicate hairy herbs. Stems.- A span or two high. Leaves.- Mostly opposite; sessile; two to four inches long. Flowers.- Axillary; long-peduncled; an inch or so across. Sepals.- Three; falling early. Petals.- Six; in two rows; cream-color, often with a yellow spot at base. Stamens.- Numerous. Filaments broad; petaloid. Pistils.- Six to twenty-five; united in a ring at first; afterward separating. Stigmas terminal. Hab.- Throughout California.

The cream-cups are delicate, hairy plants of the early springtime, which often grow in masses and take possession of whole fields. They seem to be more vigorous in the south, and produce larger flowers there than in the north, often having as many as nine petals. The delicate, nodding green buds (like miniature poppy-buds) soon throw off their outer wrappings, and, emerging from captivity, gradually assume an erect position and unfurl their lovely pure straw-colored petals to their widest extent. These blossoms open for several successive days.

The genus takes its name from the flat filaments. The numerous slender pistils are so cleverly joined together into a cylinder that they appear like a hollow, one-celled ovary. But a cross-section will show the separate ovaries under a glass.

Some people like the odor of these flowers; but I must confess to a lack of appreciation

of it. I suspect its charm must exist in some pleasant association. -- Parsons.

Polygonum bistortoides

Knotweed

Buckwheat

- P. bistortoides* Pursh. Stems several from a thick horizontal rootstock, 1 to 2½ ft. high, the leaves mostly basal, those above reduced and bract-like; leaves erect, oblong to linear-oblong, 4 to 8 in. long, the petioles half to as long; raceme dense, spike-like ¾ to 1½ in. long; flowers white, on slender pedicels, 2 to 4 lines long. -- High wet meadows, Sierra Nevada, San Bernardino Mts. and North Coast Ranges; e. to the Rocky Mts. and far n. -- Jepson.

Scolopus bigelovii

Slink-Pod

Lily

- S. bigelovii* Torr. SLINK-POD. Fig 237. Leaves 2 (rarely 3) elliptic to oblong, acute, commonly mottled with dark splotches, 4 to 9 in. long; flowers with a fetid odor and having something the appearance of orchids; pedicels 4 to 9 in. long, 3-angled, slightly winged, erect in flowers, in fruit tortuous recurving or procumbent, the maturing capsule more or less hidden by forest litter; sepals ovate-lanceolate, 7 to 9 lines long, black-veined, abruptly spreading or recurved; petals linear-subulate, as long as the sepals, hardly 1 line wide, erect. -- Deep cold shades of the Redwood forest, Santa Cruz Co. to Humboldt Co.; n. to southwestern Ore, Jan.-Mar. -- Jepson.

Leaves. -- Two; oval-elliptical to narrowly oblanceolate; four to fifteen inches long; blotched with brown. Flowers. -- Three to twelve; on lax pedicels three to nine inches long. Sepals. -- Whitish, veined with purple; spreading. Petals. -- Erect; narrowly linear; wine-color without. Stamens. -- Three. Ovary. -- One-celled; three-angled. Stigma three-lobed. Hab. -- The Coast Ranges from Marin to Humboldt County.

When the first white blossoms of the toothwort are making their appearance in moist woodlands, we may be sure that the fetid adder's-tongue is already pushing its shining green leaves aboveground away up in the cold cañons of north hill-slopes; unless we hasten, we shall

be too late to see its curious flowers. I have often arrived only in time to find its fruit, which resembles a beechnut in shape. When the flowers first open they stand erect, held in the shining chalice formed by the two sheathing green leaves. Later the leaves open out, showing their beautiful blotched surfaces, and the three-angled flower-stems become limp and twisted. The petals stand erect; and are so slender as to resemble three linear stigmas. The little oval anthers are green before opening, but soon become golden with the discharging pollen.

These flowers are elegant in appearance, and suggestive of orchids; but unfortunately they have a very offensive odor, like that of the star-fishes found upon our beaches, which makes us quite content to leave them ungathered. But the large yellow slug has no such aversion to them, and we have often seen him banqueting upon them. Indeed, he is so fond of them that the flowers are often entirely gone from the stems. -- Parsons.

Scutellaria antirrhinoides Skull-Cap Mint

- S. *antirrhinoides* Benth. Similar to no. 4; corolla-tube mostly straight, broadly clavate-dilated or abruptly inflated upward. -- Meadows or lake margins, 500 to 4,000 ft.; Mendocino Co. to Siskiyou Co., thence e. to Modoc Co., thence s. to Nevada Co.; n. to Ore. and Ida., e. to Utah. -- Jepson.

Scutellaria tuberosa Blue Skull-Cap Mint

- S. *tuberosa* Benth. BLUE SKULL-Cap. Fig. 811. Stem. 3 to 5 in. high, from tuberous rootstocks, the tubers oblong, 3 to 8 lines long; herbage pubescent; leaves thin, few-toothed; basal and lower leaves oval, purplish beneath (as also the lower cauline), on petioles as long as the blade; upper cauline ovate, the petioles commonly short; corolla violet-purple, 7 to 9 lines long; middle lobe of lower lip somewhat spreading, much larger than the galeate upper lip; nutlets muricate. --

Loamy soil of shady woods or brush in the hills or in sandy valleys, 500 to 5,000 ft.: coastal S. Cal.; Sierra Nevada; Coast Ranges, mostly toward the coast; n. to southern Ore. Mar.-- May.-- Jepson.

Stems.-- Several inches high, or at length trailing, and a foot long; from small tubers. Leaves.-- One inch long and less, not aromatic. Flowers.-- Axillary; blue-purple. Calyx.-- Bilabiate. Corolla.-- Six lines or more long; tubular; bilabiate. Stamens.-- Four; in pairs; ascending; contained in the helmet. Ovary.-- Of four seedlike nutlets. Style filiform. Hab.-- Hillsides, from San Diego northward; probably throughout the State.

The bright-green herbage and the rich purple-blue flowers of the little skullecup may be looked for early in February. In the north they grow upon dry, stony hill-slopes under the chaparral, while southward they often affect the walls of canons, among moist luxuriant vegetation.

Though borne in the axils of the opposite leaves, the pretty blossoms, by a twist of their pedicels, stand side by side in pairs, in a very sociable way. The curious little two-lipped calyx resembles an old-fashioned Quaker bonnet. -- Parsons.

Sedum spathulifolium

Stone Crop

Stone Crop

S. spathulifolium Hook. Stems erect, 4 to 8 in. high, simple; leaves broadly spatulate, glaucous or occasionally green, 5 to 10 lines long, $2\frac{1}{2}$ to $3\frac{1}{2}$ lines wide, the apex rounded, with a small acumination; stem leaves smaller and oblongish; cyme dichotomously branched, 1 to 2 in. wide, somewhat less high; petals widely spreading, yellow or white, 3 to 4 lines long.-- Usually gregarious on shaded moss-covered rocks in the foothills, 200 to 5,000 ft., throughout cismontane Cal.; n. to B. C. It is our most common species of Crassulaceae.

Leaves.-- Alternate; fleshy; spatulate; six to ten lines long; sessile; crowded in rosettes

at the ends of the decumbent branches. Scapes.— Four to six inches high. Flowers.— In compound, one-sided, loose cymes; their parts four or five; pale-yellow. Sepals.— United at base. Petals.— Lanceolate; three lines long. Stamens.— Twice the number of the petals. Pistils.— Equaling the number of the petals; attenuate into the short styles. Ovaries.— One-celled. Hab.— Middle California to Vancouver Island.

Blooming somewhat earlier than the "hen-and-chickens," but in similar situations, the "stonecrop" often clothes rock-masses with beautiful color. The common name, "orpine," was given on account of the yellow, or orpine, flowers; and the name "stonecrop," from its always growing in stony places.--Parsons.

Sidalcea malvaeflora

Checker Bloom

Mallow

S. malvaeflora Gray. CHECKER BLOOM. Fig. 627.

Stems several from a woody root-crown, simple or branched, erect or half decumbent at base. $1\frac{1}{2}$ to 2 ft. high, retresely hispid below with scattered hairs, usually stellate-pubescent above; basal leaves crenate or crenately incised or cleft into cuneate-obovate 2 to 4-toothed lobes 1 to $1\frac{1}{2}$ in. wide; upper leaves palmately twice cleft into linear or narrowly oblong divisions; raceme rather loose, 3 to 12 in. long; bracts ovate, herbaceous, often notched at apex or decidedly bifid; flowers of two sorts: one perfect with large corollas, the other pistillate with small corollas; corolla of perfect flowers $\frac{3}{4}$ to $1\frac{1}{4}$ in. long, the outer series of filaments united for about half their length into sets of 4 to 2, the inner filaments mostly distinct; corolla of pistillate flowers 4 to 7 lines long, the filaments destitute of good anthers; carpels subglabrous, more or less rugulose-reticulate and beaked, the beaks often hairy at tip.— Open hills, 50 to 1,500 ft., near the coast from Mendocino Co. to San Luis Obispo Co. and s. to coastal S. Cal. -- Jepson.

Stems.— Several; eight inches to two feet long. Leaves.— Round in outline; variously lobed and cut. Flowers.— Pink; in terminal

racemes. Calyx.- Five-cleft without bractlets.
Petals.- Five; united at base; one inch long.
Stamens.- United in a column; in two series.
Anthers one-celled. Ovaries.- Three to ten in
 a ring; separating at maturity. Styles as many;
 filiform. Hab.- The Coast from San Diego to
 Mendocino County.

In early spring the graceful sprays of the Sidalcea bend over our meadows everywhere, making them bright with their pink blossoms, which the children call "wild hollyhocks." The stamens of these flowers are especially pretty and interesting if examined with a glass. By a careful dissection, the stamen-column is found to be double, its outer part bearing five bunches of stamens. The anthers are one-celled and of a beautiful rose-pink. They may be seen best by pulling apart one of the unopened buds.

There are two kinds of these plants, one having large pale-pink flowers, which are perfect; the other bearing smaller deep rose-pink blossoms, in which the anthers are only rudimentary. There are quite a number of species of Sidalcea in California, but they are very difficult of determination for the non-botanist.-- Parsons.

Silene californica

Indian Pink

Pink

S. californica Dur. INDIAN PINK. Fig. 365.

Stems 1 or several, erect or half-erect, very leafy, $\frac{1}{2}$ to 1 ft. high or reclining amongst bushes and up to 3 $\frac{2}{3}$ ft. high; herbage puberulent and more or less glandular; leaves elliptic-ovate or ovate to oblanceolate, more or less abruptly acuminate, 1 to 3 $\frac{1}{2}$ in. long; pedicels $\frac{1}{2}$ to 1 $\frac{1}{2}$ in. long; calyx oblong, soon turbinate- or obovate-distended, 7 to 11 lines long, its teeth lanceolate; corolla crimson, 1 to 1 $\frac{1}{2}$ in. broad; petals deeply 4-cleft, the middle segments the longer, all the segments toothed, or the lateral entire or rarely all entire; scales 2 to 4, conspicuous, incurved; capsule obovoid, 6 to 8 lines long, not exceeding the broad calyx; seeds regularly papillate, the papillae with a depression in the center.- Open woods of cañons: Tehachapi Range; Sierra Nevada from Tulare Co. to Shasta Co., 2,000

to 5,000 ft.; Coast Ranges from Santa Cruz Co. to Del Norte Co., 800 to 2,000 ft.; n. to southwestern Ore. The most widely distributed native *Silene* in cent. and n. Cal. -- Jepson.

Root.— Deep. Stems.— Several; pro-cumbent or sub-erect; leafy. Leaves.— Ovate-elliptic or lanceolate; eighteen lines to four inches long. Flowers.— Brilliant scarlet; over an inch across. Calyx.— Five-toothed. Petals.— Five; long-clawed; the blades variously cleft, and with two erect toothlike appendages at the throat. Stamens.— Ten; exerted with three filiform styles. Ovary.— One-celled. Hab.— Widely distributed in California, but not plentiful.

The Indian pink is one of the most beautiful of our flowers, and it appeals to the aesthetic sense in a way few flowers do. Its brilliant scarlet blossoms brighten the soft browns of our roadsides in early summer, and gleam amid the green of thickets like bits of fire. Its corolla is elegantly slashed, and it is altogether a much finer flower than the southern form, *S. laciniata*. Its rather broad leaves are often quite viscid to the touch, in which respect it shares in the character from which the genus was named—in allusion to *Silenus*, the companion of *Bacchus*, who is described as covered with foam. -- Parsons.

Sisyrinchium bellum

Blue-Eyed Grass

Iris

S. bellum Wats. BLUE-EYED GRASS. NIGGER-BABIES. Fig. 290. Stems erect, simple or somewhat branching, 10 to 20 in. high; leaves shorter than the stem, 1 to 2½ lines wide; spathes of 2 nearly equal bracts 10 to 16 lines long, enclosing 3 to 7 flowers; perianth purplish (or sometimes very pale) blue, yellow at base, the segments oblong-obovate, conspicuously 4 to 6-nerved, 4 to 7 lines long, emarginate at apex, with a slender tooth in the notch, the inner narrower; anthers short, sagittate; style abruptly thickened or obclavate at apex (at least when young), divided at tip into 3 short stigmas;

capsule globose, 2 to 3 lines long.- Moist grassy slopes, very common throughout Cal., rare in the deserts and arid areas e. of the Sierra Nevada. Mar.-May.-- Jepson.

Leaves.- With petioles somewhat widened at base and ciliate; the upper all opposite. Corolla.- Nine to twelve lines wide; light blue to white; distinctly blue-veined or more or less sown with purple dots. Scales of the corolla long, narrow, hairy, with expanded tips extending nearly to the sinuses. Ovary.- Rounded; with twelve to twenty-four ovules. (Otherwise as *N. insignis*.) Syn.- *Nemophila Menziesii*, Hook. and Arn. Hab.- Rather widespread.

This beautiful nemophila is a more fragile flower than its sister, the baby-blue-eyes. Its delicate corolla is usually white in the center, blending to azure-blue upon the rim, and dotted and veined with the same. At its best, it is an inch across. It affects the borders of moist woodlands, rarely venturing far out into the openings. There it nestles amid the tender herbage, often producing its ethereal flowers in such profusion that it seems as though bits of the sky had fallen to earth. In the south these blossoms do not seem so truly at home-for they are never so large nor so fine.-- Parsons.

Smilacina amplexicaulis

Fat Solomon Lily

S. amplexicaulis Nutt. FAT SOLOMON. Stem 1 to 3 ft. high, this and the under surface of the leaves with a minute fuzzy pubescence or rarely glabrous; rootstock stout, elongated; leaves oblong-ovate to lanceolate, 3 to 5½ in. long, acute to apex, sessile by a broad clasping base; panicle usually short-peduncled, oblong, 2 to 4 in. long; pedicels 1 line long or less; perianth segments less than 1 line long; filaments lanceolate or broadly subulate, much longer and often broader than the segments; style ½ to nearly as long as the ovary; berry light red, finely sprinkled with dark red dots, 2 to 2½ lines in diameter; usually 1-seeded.- Shady woods, Sierra Nevada and Coast Ranges; n. to B. C. Var. GLABRA McBr. Leaves broadly oblong; herbage glabrous

and slightly glaucous. - High altitudes, Humboldt Co. and Sierra Nevada.- Jepson.

S. amplexicaulis, Nutt., is a very handsome, decorative plant, with fine, tall, leafy stem, and large, feathery panicle of tiny white flowers. The broadened white filaments are the most conspicuous part of these blossoms, which are less than a line long. The berries are light-colored, dotted with red or purple.-- Parsons.

Smilacina sessilifolia

Slim Solomon

Lily

S. sessilifolia Nutt. SLIM SOLOMON. Similar to *S. stellata* and perhaps only a variety of it; rootstock slender; herbage bright green; upper part of stem commonly somewhat arcuately curving and the flat leaves disposed to be 2-ranked; leaves oblong-ovate to lanceolate; raceme commonly 3 to 9-flowered; stamens $\frac{1}{2}$ to $\frac{3}{4}$ as long as the perianth segments; berry red, 1 to 4-seeded, 3 to 5 lines broad.- Common in shady woods and on moist brushy slopes: Coast Ranges, mostly near the coast; Sierra Nevada; n. to Wash.-- Jepson.

Rootstock.-- Slender; branching; creeping; scars not conspicuous. Stem.-- About a foot long (sometimes two); usually zigzag above; leafy. Leaves.-- Alternate; sessile; lanceolate; two to six inches long; shining above; spreading in a horizontal plane. Flowers.-- White; few; in a simple terminal raceme, on pedicels two to seven lines long. Perianth.-- Of six, distinct, spreading segments. Segments.-- One and one half to four lines long; lanceolate. Stamens.-- Six; half the length of the segments. Ovary.-- Three-celled. Style short. Berry.-- Nearly black; three to five lines through. Hab.-- Monterey to British Columbia.

The false Solomon's seal is one of the prettiest plants in our woods in March, and in many places it almost hides the ground from view. It has graceful, drooping habit that shows its handsome, spreading leaves to full advantage, and its few delicate little white blossoms are a fitting termination to the pretty sprays.-- Parsons.

Solidago californica

Golden Rod

Sunflower

S. californica Nutt. COMMON GOLDEN ROD. Fig. 930. Stem erect, simple, rather densely leafy, 2 to 4 ft. high, ending above in a terminal panicle; herbage grayish with a minute rough pubescence; leaves oblong to oblong-obovate, serrate or entire, acute, attenuate below, 1 to 4½ in. long, the upper smaller, narrow and entire; panicle usually compact, dense, not leafy, 4 to 13 in. long, made up of raceme-like clusters (or when elongated, secund), seldom recurved at tip, sometimes spreading in age; heads 2 to 3½ lines high; bracts of the involucre oblong-linear or lanceolate, somewhat pubescent; rays 7 to 12, pale yellow, about as many as the disk-flowers; achenes pubescent.- Dry plains or hillslopes, 100 to 4,000 (or 6,000) ft.: throughout cismontane Cal. Sept.-Nov. Orojo de Liebre of the Spanish-Californians.-- Jepson.

Stem.- Rather stout; low or tall. Leaves.- Oblong, or the upper oblong-lanceolate, and the lower obovate. Flowers.- In a dense, pyramidal panicle, four to twelve inches long, with mostly erect racemose branches. Heads.- Three or four lines long; yellow. Rays.- Small; seven to twelve; about as many as the disk-flower. Hab.- Throughout California, to Nevada and Mexico.

Our State is not rich in goldenrods as New England, yet we have several pretty species. *Solidago californica* is found upon dry hills, and blooms from July to October. It is said to thrive well under cultivation.

It differs from the "Western goldenrod" in having its flowers in a pyramidal cluster.-- Parsons.

Specularia biflora

Venus Looking-Glass Bell-Flower

S. biflora (R. & P.) Gray. Stems slender, simple or with many branches from the base, 6 to 15 in. high, retrorsely scabrous-hispidulous on the angles; internodes rather short; leaves ovate, mucronate, sessile, entire or somewhat crenate, 3 to 6 (or the lowermost 8 or 9) lines long; corolla blue, exceeding the linear-lanceolate

calyx-lobes; capsule prismatic or cylindric, 3 to 4 lines long, sessile, the valve-like openings close under the calyx.- Low open hills or valley fields, 200 to 4,000 ft.: coastal S. Cal.; Coast Ranges; Great Valley; Sierra Nevada; n. to Ore., e. to Va. and Fla., s. to Mex.; n. S. Am.-- Jepson.

Stachys chamissonis**Swamp Hedge Nettle****Mint**

S. chamissonis Benth. Fig. 824. Stem erect, simple, ending above in 1 to 3 racemes, 3 to 8 ft. high, the angles of the stems retrorsely scabrous, the hairs pustulate, often viscid; leaves soft-pubescent, ovate, 3 to 6 in. long; calyx clavate-tubular, 5 to 7 lines long; corolla red, its tube 8 to 15 lines long, much exserted, with a hairy ring near base.- Swamps or wet places near the coast: San Luis Obispo Co., Santa Lucia Mts.; Pilarcitos, San Mateo Co.; San Francisco; Ft. Reyes; Mendocino Co.; Elk River Valley, Humboldt Co.; n. to Ore. The herbage has a clinging disagreeable odor.--Jepson

Streptopus amplexifolius**Liver-Berry****Lily**

S. amplexifolius (L.) DC. LIVER-BERRY. Stem $1\frac{1}{2}$ to 3 ft. high; leaves ovate, clasping, glaucous beneath, $2\frac{1}{2}$ to $4\frac{3}{4}$ in. long; peduncles with a gland at the knee; flowers greenish-white, 5 to 6 lines long.- Margin of cold streamlets in the woods: Mendocino Co. to w. Siskiyou Co., thence e. and se. to Modoc and Plumas Cos., 1,000 to 5,500 ft.; n. to Alas., e. to the Atlantic; Eur., Asia.-- Jepson.

Tellima grandiflora**Fringe-Cups****Saxifrage**

T. grandiflora (Pursh) Dougl. FRINGE-CUPS. Stems $1\frac{1}{2}$ to $3\frac{1}{2}$ ft. high, hirsute with spreading hairs, as also the petioles; leaves roundish in outline, cordate at base, shallowly 3 to 5-lobed, serrate or crenate, 2 to 4 in. broad, the basal on petioles 2 to 9 in. long; flowers 3 to 4 lines long.- Woods, in or near the Redwood belt, Santa Cruz Mts. to w. Siskiyou Co.; n. to Alas. Apr.- May. -- Jepson.

Radical leaves.- Long-petioled. Stem-leaves.- With shorter petioles; round-cordate; variously lobed and toothed; very hairy, with coarse, bristle-like hairs; two to four inches across. Stems.- One to three feet high. Flowers.- In long racemes; on short pedicels; green or rose-color. Calyx.- Campanulate; five-toothed; ribbed; three to six lines long; adnate to the ovary below. Petals.- Five; short-clawed; slashed above; two or three lines long; on the calyx. Stamens.- Ten; very short. Ovary.- One-celled; with a disklike summit, tapering into two stout styles with large capitate stigmas. Hab.- From Santa Cruz to Alaska.

This plant closely resembles the alum-root in habit and appearance, and its leaves are prettily blotched in the same manner. It grows along rich banks by shaded roads, and blooms from early spring onward. Its tall racemes of either rose-colored or greenish, obscure flowers look rather like the promise of something to come than a present fulfillment. The petals are small and inconspicuous at a distance; but when closely examined, reveal a delicacy and beauty of form entirely unsuspected.-- Parsons.

Trientalis europaea latifolia

Star-Flower

Primrose

T. europaea L. var. *latifolia* Torr. STAR-FLOWER.
Fig. 736. Stems 4 to 6 in. high, from tubers $\frac{1}{3}$ to nearly 1 in. long; leaves of the involueral whorl 5 to 6, 1 to 2 in. long, broadly obovate, abruptly acute, drawn down to a very short petiole; peduncles $\frac{3}{4}$ to 2 in. long; corolla white or rose-red, 4 to 8 lines broad, its divisions abruptly acuminate and prolonged into a slender point; calyx-lobes narrowly linear-lanceolate, mucronate, exceeding the capsule.- Woods, 100 to 4,000 ft.: Coast Ranges (mostly in the seaward and middle ranges) from Monterey Co. to Del Norte Co.; Sierra Nevada from Mariposa Co. to Shasta Co.; n. to B. C.
-- Jepson.

Root.- Tuberos. Stem.- Four to eight inches high; with a whorl of oval, pointed leaves one to four inches long. Flowers.- White or

pink; eight lines across. Calyx and rotate corolla seven-parted, sometimes six- to nine-parted; divisions pointed. Stamens.- As many as the corolla-lobes, and opposite them. Ovary.- One-celled. Style filiform. Hab.- The Coast Ranges, from Monterey northward, also in the Sierras.

In April and May, as we walk through shaded woods, we begin to notice a trim little plant three or four inches high, with very slender stem, bearing at its summit a number of pretty leaves of varying size. A little later, we find among them one or two delicate pink, starry flowers on very slender, threadlike stems.

The generic name is from the Latin triens, and is in allusion to the height of the plant, which is the third part of a foot. -- Parsons.

Trillium sessile giganteum Common Trillium Lily

T. sessile L. var. *giganteum* H. & A. COMMON TRILLIUM. Stem stout, sometimes more than one from the same root, 1 to 1 3/4 ft. high; leaves round-ovate, 2 1/2 to 5 in. long, commonly broader than long; petals obovate to oblanceolate, 1 1/2 to 3 in. long, deep red or lilac, or varying to dull white; capsule long-oval to subglobose, obscurely 6-angled above, circumsessile around the platform-like base.- Brushy or wooded hill-slopes or cañons; Coast Ranges from Monterey Co. n. to Siskiyou Co., but not in inner Coast Range; n. to Wash. Feb. - Mar.-- Jepson.

Rootstock.- Like a small turnip. Stems.- Usually several from the same root; a foot or so high. Leaves.- Three at the top of the stem; three to eight inches long. Flowers.- White to deep wine-color. Petals.- One to four inches long. (Otherwise as *T. ovatum*.) Hab.- From San Luis Obispo to Oregon.

We begin to look for the California trillium early in the spring. Little companies of the plants may be seen upon low flats under the trees, where the soil is rich. The small, turnip-like tubers usually send up several stems, which lean gracefully away from one another. The large

leaves are often like pieces of decorated china that have been several times through the kiln. They have various superimposed blotchings, the latest of which are dark, sharp, cuneiform characters, mysterious hieroglyphs of Nature, which might reveal wondrous secrets, could we but decipher them. The blossoms have a strong, heavy fragrance, and are exceedingly variable in color, ranging from pure white to lilac, deep wine, and even black-purple. These plants are much admired in the East and in Europe, where they are cultivated in the garden.--Parsons.

Trillium ovatum

Coast Trillium

Lily

T. ovatum Pursh. COAST TRILLIUM. Fig. 238. Stem 3 to 10 in. high; leaves ovate to round, sometimes disposed to be rhombic, abruptly acute, $2\frac{1}{2}$ to $5\frac{1}{2}$ in. long; petals oblong-lanceolate to ovate, 1 to $1\frac{1}{2}$ in. long, white changing to deep rose-color; ovary incompletely partitioned above the middle; capsule broadly ovate, the angles projected into narrow wings.-- Wooded cañons near the coast from Monterey Co. to Del Norte Co., thence e. to Siskiyou and Shasta Cos.; n. to B.C. and Ida. Mar.-Apr.-- Jepson.

Rootstock.-- Thickened. Stem.-- Erect; stout; a foot or more high; bearing at summit a whorl of three sessile leaves. Leaves.-- Rhomboidal; acuminate; netted-veined; five-nerved; two to six inches long. Flower.-- Solitary; pure white, fading to deep rose; peduncle one to three inches long. Sepals.-- Three; herbaceous. Petals.-- One or two inches long. Stamens.-- Six. Ovary.-- Three-celled. Stigmas three; sessile. Capsule.-- Broadly ovate; six-winged. Hab.-- The Coast Ranges, from Santa Cruz to British Columbia.

The wake-robin is in the vanguard of our spring flowers, and a walk into some high, cold cañon while the days are still dark and short will be amply rewarded by the finding of its white and peculiarly pure-looking blossoms standing upon the bank overlooking the streamlet. The blossoms remain unchanged for a time, and then, as they fade, turn to a deep purplish rose-color.

Our wake-robin so closely resembles *T. grandiflorum*, Salisb., of the Eastern States,

that it seems a pity it should have been made into a different species.--Parsons.

Veratrum californicum

Corn Lily

Lily

- V. *californicum* Durand. CORN LILY. Stem very stout and leafy, suggesting a cornstalk, 3 to 5 or 6 ft. high; leaves ovate or elliptic-oblong, sheathing at base, 6 to 12 in. long or the uppermost lanceolate and shorter; panicle 1 to 1 1/3 ft. long, the lower portion often sterile; bracts mostly membranous; pedicels 1 to 4 lines long; flowers dull white; perianth segments obovate, mostly obtuse, 5 to 3 lines long, greenish margined at base, greenish glands at base of segments 2, or one and Y-shaped, often denticulate or erose at apex; capsule walls firm-chartaceous; seeds broadly wing-margined.-- Wet flats and about springs, a characteristic plant of meadows in the Sierra Nevada at 4,500 to 8,500 ft.; also in the North Coast Ranges and high mts. of S. Cal.; n. to Wash., e. to Col. and s. to Mex. Often reported as poisonous to stock and sometimes called False Hellebore. July-Aug.-- Jepson.

Stems.-- Stout; three to seven feet high.
Leaves.-- Oval; narrowing to lanceolate; sessile; sheathing; four to twelve inches long.
Flowers.-- Greenish-white in a large panicle, with usually ascending branches. Stamens and pistils in the same flowers, or in separate ones.
Pedicels.-- About two lines long. Perianth segments.-- Six; spreading; oblanceolate; their bases thickened and green or brownish; upper margins sometimes minutely toothed; three to eight lines long. Stamens.-- Six. Anthers confluent one-celled. Ovary.-- Three-celled. Styles three, divergent. Hab.-- The middle Sierras and Mendocino County northward to the Columbia; also eastward.

The false hellebore may be found in mid-summer in the mountains. It grows along water-courses, and often covers rich moist meadows, where its stems rise from three to seven feet, with their coarsely ribbed, boat-shaped leaves and large panicles of greenish-white flowers. When at its best it is a rather fine, showy thing,

but its leaves are often perforated by some insect, and present a ragged, untidy appearance.

The mountaineers commonly call this plant "akunk cabbage," a deplorable misnomer, because it is in no sense merited; and, moreover, we have a plant to which the title more rightfully belongs. The root and young shoots are a violent poison, and are fatal to animals which are unfortunate enough to crop them.

When it first appears above ground in the spring its shoots are all packed in beautiful, long, green rosettes, which come up side by side. Upon opening one of these rosettes, I found eight successive leaves, one within another, all neatly creased and compactly folded, a miracle of deft workmanship.-- Parsons.

Viola adunca

Western Dog Violet

Violet

- V. *adunca* Sm. WESTERN DOG VIOLET. Fig. 639. Stems tufted, very short (3 to 6 lines long) or becoming 1 to 4 in. long, leafy; leaves round-ovate to elliptic-ovate, the lower inclining to be subcordate, obscurely crenate, $1/3$ to 1 in. long; peduncles surpassing the leaves; petals violet, turning to red-purple, 4 to 6 lines long, the lateral strongly bearded on the upper side at base, the upper pair with a slight tuft in the middle at base; spur varying from much shorter to quite as long.-- Meadows, 3,500 to 9,500 ft.: San Bernardino Mts.; Sierra Nevada and n. to Siskiyou Co.; hilltops near the sea, 50 to 2,000 ft., San Francisco to Humboldt Co.; n. to Alas., e. to Rocky Mts. (*V. canina* var. *adunca* Gray.)-- Jepson.

Stems.-- Leafy; several from the rootstocks. Leaves.-- Ovate; often somewhat cordate at base; acute or obtuse; six to eighteen lines long; obscurely crenate. Stipules foliaceous; narrowly lanceolate; lacerately toothed. Flowers.-- Violet or purple; rather large. Lateral petals bearded. Spur as long as the sepals; rather slender; obtuse; hooked or curved. (Otherwise as *V. pedunculata*.) Hab.-- The Coast Ranges, from San Francisco to Washington.

Nestling amid the grasses on many a moist

ness by the sea, the modest flowers of the dog-violet may be found at almost any time of the year. They vary greatly in the length of their stems, according to the season and the locality of growth.-- Parsons.

Viola glabella

Yellow Violet

Violet

- V. glabella* Nutt. Stems erect, mostly weak, naked below or nearly so, 3 to 12 in. high; rootstock horizontal, thick, fleshy-scaly, often branching; herbage glabrous or puberulent, bright green; basal leaves reniform-cordate, $1\frac{1}{2}$ to $3\frac{3}{4}$ in. broad, on elongated (2 to 11 in.) petioles, the cauline similar or cordate, on petioles 4 to 5 lines long; stipules small and thin-membranous; peduncles about $1\frac{1}{2}$ in. long; petals bright yellow, the lateral and lower purple-veined, 3 to 6 lines long, the lateral ones bearded; spur short and saccate; capsule oblong, 4 lines long, abruptly beaked.-- Wet places in woods: Sierra Nevada, 3,500 to 7,700 ft., from Tulare Co. to Shasta Co.; Coast Ranges near the coast, 25 to 5,000 ft., from Monterey Co. to Marin Co. and n.; to Alas., e. to northern Rocky Mts. Mar.-May.-- Jepson.

Stems.-- Leafy; two to six inches or more high. Leaves.-- Alternate; long-petioled; ovate; cuneate; erenate; with lanceolate stipules. Flowers.-- Large; long-peduncled; deep golden yellow. Calyx.-- Five-parted. Petals.-- The two upper tinged with brown outside; the three lower veined with purple; the two lateral bearded; the lower one with a short spur at base. Stamens.-- Five. Anthers nearly sessile; erect around the club-shaped style. Ovary.-- one-celled. Hab.-- Southern to middle California.

On wind-swept downs near the ocean, on the low hills of the Coast Ranges, or upon the plains of the interior, this charming golden pansy spreads itself in profusion in early spring. It is the darling of the children, who on their way to school gather great handfuls of its brown-eyed blossoms, and among them it is often familiarly known as "Johnny-jump-up." The Spanish-Californian children knew them as "gallitos."

You may often see myriads of them dancing on their long stems in the breeze, and showing glimpses of red-brown where their purplish outer

petals are turned toward you for the moment. In the shelter of quiet woodlands, its stems are longer and more fragile. -- Parsons.

Viola ocellata

Western Heart's Ease

Violet

V. ocellata T. & G. WESTERN HEART'S EASE. FIG. 638. Stems erect, 5 to 12 in. high, from deep-seated rootstocks; leaves cordate- to triangular-ovate, crenate, acute or abruptly acuminate or somewhat pointed at apex, 1 to 2½ in. long, the basal long-, the cauline short-petioled; stipules small and scarious; peduncles mostly shorter than the leaves; petals 5 to 7 lines long; two upper petals white, violet-purple on the outside, the other petals white or yellow, the lateral with a deep purple spot at base, the lower one purple-veined at base. -- Shady woods, chiefly in the Redwood belt, Monterey Co. to Humboldt Co.; n. to Ore. Mar.-June. -- Jepson.

Stems. -- Nearly erect; six to twelve inches high. Leaves. -- Cordate; acutish; conspicuously crenate. Petals. -- Five to seven lines long; the upper white within, deep brown-purple without; the others white or yellowish, veined with purple; the lateral with a purple spot near the base and slightly bearded on the claw. (Flower structure as in *V. pedunculata*.) Hab. -- Wooded districts from Monterey to Mendocino County.

This dainty little heart's-ease has nothing of the gay, joyous, self-assertive look of our yellow pansy, but rather the shy, timid mien belonging to all the creatures of the woodlands. It ventures its pretty blossoms in late spring and early summer. -- Parsons.

Viola sarmentosa

Wood Violet

Violet

V. sarmentosa. Dougl. WOOD VIOLET. Stems prostrate, stolon-like, sparsely leafy; peduncles commonly longer than the leaves, at first scape-like and arising from the cluster crowning the stipular-scaly rootstock; stipules brown-scarious, ovate-subulate; leaves round-cordate, deep green above, often rusty beneath,

finely crenate, in age brown-punctate, $\frac{1}{2}$ to $1\frac{1}{2}$ in. broad; petioles 1 to 7 in. long; petals uniform light yellow, a little purple-veined, 4 lines long; spurs very short and broad.- Woods near the coast, 100 to 500 ft., especially in the Redwood belt, or montane up to 3,500 ft.: Monterey Co. to Humboldt Co.; n. to B. C. and Ida. (*V. sempervirens* Greene.) -- Jepson.

Stems.- Creeping. Leaves.- Round-cordate; six to eighteen lines broad; finely crenate; often rusty beneath; usually punctate with dark dots. Peduncles.- Slender. Flowers.- Small; light yellow without and within. (Flower structure as in *V. pedunculata*.) Syn.- *Viola sarmentosa*, Dougl. Hab.- Coast Ranges, from Monterey to British Columbia.

This modest little violet is found commonly in woods, - often in redwood forests, - where it carpets the ground with its shapely little round leaves.-- Parsons.

Whipplea modesta

Modesty

Saxifrage

W. modesta Torr. Stems slender, diffuse or trailing; herbage and calyx-tube pubescent; calyx-lobes glabrous; leaves ovate or oval-ovate, 3-nerved, crenate above the middle, $\frac{3}{4}$ to $1\frac{3}{4}$ in. long, short-petioled; racemes capitate or nearly so, about 4 to 9-flowered, the flowers soon becoming somewhat greenish; petals oblong or ovate, contracted at base, $\frac{3}{4}$ to $1\frac{1}{2}$ lines long, larger than the linear calyx-lobes; capsule globular.- Woods and thickets, Coast Ranges from Monterey Co. to Solano and Humboldt Cos.; n. to Ore.-- Jepson.

Slender, diffuse, hairy undershrubs. Leaves.- Opposite; short-petioled; ovate; toothed or entire; an inch or less long; three-nerved. Flowers.- White; barely three lines across; in small terminal clusters. Calyx.- White; five-cleft. Petals.- Five. Stamens.- Usually ten. Filaments awl-shaped. Ovary.- Three-to five-celled, globose. Styles of the same number. Hab.- Coast Ranges from Monterey to Mendocino County.

Under the redwoods, or in moist cañons in their vicinity, may be found this pretty under-

shrub trailing over banks or brushwood. In April its exquisite little clusters of pure white flowers, with a pleasant fragrance, make their appearance, and the plants have then been sometimes mistaken for a species of Ceanothus.
-- Parsons.

Wyethia angustifolia

California Sunflower

Sunflower

W. angustifolia Nutt. Fig. 959. Stems 1 to 2 ft. high, hirsute; herbage green; leaves elongated-lanceolate to narrowly or oblong-ovate, acuminate at both ends, entire or occasionally serrulate, the basal and lower ones $\frac{1}{2}$ to $1\frac{1}{2}$ ft. long, the upper smaller, sessile or short-petioled; bracts of the involucre numerous, oblong-ovate to linear or lanceolate, hirsute- or villous-ciliate, commonly purplish-black at the often somewhat contracted base; bracts of the receptacles tipped with a short subulate hispidulose point; rays 10 to 17, $1\frac{3}{4}$ to 2 in. long; achenes minutely pubescent at summit, 3 lines long, bearing 1 or 2 (or those of the ray 3 or 4) stout minutely hirsute awns, with some very short intervening chaffy scales, all more or less united at base, rarely awnless.- Common on open plains and low hills, 200 to 2,500 ft., sometimes montane up to 4,000 or 5,000 ft., Coast Ranges from Siskiyou Co. to Monterey Co.; Sierra Nevada from Shasta Co. to Mariposa Co. The green shoots are eaten raw by the Hupas.-- Jepson.

Stems.- Six inches to two feet high. Leaves.- Long-lanceolate; pointed at both ends; the radical and lower ones six to twelve inches long; the upper sessile, shorter, and often broader.

Flower-heads.- Yellow; composed of rays- and disk-flowers. Plume-like styles of the latter conspicuous. Ray-flowers.- Numerous; one inch long; six lines wide; early deciduous. Involucre.- Broadly campanulate, of numerous erect, loose, foliaceous, ciliate scales, in several rows.

Hab.- Monterey, east to the Sierra foothills and north to Oregon.

In late spring our open plains and hillsides are often plentifully sown with the large golden flowers of these California compass-plants, called

"sunflowers" by many people. There is a belief prevalent that their erect leaves always stand with their edges pointing north and south, whence the common name. This trait is said to be true of all the species.-- Parsons.

Xerophyllum tenax

Elk Grass

Lily

X. tenax (Pursh) Nutt. ELK GRASS. PINE LILY. Fig. 240. Stem 2 to 6 ft. high; basal leaves $1\frac{1}{2}$ to 3 ft. long, 1 to 3 lines wide; raceme dense, $\frac{1}{2}$ to $1\frac{1}{2}$ ft. long; pedicels 1 to 2 in. long, each with a scarious bract at base, spreading in flower, past anthesis strictly erect, spreading again in fruit; perianth segments linear-oblong, 4 lines long; the stamens a little longer.-- Dry ridges: Monterey and n. in the Coast Ranges to Del Norte Co., where it is very common; Sierra Nevada from Placer Co. n. to Siskiyou Co.; n. to B.C. and Mont. The plants commonly bloom only after 5 to 7 years of preparation. May-July. The fibres of the leaves were employed by the Hupas and other native tribes for making garments and for decorative work in baskets, while the bulbous rootstocks, when roasted, furnished a nourishing food. Also called Squaw-grass, Bear-grass, Turkey-beard, Bear-Lily, and Pine-Lily.-- Jepson.

Radical-leaves.-- Very numerous; two or three feet long; about two lines broad; gracefully flexible; serrulate. Scape.-- Two to five feet high; with scattered leaves; bearing at top a dense raceme a foot or two long. Perianth segments.-- Six; spreading rotately; four or five lines long; white. Stamens.-- Six. Ovary.-- Three-celled. Styles three; filiform. Hab.-- Coast Ranges to British Columbia; and northern Sierras.

Often upon high ridges we notice the large clumps of certain plants with long, slender, grasslike leaves, which ray out in every direction like a fountain, and resemble a small pampas-grass before it flowers. We naturally wonder what the plants are, but it may be several years before our curiosity is satisfied. Suddenly some spring we find them sending up tall

blossom-shafts, crowned with great airy plumes of pure-white flowers, fully worthy of our long and patient waiting. After putting forth this supreme effort of a lifetime, and maturing its seed, the plant dies.

In the north, where it is sometimes very abundant, and occupies extensive meadows, it is known as "sour-grass." The name "squaw-grass" is also applied there, because the leaves, which are long, wiry, and tough, are used by the Indians in the weaving of some of their finest baskets. Baskets made from them are particularly pliable and durable.

The leaves, with their rough serrulate edges, are not pleasant to handle.-- Parsons.

Information for Visitors to the Garden Club of America Redwood Grove.

About 231 miles north of San Francisco, on the Redwood Highway, in the midst of the Humboldt State Redwood Park, lies the GARDEN CLUB OF AMERICA Redwood Grove, a magnificent park of thirty-one hundred acres. The main grove lies on the west bank of the South Fork of the Eel River, just opposite the Kent Grove, a portion of which, through the generosity of Mrs. William Kent, has been set aside as an approach to the grove. It should be emphasized that this approach is a "vestibule" only, and the main Garden Club Grove lies across the river. On the left side of the highway traveling northward, 2½ miles north of Myers, will be seen a sign reading: "GARDEN CLUB OF AMERICA Redwood Grove." Drive in about two hundred yards to the parking space.

During the summer months, and sometimes until late autumn, one may cross the river by foot-bridge to the main grove. In winter or early spring telephone before leaving San Francisco to Save-the-Redwoods League- Douglass 2353- or, if in the Redwood region, to Park Superintendent E. P. French- telephone Weott-4-Y-4. Arrangements will be made to have you ferried across to the grove by a member of the Park staff.

Allow one day to reach the grove, from San Francisco, and at least one day to visit not only the GARDEN CLUB OF AMERICA Grove but other nearby groves. If possible allow time for walking, with guide-naturalist, along beautiful level trails which follow stream and river through group after group of magnificent trees. Regular guide will be on duty from May 1st to October 1st at the grove. Notify him by telephone from your hotel, through Superintendent French at Dyerville, telephone Weott 4-Y-4, to meet you and conduct you through the grove.

Leaving San Francisco in the morning, leisurely driving should bring you to the vicinity of the grove by mid-afternoon. Stops for luncheon may be made at Santa Rosa, Cloverdale or Ukiah. Hotel Benbow, two hundred and five miles north of San Francisco, on the Redwood Highway twenty-six miles south of the grove, is a favorite stopping place in a beauti-

ful setting. Open usually from April 1st to October 31st. At Garberville, three miles north of Hotel Benbow, Tobin's Garberville Inn and Wilson's Redwood Inn are smaller, but comfortable and convenient. Both open all year.

The grove is unusually rich in flora and fauna. There are eighteen species of trees; sixteen species of shrubs; ten of ferns; five of ground-cover plants and one hundred and ten species of annuals and perennials; fifty-six species of birds; sixteen of mammals; six of fish and twelve of reptiles and amphibians. Early spring brings trilliums, yellow violets, flowering oxalis and many other wildflowers. In the region north of Eureka, easily reached from the grove, azaleas bloom from May 1st to July 1st. Rhododendrons from June 1st to August 1st. Autumn brings a new aspect to the forest, dogwood, maples and alders turning color from about October 1st.

Sports clothes and low-heeled shoes will be most comfortable. Galoshes are advisable in early spring and winter.

Distances from various Pacific Coast cities to the grove are as follows:

Los Angeles (via U.S. 101)	675½ Miles
(via U.S. 99)	640½ Miles
San Francisco (via U.S. 101-Redwood Highway)	231½ Miles
Portland (via U.S. 99 to Grants Pass; U.S. 199 from Grants Pass to Crescent City; U.S. 101 to the grove)	504 Miles
(via Coast Highway - U.S. 101-through Crescent City)	522 Miles
Seattle (via Portland, Grants Pass and Crescent City)	696 Miles
(via Portland, Otis and Coast Highway - U.S. 101)	714 Miles

Information -- Travel to the Redwood Grove Automobile Rates

Palace Hotel Travel Service recommends Gray Line Limousines -- Yosemite, Inc. 357 O'Farrell Street, San Francisco, as most reliable private auto hire company.

Drive of approximately 231 miles from San Francisco, one way, running time approximately six hours.

Rate from San Francisco to the GARDEN CLUB OF AMERICA GROVE, with Driver, regardless of number of passengers: \$92.00 for a five-passenger car, with driver. Plus \$5.00 per day for driver's meals and lodging. One night. Additional night \$5.00 additional for driver's expenses. \$115.00 for a seven-passenger car, with driver. Plus \$5.00 per day for driver's expenses. Company pays all gasoline, oil, etc.

Busses -- Time Table and Rates

Bus leaves San Francisco, 5th and Mission Street Terminal, at 7:40 a.m. Arrives 3:30 p.m. Hotel Benbow. Returning, Benbow to San Francisco: Bus leaves Hotel Benbow at 10:10 a.m., arriving San Francisco 5:50 p.m.

Fare: (single) San Francisco to Benbow, \$4.65; round trip to Benbow, \$8.25.

Greyhound busses leave Portland (to Benbow): Via Coast Highway (U.S. 101): Leave Portland 12:45 mid-day; arrive Benbow 10:10 a.m., following morning. Fare, \$9.55 one way, round trip \$17.20.

Via Grants Pass and Crescent City (U.S. 99 and U.S. 199): Leave Portland 11:30 p.m.; arrive Grants Pass 8:34 following morning. Leave Grants Pass following morning at 9:00 arrive Eureka 5:50 p.m. Leave Eureka 7:00 p.m. and arrive Benbow 9:30 p.m. Fare, Portland to Benbow, \$10.85 single fare, round trip \$19.55.

Hotel, Grants Pass: Redwoods Hotel and Coffee Shop, Rooms, single, with bath, \$2.00 and \$2.50; double with bath, \$2.50 and \$3.00. Open all year. Hotel, Crescent City: Hotel Lauff and Coffee Shop.

TRAIN CONNECTIONS

Train from Grants Pass to Portland (only one):

Train "Rogue River" leaves Grants Pass 9:03 p.m.
Arrives Portland next morning at 8:00 a.m. Fare, \$8.92,
first class; lower birth, \$2.65.

The "Rogue River" connects at Portland with the
"Pacific Limited" of the Union Pacific leaving Portland
at 8:00 a.m. for Chicago.

Trains from Seattle and Portland to Grants Pass:

Train "Rogue River." Leaves Seattle 1:00 p.m.
arrives Portland 5:20 p.m., arrives Portland 5:20 p.m.
Leaves Portland 8:15 p.m., arrives Grants Pass 7:14 a.m.

First Class Fare: Seattle to Grants Pass, single
\$12.92; round trip \$20.19. Greyhound bus leaves Grants
Pass at 9:00 a.m. Arrives Benbow 9:30 p.m.