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VOLUME X.

September, 1900.

NUMBER 93.

THE

—❖—West❖American❖Scientist—❖—

A popular monthly review and record for the Pacific Coast.

Official organ San Diego Society of Natural History.

Established 1884.

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San Diego, California:

Number 365 Twenty-first street.

Charles Russell Orcutt Editor and Publisher.

Price 10 cents; \$1 a year; \$10 for Life.

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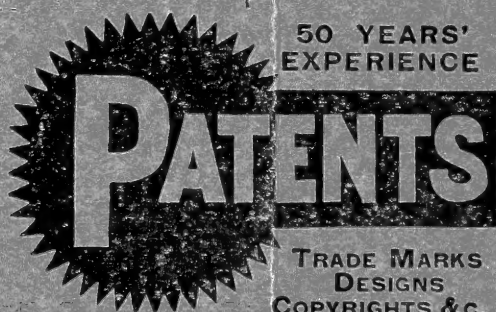
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The West American Scientist.

Vol. X. No. 6.

September, 1900.

Whole No. 93.

Established 1884.

THE WEST AMERICAN SCIENTIST.
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Charles Russell Orcutt, Editor,
Number 365 Twenty-first Street,
San Diego, California, U. S. A.

MEDICINAL PLANTS.

In the Mission days of California, the Jesuite and Franciscan fathers and the early settlers found it necessary to rely upon their own resources and to become proficient in many trades and professions which in a more advanced stage of civilization are relegated to specialists. Medicine and surgery were sciences which naturally demanded the attention of every one, especially of the fathers who were virtually entrusted with both the spiritual and physical welfare of these primitive communities. At times, doubtless their limited stock of simple remedies ran low, and with the slow means of communication with other communities, and with Mexico and Spain, whence they drew their earlier supplies, they gladly availed themselves of the traditional knowledge of the virtues of native plants which obtained among the Indian population around them.

Among the Californian aborigines, as among most tribes of Indians, there existed so-called medicine men or doctors, who, by practicing on the superstitions of their fellows, and with the aid of their traditional knowledge of the virtues of certain plants—handed down from generation to generation of medicine men—followed with greater or less success the healing art.

Local remedies, however, are known and used every where in all climes and

among all conditions of people, and unquestionably the simple formulae, comprised of harmless vegetable ingredients, as practiced among a normally healthful rural community, are more successful in the average cases, than the complicated combinations of poisons administered by the old school physician.

Rhamnus purshiana DC.—Among the native remedial agents most extensively employed in California is this species, which is found only in limited quantity in Southern California. Prof. H. C. Ford records it from the Santa Ynez mountains, and Mrs. R. F. Bingham notes it among the "Medicinal plants growing wild in Santa Barbara and vicinity" (vide Bull. S. B. Soc. Nat. Hist., i. 2, pp. 30-34). Dr. H. H. Rusby (Druggists' Bull. IV. 334), calls attention to the difficulty of positively identifying and distinguishing this species from its near relative, *R. californica*, in its southern habitat, where the two are usually associated together and recommends that this important drug, *Cascara Sagrada* as it is called, should be collected only in northern California or Oregon to avoid all risks of obtaining spurious bark.

Rhamnus tomentella Bth. — This shrub or small tree, evidently restricted in its distribution to the mountains of San Bernardino (Parish) and San Diego counties and of northern Baja California, is popularly known as the wild coffee bush, or *Yerba loso*. Dr. Rusby does not consider this to possess any useful properties—at least no virtues worthy of comparison with *R. Purshiana*. Its large black berries are sweet to the taste, but poisonous or at least unwholesome, as children sometimes find to their cost. The seeds are

somewhat of the size and shape of coffee berries—whence the common name—and when separated from the pulp and roasted are said to form a fair substitute for coffee, though I should prefer not to experiment with it myself.

The bark of this species is popularly considered efficacious in severe cases of dysentery, and the leaves to possess cathartic properties—though both are conceded to be dangerous remedies. The receipt given me for dysentery is to take one pound of the bark of the root, boil in a quart of water until reduced to a pint.

Daucus Pusillus Michx.—Mrs. R. F. Bingham (S. B. Soc. Nat. Hist., C. i:2-35) states that this is “very much valued by the natives as a remedy for the bite of the rattlesnake.” She cites “one of our oldest physicians” as having “seen a Californian chew the plant, moisten his arm with the saliva, and then permit a rattlesnake to bite his arm, without producing swelling or any bad effect.” She says the plant is usually applied in the form of a poultice. It is widely distributed from British Columbia to Mexico and eastward to the Atlantic, but I have not personally known of its use above stated, the “Golondrina” (a species of *Euphorbia*) possessing the same desirable reputation throughout the section where I have collected.

Paeonia Californica Nutt.—The root of the “Pionia” is considered valuable by the natives for the healing of sores on man or beast.

Aplopappus Palmeri Gray.—The “Pasmore” of the Mexicans and Indians is reputed to be invaluable in cases of lockjaw.

Mimulus glutinosus Wendl.—The infusion of the leaves of this and related forms (treated as species of *Diplacus* by some botanists) is considered a specific by some for dysentery.

Asclepias Subulata Decsne.—“Jumete” is a very powerful cathartic, equal in activity to croton oil. The Indians are said to use it in cases of syphilis after all other remedies fail to bring relief; an overdose often resulting in incurable insanity or death. In Mexico the juice of this or a similar plant is said to be often used in cases of enmity, the

victim of the insidious drug becoming insane for life if not mercifully relieved at once by death. Tradition says that Maximilian’s unfortunate empress, Carlotta, was a victim of this drug, but the truth of this may never be known.

Asclepias Albicans Watson.—A larger species of jumete, from the Colorado desert and adjacent regions in Baja California, is credited popularly with the same powerful cathartic properties as the last.

Solidago Californica Nuttall.—The Golden Rod, or “Oroja de Leabre” of the Mexicans, is prized above all other herbs for its curative properties in cases of either internal or external injuries of man or beast, the most stubborn of sores being said to quickly heal under its influence.

Loeselia tenuifolia Gray.—This herb is credited with valuable medicinal properties, being held in high repute by Indians and Mexicans for fevers and in other diseases. Some Mexicans once informed me however, according to my field notes, that it is a virulent poison ‘used only in venereal diseases.’ Without some actual knowledge of the properties of a plant it should be experimented upon with exceeding caution.

Helenium puberulum DC.—This plant is common along water courses from San Francisco southward to Santo Tomas, Baja California. Bancroft says this plant is used by the Indians in the same way as we make use of sarsaparilla. Mrs. Bingham (l. c.) says it is “used as a tonic and antiscorbutic, and also in the form of a powder for catarrh.” She gives the vernacular name as sneezewood. It is known to the Mexicans as rosea or rosilla (the proper spelling of the word) who inform me that the seed is the part mainly used medicinally.

Matricaria discoidea DC.—“Used for bowel complaints” (Mrs. Bingham). “Said to be used in California as a domestic remedy for agues and bowel complaints” (Watson, Bot. Cal. i. 401.)

Datisca glomerata Benth. & Hook.—“The root is a bitter tonic known as Durango root” (Mrs. Bingham).

Artemisia ludoviciana Nutt.—Mrs. Bingham says this is “recommended

for the effects of poison oak."

Lonicera subspicata Hook & Arm.—The "moronel" of the Mexicans is used by them in the form of a tea as a blood purifier; the plant is also used for the healing of sores.

Grindelia robusta Nuttall.—This is a popular remedy, especially recommended as a remedy for the effects of the poison oak (*Rhus diversiloba* Torr. & Gray), the plant being applied fresh, or a decoction or alcoholic infusion used (Mrs. Bingham). The crude drug sells at about \$5.00 per hundred pounds. A Russian scientist is at present engaged in a study of the medicinal properties of this plant and of the other species of the genus—most of which seem to possess the same valuable properties and some of which are doubtless often substituted for or confused with the typical *G. robusta* of Nuttall. One of these, *G. subsquarrosa*, I have recently supplied to an eastern firm, sending them about fifty pounds of the crude drug, for them to thoroughly test its properties.

Romneya coulteri Harv.—"A deadly poison." "The whole plant is used, bruised and boiled and applied as a poultice or taken in liquor"—my notes do not state whereof its virtue consists. It will naturally be inferred, however, that its properties are similar to those of opium.

Ephedra californica Watson.—"Canatilla" or Mountain tea, and "tepopote" (fide Havard), are names applied to several of the genus *Ephedra*. "They are popular remedies among Mexicans and frontiersmen in the treatment of syphilis and gonorrhoea, especially the latter. The decoction or infusion of the stems has an acid reaction and an astringent taste resembling that of tannin. It is used as an injection and internally; some caution should be observed as it has been known to cause strangury." (Dr. V. Havard, vide Proc. U. S. Nat. Mus. VIII. 504.) The species Dr. Havard refers to are *E. antisiphilitica* C. A. Meyer and *E. trifurca* Torrey, but the same remarks seem to apply equally well to our Californian species. It is often used as a substitute for tea, and is scarcely distinguishable in taste, except for an after-flavor, not unpleasant, reminding one slightly of catnip tea. It is in

great renown as a blood purifier and many have volunteered to me their opinion that it was "better than sarsaparilla" and without an equal. I have never heard of unpleasant effects following its use. It is a valuable sedative. Experiments and analyses prove it to be not superior to *E. antisiphilitica*—which already has a place among American drugs.

Baccharis glutinosa Pers.—This, or another species of the genus, familiarly known as Mock willow, is held in some repute for the healing of sores. *Pluchea borealis* Gray, also known by the same popular name, perhaps shares in the same virtues and is, I believe, the plant known to the Mexicans as "water-motor"—credited with medicinal virtues without number!

Cucurbita Palmata Watson.—The mock orange and wild pomegranate are names frequently applied to this and other species of the genus *cucurbita*. The root is very bitter, and a strong and quick emetic, acting "without any disagreeable effect on the nerves." In common with the following species this is known to the Mexicans as "Chili Coyote," or "Calabazilla."

Cucurbita Foetidissima, H. B. K.—I do not know that the natives discriminate between these species in favor of either one or the other. "The macerated root is also used as a remedy for piles" (Watson, Bot. Cal., i:239).

Micrampelis Macrocarpa Greene.—The chilocothe vine, also belonging to the Cucurbitaceae, possesses similar properties to *Cucurbita palmata*. The root attains immense size, and is credited with having formed the basis of the once famous "Dr. Walker's Celebrated California Vinegar Bitters."

Trichostema Lanatum Benth.—The black sage is a small shrub found in the coast range from Monterey southward to Baja California(?), "cultivated in gardens of the Californians," and "valued as a stimulant" (Mrs. Bingham).

EDITORIAL.

The Botany of California, finished by Sereno Watson and published in 1880, through the generosity of gentlemen of

a past generation, uniform with and as a part of the state geological survey publications, marked the commencement of a new era of botanical activity on the Pacific coast. The next decade saw many additions to the state flora through the labors of a group of collectors who assiduously explored mountain and desert regions alike. In 1879 Heman Chandler Orcutt moved with his family from the Green Mountain state to San Diego, and took part in this work of exploration, which only ended with his life in 1892

Parry, Pringle, the Parish Brothers, Palmer and many others were especially active, with Gray, Greene, Brandegee, Watson and Vasey as the principal writers on their field work.

The last decade of the 19th century is noteworthy for the attempted changes in nomenclature as proposed by Kuntze, followed by Coville, Greene, Britton and other, mostly the younger, botanical authors.

In the present work the writer avoids the adoption of the most of the proposed changes, aiming to make it a supplement to Watson's great work—with this in view reproducing descriptions of species discovered since 1880. Notes and descriptions of all the plants would have been added but for the expense.

CATALOG OF MINERALS.

72 Azurite.	I
73 Andesite.	I
74 Limonite.	I
75 Garnet.	3
76 Malachite.	I
77 Cymatolite.	I
78 Dendrite.	I
79 Pink Feldspar.	I
80 Talc.	I
81 Breccia.	I
82 Sanidin Trachyte.	I
83 Aphanite.	I

84 Graphite. I

Nos. 72-84 from the Black Hills, South Dakota, collected by L. W. Stilwell.

85 Malachite. Ky. Mrs. Lemon. 2

86 Malachite, San Pedro Martias Mt., Baja Cal. D. K. Allen 6

87 Galena, Opulent mine* 7

88 Obsidian, Cantilles Mts. Baja Cal. 2

89 Cinnabar, Baja Cal Mrs. Buckman 4

90 Green spar, Riverside Cal. H. C. Orcutt. 3

91 Cement rock, near boundary, Baja Cal. J. A. Thoman. I

92 Tourmaline, Vt. H. N. Rust. I

93 Gold ore, San Rafael, Baja Cal. 7

94 Ilmenite, Plymouth, Vt. 3

95 Mica, Enfield N. H. H. C. Orcutt, 1877. 2

96 Biotite, Canyon Cantilles, Baja Cal. H. C. and C. R. Orcutt July 1884. 3

97 Same as 93, San Nicholas mine. 2

98 Gold and silver ore* 20

99 Peacock copper ore, Baja Cal. 22

100 Dog tooth spar, Black Hills S. D. I

(To be continued.)

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WANTS.

WANTED—for cash or in exchange:—

Baltimore cactus journal i i

Journal of mycology

Californian illustr. magazine v 3 Feb '94

Garden

Science

Torrey bot club bulletin

U S Dept Agric bot b i 3 9 10 11

—chem b 10 12 18 19 27 32 35-7

—entom b 1st ser

and many others.

ORCUTT, San Diego, California.

TREES.

ORCUTT, San Diego, California.

STAMPS.

ORCUTT, San Diego, California.

BOTANY OF SOUTHERN CALIFORNIA

BY CHARLES RUSSELL ORCUTT.

San Diego, California.

FLOWERING PLANTS.

Phænogamous plants, bearing true fl (having stamens and pistils), and producing seeds which contain an embryo.

CLASS I.—DICOTYLEDONS.

Exogenous plants. Stems consisting of a pith in the center, of bark on the outside, and these separated by one or more layers of fibrous or woody tissue, which, when the stem lives from year to year, increases by the addition of new layers to the outside next to the bark. Embryo usually with 2 opposite cotyledons, or rarely with several in a whorl.

SUBCLASS I.—ANGIOSPERMÆ.

Pistil consisting of a closed ovary which contains the ovules and forms the fr.; cotyledons 2.

DIVISION I.—POLYPETALÆ.

Petals distinct, or nearly so (sometimes absent).

RANUNCULACEÆ.

Crowfoot family: herbs or woody vines with colorless usually acid juice, polypetalus, or apetalus with the sepals often colored and petaloid; sepals, petals, stamens & pistils all distinct; short; seed anatropous, embryo minute in firm fleshy albumen: stipules none.

Genus CLEMATIS Linnaeus.

Virgin's Bower: sepals petaloid, colored, valvate in the bud; pistils numerous; akenes many in a head; leaves opposite.

§.—Petals 0; sepals 4, styles becoming long feathery awns in fr.

CLEMATIS LIGUSTICIFOLIA Nuttall.

Nearly glabrous, stems sometimes 30 ft. long, leaves 5-foliate, leaflets broadly ovate to lanceolate, $1\frac{1}{2}$ –3 inches long, acute or acuminate, 3-lobed & coarsely toothed, rarely entire or 3 parted, fl dioecious, paniculate, sepals thin, silky, w.

4–6 lines long; akenes pubescent, tails 1–2 inches long. o-m n j Abundant along water courses in the foothills and mt up to 6000 ft. he 52. da 1 V. CALIFORNICA Wat.

Leaves silky-tomentose beneath, often small. z s—the Sacramento. he 52

CLEMATIS LASIANTHA Nutt.

Silky-tomentose, stems stout, elongated; fl dioecious, solitary, on rather stout 1–2-bracted peduncles; sepals obtuse, thickish, 6–10 lines long; akenes pubescent. b—Plumas Co.

CLEMATIS PAUCIFLORA Nuttall.

Silky-pubescent; stem rather slender, short-jointed; leaves short & fascicled; leaflets 3–5, only 3–9 lines long, cuneate-obovate to cordate, mostly 3-toothed or 4-lobed; fl solitary or few & panicled, on slender pedicels: sepals thin, 4–6 lines long; akenes glabrous. sj he 52

Genus THALICTRUM Tournefort.

Meadow rue: sepals 4–7, greenish or petaloid: imbricated in the bud, petals 0, akenes 4–15 in a head, tipped by the stigma or short style, grooved, ribbed, or inflated; ovule suspended; fl in corymbs or panicles; leaves alternate, 2–3-ternately compound; leaflets stalked. ♂

§1.—fl dioecious; anthers linear, acute or acuminate.

THALICTRUM POLYCARPUM S. Wat.

Rather stout, 2–3 ft high, glabrous: leaves with short petioles or the upper sessile; leaflets variable, $\frac{1}{4}$ –1 inch long; lobes acutish to acuminate; panicle narrow, often small, the staminate usually crowded on short pedicels: anthers acute, on very slender filaments: fr in dense heads, compressed, broadly oblong-obovate or obovate, abruptly acute, $2\frac{1}{2}$ –3 lines long: seed linear, terete, nearly $\frac{1}{16}$ inch long. j-o he 54 da 1

THALICTRUM OCCIDENTALE A. Gray

Of similar habit as *T. polycarpum*, leaflets rather larger, panicles more slender and open, the staminate very diffuse with slender elongated pedicels, styles more attenuate: fr 1-6 in each head, narrowly oblong (3-4 lines long) and narrowed at each end: seed nearly $\frac{1}{4}$ inch long. b-w Parish 1481 b mts, he 54

§2.—fl usually perfect; anthers small, elliptic-oblong, obtuse.

THALICTRUM SPARSIFLORUM Turcz.

Slender, glabrous, 1-3 ft high, leaves sessile or nearly so; leaflets $\frac{1}{4}$ - $\frac{1}{4}$ inch long, with obtuse often mucronate lobes: panicle loosely few-flowered; pedicels elongate: fring heads nodding, the large div ercate akenes strongly compressed, semi-obovate, shortly pedicellate, slightly nerved. b-Alaska, Siberia, Utah, Col.

Genus MYOSURUS Linnaeus.

Sepals 5, spurred at the base; petals 5, linear, on a slender claw, with a pit at its summit; stamens 5-20; akenes very numerous, crowded on a long and slender spike-like receptacle; seed suspended. Very small herbs, with a tuft of linear or spatulate entire radical leaves, and solitary flowers on simple scapes. @ **MYOSURUS MINIMUS** Linn.

M. shortii Rafinesque in Sill J 1:379

Receptacle in fruit slender, 1-2 inches long; akenes blunt. Widely distributed in Europe, Asia, Australia and America; apparently indigenous in California.

Var. **APUS** Greene. Mesas, s.

Var. **FILIFORMIS** Greene. Mesas, s.

MYOSURUS APETALUS Gay.

M. aristatus Bth [vide G Torr cl b 13 2].

Receptacle in fruit oblong or linear, 2-8'' long; akenes long-beaked: less than 2' high. Utah; Chili; mesas, s.

Genus RANUNCULUS Linnaeus.

Crowfoot: sepals usually 5; petals 3-15, each with a small scale or pit at the base inside; pistils numerous; akenes in a head, usually flattened, beaked with the persistent style. Herbs, mostly perennial, of somewhat varied habit; fl either solitary or somewhat corymbed.

The section *Batrachium* is treated as a genus by Davis in *Winn bot studies* 460, the 2 following varieties being referred to *B. trichophyllum* Bossch prod fl bot 5.

§1.—**BATRACHIUM.**

RANUNCULUS AQUATILIS Linn.

Submerged, finely divided leaves.

Var. **TRICHOPHYLLUS** Chaix.

Stems long, coarsely filiform: peduncles 1-2' long; fl 3-5'' in diameter: akenes numerous in a close globular head, which is 2-3'' in diameter. b-i.

Var. **CÆSPITOSUS** DC.

Stems short, growing in mud: segments of leaves ligulate, 1'' or more long; fl 2-3'' in diameter. j

§2—**HALODES**. Gray. Like §3, but mature carpels thin-walled and utricular, the sides nerveose: scapose and flagelliferous.

RANUNCULUS CYMBALARIA Pursh.

Greenland, Asia, North and South America.

§3 **EURANUNCULUS** Gray.

Petals (with nectariferous pit and scale, usually yellow) and sepals deciduous, the sides nerveless, not transversely rugose.

* Perennial by rooting from the nodes of creeping or the lower nodes of ascending stems, wholly fibrous rooted.

RANUNCULUS HYDROCHAROIDES G.

Southern California east of the Sierra (Kellogg), z

R. FLAMMULA L.

Var. **REPTANS** E. Meyer.

Southern California (Parish 996).

* * Thickened-fibrous and fascicled roots, terrestrial: stems short, erect or assurgent, not rooting from nodes above ground; mature akenes turgid and with introrsely apical or subapical rather subulate beak.

RANUNCULUS ALISMAEFOLIUS Gyr.

Idaho-Ca. *R. bolanderi* Ge Ca ac b 2:58 fide G.

† Heads of carpels in fruit oblong or cylindraceous; akenes more turgid, rounded, or at least obtuse on the back.

RANUNCULUS ESCHSCHOLTZII Schl.

†† Petals only 5; styles uncinate, recurved, shorter than the ovary, broad and flat.

RANUNCULUS CANUS Benth.

b mts. (Parish 1542).

‡ Lax or weak stemmed, petals 6-15; herbage hirsute or pubescent.

RANUNCULUS CALIFORNICUS Benth.

Erect or nearly so, 12-18 in. high, more or less pilose: radical leaves commonly pinnately ternate, leaflets laciniately 3-7 lobed; fls 5-10 lines in diam. with 10-14 narrowly obovate petals, & shorter reflexed sepals; akenes much flattened, with sharp edges, nearly 2 lines long; beak short & curved; heads compact, ovate or globular.

This Californian buttercup is the most abundant species of the genus in the state, 'where low grassy hills are often yellow with the shining fls in early spring.' Cuyamaca mountains.

Var. LATILOBUS Gray.

The common, coarse-leaved, more robust form.

RANUNCULUS HEBECARPUS Hook. & Arn.

Slender, 3-18 in. high, erect or procumbent: lower leaves ternate or 3-parted, leaflets cuneate at base & 2-3-lobed, upper ones more divided; akenes few, papillose-scabrous, with hooked hairs; fls minute, petals 5, a line or less long.

Var. PUSILLUS S. Wats., Bot. Calif. i, 9. 1880.

'Stems very slender & filiform, weak & ascending or procumbent, 3-6 in. long; leaves reniform crenately 5-lobed or parted.'—Watson.

R. BONGARDI Ge Erythra 3:54

Var. douglasii Davis Or d—reported by Rose.

Genus ACTAEA Linnaeus.

'Baneberry. Sepals 4-6, nearly equal, petal-like, falling. fl early. Petals 4-10, small. Stamens numerous. Pistils single; stigma sessile, 2 lobed. Fruit a many-seeded berry. Seeds smooth, flattened, packed horizontally in 2 rows. Perennial herbs, with 2-3-ternately compound leaves. Root usually tuberous or thickened. Fls. in a terminal short raceme. Species perhaps 2, belonging to the cooler regions of the Northern Hemisphere.'—Wats. Bot. Calif. i, 12.

ACTAEA SPICATA Linn.

Var. ARGUTA Torrey.

A. arguta Nutt.—Rare in Calif.—Alaska.

Genus AQUILEGIA Tournefort.

Columbine: sepals 5, regular, colored and petal-like deciduous. Petals 5, all alike, with a short, spreading lip, and produced backwards into a long tubular spur; stamens numerous, the outer ones long & exserted, the inner ones reduced to thin scales; pistils 5; styles slender;

ovaries several-ovuled, becoming pointed several-seeded follicles in fruit. Glabrous perennial branching herbs, with 2-3-ternately compound leaves, the leaflets lobed; fl showy, terminating the branches.

AQUILEGIA TRUNCATA Fisch. & Mey.**Genus DELPHINIUM** Tournefort.

Larkspur: Cal. species are all perennial with showy fl: sepals 5, colored, petaloid, very irregular, the upper one prolonged backwards at the base into a long spur: petals 2-4, irregular; stamens many, pistils 1-5; fr of 1-5 dehiscent, many seeded follicles. Erect herbs, with palmately-cleft, lobed, or dissected leaves, and racemose fl.

*Blue (at least not red) fl.

DELPHINIUM CONSOLIDA Linn.**DELPHINIUM DECORUM** Fisch-Mey.

Very handsome dark indigo blue fl, js north to Mendocino county.

DELPHINIUM PARISHII A. Gray.**DELPHINIUM PARRYI** A. Gray.**DELPHINIUM SIMPLEX** Dougl.**DELPHINIUM VARIEGATUM** T. & G.

**Red flowered.

DELPHINIUM NUDICAULE Torr-Gray.

½-2° high or more; Mendocino county

DELPHINIUM CARDINALE Hook.

Few—15 ft. high, stout, nearly glabrous: leaves large, 5-7-lobed nearly to the base, the divisions deeply 3-5-cleft with narrow long-acuminate segments; fls bright scarlet with yellow center, large, produced in showy panicles. Quite hardy.

Genus PAEONIA Linnaeus.**PAEONIA BROWNII** Dougl.**PAEONIA CALIFORNICA** Nutt

Foothills j d b—usually distributed as brownii—perhaps running together. da 1, cv 4 58

Genus CROSSOSOMA Nuttall.**C. BIGELOVII** Watson.**Genus ANEMONE** Linnaeus.**A. MULTIFIDA** DC.**BERBERIDACEAE.****Genus BERBERIS** Linnaeus.**BERBERIS DICTYOTA** Jepson.**BERBERIS FREMONTII** Torrey.**BERBERIS NEVINII** A. Gray.**BERBERIS PINNATA** Lagasca.**BERBERIS REPENS** Lindl.

SARRACENIACEAE.**DARLINGTONIA CALIFORNICA** Torrey

'Calf's head,' a striking perennial of curious aspect, the only representative of the family in Calif. Of a greenish yellow hue; bearing a nodding purplish fl. One of the Pitcher plants, noted for its alluring insects to their death

PAPAVERACEAE.**PAPAVER CALIFORNICUM** Gray.**PAPAVER HETEROPHYLLUM** Greene.**PAPAVER LEMMONI** Greene.**PAPAVER HETEROPHYLLUM** Ge.**Genus PLATYSTEMON Benth.****PLATYSTEMON CRINITUS** Ge.

'Subcaulescent, the foliage, scapiform peduncles, & the calyx densely crinite-hirsute with w soft spreading hairs 3 or 4 lines long: fl buds exactly globose: corolla an inch broad, the petals deep greenish y, marcescent-persistent: stamens innumerable: filaments widely dilated: carpels many, the short torulose pods scarcely longer than the persistent linear stigmas.'—Ge pitt 2 13. Kern county

PLATYSTEMON CALIFORNICUS Benth.

Slender branching annual, 2-12 in high, vilous with spreading hairs: leaves 3-4 in. long, sessile or clasping, broadly linear, obtuse: peduncles 3-8 in. long, erect: sepals vilous: petals delicate sulphur yellow, shading to orange in the center, 3-6 lines long: carpels 6-25, aggregated into an oblong head, smooth or somewhat hairy, 5-1 lines long, beaked with the linear persistent stigmas the 1-seeded divisions a line long: seeds smooth. Cal e! 'Cream-cups' by the children Southern Utah, Arizona, Mendocino county to San Diego, & Baja Calif. (Socorro).

PLATYSTEMON DENTICULATUS Gne.**Genus DENDROMECON Benth.****DENDROMECON FLEXILE** Greene.

Greene Bull. Torrey club, xiii. 216.

—Bull. Calif. Acad. Sci. i. 389:—Santa Cruz Island, 'on bushy hillsides everywhere: quite plentiful on the northward slope at no great distance from the shore' he 55

DENDROMECON HARFORDII Kellogg.**DENDROMECON RIGIDUM** Benth.

Shrub 2-8 ft. high, numerous slender branches, bark whitish: leaves ovate to linear-lanceolate, 1-3 in. long, very acute or mucronate, sessile or nearly so; twisted upon the base so as to become vertical, reticulately veined, margin rough or denticulate: flowers bright yellow, 1-3 in. in diam. on pedicels 1-4 in. long: capsules curved, attenuate above into the short stout style, 1½-2½ in. long: seeds 1½ lines long.

CANBYA CANDIDA Parry.

Scarce an inch high, densely branched, the somewhat fleshy leaves & short branches closely crowded, fls w, petals 2 lines long; named in honor of William M. Canby Or mj. G Am ac pr 2:51 t 1 (27 D 1876) Wat bot ca 2 429. he 55

Genus ROMNEYA Harvey.**ROMNEYA COULTERI** Harvey. The Giant, white flowering, bush poppy.

Half-hardy shrub, 6-15 ft. high, branching and flexuous, woody at base: leaves glaucous, thickish, petioled, 3-5 in. long, the lower ones pinnatifid, upper ones pinnately toothed: petioles and margins often sparingly ciliate with rigid spinose bristles: the magnificent wax-like fls. 6-9 in. across; petals broadly obovate: filaments ½ in. long, bright yellow, purple at base: capsule oblong. 1-2 in. long, obscurely many angled, hispid with appressed bristles and crowned with the persistent stigmas: seeds black, a line or less long. Matilija poppy, named in honor of Dr. T. Romney Robinson, a noted astronomer. he 55

Genus PLATYSTIGMA Benth.**PLATYSTIGMA CALIFORNICUM** B.-H.**PLATYSTIGMA DENTICULATUM** Greene.

Greene Bull. Torrey Club, xiii. 218.

—Bull. Calif. Acad. Sci. i. 389. My. 28, 1887: Santa Cruz Island. he 55.

PLATYSTIGMA LINEARE Benth.**Genus MECONOPSIS Viguiet.****M. HETEROPHYLLA** Benth**MECONELLA DENTICULATA** Greene.

"3-10' high: radical leaves entire, the laminal portion rhombic-ovate, acutish: cauline spatulate to linear, obtuse, sharply denticulate: petals narrowly oblong, 2" long: stamens 6-9. Temecula Canon, north of San Luis Rey, in San Diego county, Cal., March 27, 1885, by the writer."—Greene, Bull. Cal. Acad. Sci., ii. 59 (Mar. 6, 1886).

Genus ARGEMONE Linnaeus.**ARGEMONE CORYMBOSA** Greene.**ARGEMONE HISPIDA** A. Gray.

Is A. platyceras L. & C.

ARGEMONE MEXICANA Linn.**ARGEMONE PLATYCERAS** L. & O.**Genus ESCHSCHOLTZIA Cham.****ESCHSCHOLTZIA GLAUCA** Ge.**ESCHSCHOLTZIA MARITIMA** Ge.**ESCHSCHOLTZIA CAESPITOSA** Bth.**ESCHSCHOLTZIA GLYPTOSPERMA** Ge.

"Wholly glabrous and very glaucous: stems very short: leaves much dissected, but short

and compact: scape-like peduncles numerous, 6 inches high, terete, and rather stout: corollas as in [*E. tenuifolia*], but of a deeper yellow; seeds not reticulate, but deeply pitted and of an ash-gray color. A most peculiar species, collected in 1884, by Mrs. Curran, on the Mohave Desert. The seeds are remarkably unlike those of any other known *Eschscholtzia*."—Ge Ca ac b 1:70 (7 Mr 1885).

ESCHSCHOLTZIA MEXICANA Greene.

"Annual, smooth and glaucous: foliage less finely dissected [than *E. californica* and *E. peninsularis*]: stems short: peduncles numerous, stout and scape-like: petals an inch long, yellow or cream color: torus short, obconical, the outer margin a sub-cartilaginous ring, the inner erect, scarious, with stout nerves: seed globular, apiculate, with coarse but rather faint reticulations.—*E. californica*, var. *parvula*. Gray. Pl. Wright, 2.10. *E. Douglasii*, Torr. Mex. Bound. 31; Hemsl. Biol. Cent. Am. This plant ranges from the region of the upper Gila, in New Mexico, far southward into Texas and adjacent Mexico, and is apparently a very good species."—Ge Ca ac b 1:69 (7 Mr 1885).

A rank-growing *Eschscholtzia* growing in the San Rafael valley, Lower California, with large reddish-orange colored flowers, was doubtfully referred to this by Prof. Greene.

E. LEMMONI Greene.

"Annual, 6-12' high, with numerous ascending branches, leafy below, hoary pubescent throughout, even to the capsules, with short spreading white hairs; leaves with elongated petioles; peduncles stoutish, quadrangular, the earliest scapiform; torus urceolate, 3-4" long, nearly glabrous, constricted just below the narrow, erect hyaline border; calyptra ovate, long acuminate, very conspicuously hairy; petals orange-color, nearly or quite an inch long."—Greene. West Am Sci. iii, 157. Ag 1887. Mountains of San Luis Obispo county.

ESCHSCHOLTZIA MODESTA Greene.

"Annual, very slender and diffusely branching, a foot high, glabrous and moderately glaucous; leaves small, with few & narrow segments; pedicels axillary, an inch long or more, terete & very slender, nodding in the bud: bud 2 lines long, the permanent portion (torus) with no rim, nearly as long as the broadly ovate calyptra: corolla rotates-spreading, $\frac{1}{2}$ inch broad; petals obovate, not meeting, the rounded apex

erose- or sinuate-toothed, or, in later flowers, deeply 3 lobed, pale y; stamens 8 in 2 rows on opposite sides of the pistil, or, in late fls, 4 only; anthers $\frac{1}{2}$ line long, on slender filaments a line in length: pod 2 inches long, narrow, the valves thin: seeds globular, minute, reticulate; cotyledons very narrowly oblanceolate, entire. Collected by S. B. Parish in L. Jc 1867 (No. 1951)—*Ge Pittonia* 1:169 (6 Ma 1888).

ESCHSCHOLTZIA PARISHII Greene.

"Annual, slender, less than 1' high, glabrous and glaucous: stems simple or sparingly branched: peduncles terete, very slender: torus turbinate, no spreading rim, the 2 margins similar and approximate: petals widely spreading, broad and overlapping each other, apparently light y.: fr. not seen."—Greene, Bull. Cal. Acad. Sci., i. 183 (Aug. 29, 1885).

ESCHSCHOLTZIA PENINSULARIS Gn.

"Annual, smooth and glaucous, slender, erect, much more branched than *E. californica*, with corollas of 1-3 the size and more broadly campanulate: rim of torus broader in proportion, the inner margin a very short, nerveless, hyaline ring; seed slightly elongated and distinctly apiculate at each end, reticulations less regularly favose."—Greene, Bull. Cal. Acad. Sci., i. 68-9 (Mar. 7, 1885); l. c. 183.

ESCHSCHOLTZIA CALIFORNICA Chm.

The ♂ form; the ♀ plant is peninsularis.

ESCHSCHOLTZIA MINUTIFLORA S. W.

Distinguished by its small fls: e.

ESCHSCHOLTZIA RAMOSA Greene.

Ge Torr cl b 13: 217. Ca ac b 2: 389. Santa Cruz & Guadalupe Islands.

FUMARIACEAE.

Tender herbs, with watery and bland juice, dissected compound leaves, & perfect irregular hypogynous fls with the parts in twos, except the diadelphous stamens, which are 6; ovary and capsule 1-celled with 2 parietal placenta: seeds, etc. as in Papaveraceae.

Genus DICENTRA Borkh.

Corolla flattened, heart-shaped or 2-spurred at the base.

DICENTRA CHRYSANTHA H. & A.

Dielytrachrysantha H. & A. Bot Beech 320. *Bikukulla chrysantha* C. v. 4:60.

Pale & glaucous, 2-5 feet high: leaves twice pinnate, the larger a foot long or more; the divisions cleft into a few narrow lobes: racemose panicle terminal, 1-2 ft long: sepals caducous: corolla linear-oblong or clavate, bright rich lemon y, over $\frac{1}{2}$ inch long, base slightly cordate: capsule oblong-ovate or narrower. Lake county-j

DICENTRA OCHROLEUCA Engelm
L fl w^lite.

CRUCIFERAE.

Genus ALYSSUM Tournefort.

ALYSSUM MARITIMUM Lam.

Lobularia maritima Desv. 'sweet alyssum' often cultivated for its fragrant fls., a native of the Mediterranean region in Europe, now widely naturalized in California.

Genus DRABA Linnaeus.

DRABA CORRUGATA Wat.
DRABA DOUGLASSII G.
DRABA UNILATERALIS Jones.
DRABA CUNEIFOLIA Nutt.
V. INTEGRIFOLIA Wat.

Genus CARDAMINE Linnaeus.

CARDAMINE INTEGRIFOLIA Gray.

LESQUERELLA PALMERI S. Watson.
"Pubescence dense, stellate-lepidote; caudex simple, apparently biennial, the simple stems 1° high or more: basal leaves narrowly oblanceolate, repand, the cauline narrower and mostly entire: petals spatulate, 3" long: pods pubescent, ovate-globose to broadly ellipsoidal, erect on long spreading or ascending pedicels; style as long as the pod; cells 2-4-ovuled. Arizona (Palmer, 1872); Lower California (C. R. Orcutt, 1884)."—S. Watson, Proc. Am. Acad., xxiii. 255 (May 29, 1888).

Genus ARABIS Linnaeus.

ARABIS ARCUATA G.
V. LONGIPES Wat.
ARABIS BECKWITHII Wat.
ARABIS FILIFOLIA Ge.
ARABIS LUDOVICIANA C. A. Meyer.
ARABIS PARISHII Wat.
ARABIS PERENNANS Wat.
ARABIS PERFOLIATA Lam.
ARABIS PLATYSERMA G.
ARABIS PULCHRA Jones.
ARABIS REPANDA Wat.

ARABIS HOLBOELII Horn.
ATHYSANUS PUSILLUS Ge.

Genus CAULANTHUS Watson.

CAULANTHUS AMPLEXICAULIS Wat.
CAULANTHUS COULTERI Wat.
CAULANTHUS CRASSICAULIS Wat.
CAULANTHUS INFLATUS Wat.
CAULANTHUS PILOSUS Wat.
CAULANTHUS PROCERUS Wat.
CAULANTHUS GLANDULOSUS Hook.

Genus TROPIDOCARPUM Hooker.

T. GRACILE Hook.
T. DUBIUM Day.

Genus THELYPODIUM Endl.

T. INTEGRIFOLIUM Endl.
T. LASIOCARPUM Greene.
V. inalienum Robinson.
T. STENOPETALUM Watson.
T. WRIGHTII Gray.

Genus NASTURTIUM R. Brown.

N. CURVISILIQUA Nuttall.
V. laevis Watson
V. lyratum Watson
V. filipes G.
N. OFFICINALE R. Br.
N. OBTUSUM Nuttall
V. sphaerocarpum Watson

Genus LEPIDIUM Linnaeus.

L. BIPINNATIFIDUM Desv.
L. DICTYOTUM Gray
V. acutidens Gray.
L. FLAVUM Torrey
L. FREMONTII Watson.
L. LASIOCARPUM Nuttall
V. tenuipes Watson
L. INTERMEDIUM Gray
L. LATIPES Hook.
L. MEDIUM Greene
L. NITIDUM Nuttall
DENTARIA CALIFORNICA Nutt.
DITHYRAEA WISLIZENI E.

Genus CHEIRANTHUS Linnaeus.

CHEIRANTHUS ASPER C. & S.

Genus BARBAREA R. Brown.

BARBAREA VULGARIS R. Br.
V. ARCUATA Fries.
V. GLABRIOR Rob.
BISCUTELLA CALIFORNICA B. & H.
Is *Dithyrea wislizeni* E

Genus CAPSELLA Moench.

CAPSELLA DIVARICATA Walp.
CAPSELLA BURSA-PASTORIS Medic.
CAPSELLA ELLIPTICA C. A. Meyer.

Genus BRASSICA Linnaeus.

BRASSICA ADPRESSA Boiss.
BRASSICA ALBA Boiss.
BRASSICA CAMPESTRIS L.
BRASSICA NIGRA Koch.

Genus SISYMBRIUM Linnaeus.

SISYMBRIUM CANE-CENS Nutt. da2
SISYMBRIUM incisum E. da2
V. HARTWEGIANUM Wat,
SISYMBRIUM REFLEXUM Nutt. Ore
SISYMBRIUM ACUTANGULUM D. C. da2
SISYMBRIUM DIFFUSUM G. cv 4 63
SISYMBRIUM OFFICINALE Scap. da3

Genus ERYSIMUM Linnaeus.

ERYSIMUM ASPERUM DC. da2 Or d
ERYSIMUM GRANDIFLORUM Nutt.
ERYSIMUM INSULARE Ge.
STANLEYA PINNATIFIDA Nutt. da2
s. pinnata Britton N Y ac tr 8:62. Cv 4:64

Genus STREPTANTHUS Nuttall.

STREPTANTHUS CAMPESTRIS Wat.
STREPTANTHUS HETEROPHYLLUS Nutt.
STREPTANTHUS LONGIROSTRIS Wat.
LYROCARPA CULTEI H. & H.
L. PALMERI Watson
RAPHANUS SARIVUS L. da2
Raphanistrum L. Wild radish, a bad weed.
THYSANOCARPUS CONCHULIFERUS Ge.
V. plaviusculus Robinson.
T. CURVIPES Hook. Ord
V. elegans Robinson.
V. pulchellus Greene
T. PSIDILLUS hooker.
T. LACINIATUS Nuttall.
V. CRENATUS Br.

CAPPARIDACEAE.**Genus CLEOME Linnaeus.**

CLEOME INTEGRIFOLIA Nutt.

Genus CLEOMELLA De Candolle.

C. BREVIPES Watson
C. OBTUSIFOLIA T-G.
C. OOCARPA Gray.
C. PARVIFLOA Gray

Genus ISOMERIS Nuttall.

I. ARBOREA Nuttall
V. glob. sa cv

Genus WISLIZENIA Engelmann.

W. REBRACIA Engelmann.
W. PALMERI Gray

RESADACEAE.**Genus OLIGOMERIS Cambess.**

OLIGOMERIS SUBULATA Boiss.

CISTACEAE.**Genus HELIANTHEMUM Tournefort.**

H. ALDERSONI Greene
H. GREENEI Rob.
H. occidentale Ge.
HELIANTHEMUM SCOPARIUM Nutt.

VIOLACEAE.**Genus VIOLA Linnaeus.**

VIOLA CHRYSANTHA Hook.
VIOLA PEDUNCULATA T. & G.
VIOLA LOBATA Bentham
Var. integrifolia Watson
VIOLA AUREA Kellogg.
V. premorsa Dougl. is said to be an older name.
VIOLA BLANDA Willd.
VIOLA PURPUREA Kellogg.

POLYGALACEAE.**Genus POLYGALA Tournefort.**

POLYGALA CALIFORNICA Nutt.

Genus KRAMERIA Linnaeus.

KRAMERIA CANESCENS A. Gray.
KRAMERIA PARVIFOLIA Benth.

FRANKENIACEAE.**Genus FRANKENIA Linnaeus.**

FRANKENIA GRANDIFOLIA C. & S.
V. campestris G.
FRANKENIA PALMERI S. Watson.

CARYOPHYLLACEAE.**Genus SILENA Linnaeus.**

S. CALLICA L.
S. CONICA L.
SILENA ANTIRRHINA Linn.
SILENA CALIFORNICA Dur.
SILENA LACINIATA Cav.
SILENA MULTINERVIA S. Watson.
"Annual, erect, sparingly branched, glandular-pubescent, about 1° high: leaves linear to linear-oblong, acute, the lowermost narrowly oblanceolate, 1-2' long: inflorescence dichotomously cymose; bracts linear: calyx narrowly ovate, 20-25 nerved, 5-6" long, the acuminate teeth usually p.-tipped; petals purplish, scarcely equalling the calyx, without appendages or auricles, emarginate: filaments glabrous, included: capsule nearly sessile, oblong-ovate, included: seeds minute, tuberculate, not crested. Found near Jamul, San Diego County, by C. R. Orcutt, in April, 1885, and on the island of Santa Cruz, California, by T. S. Brandegee, in

1888."—S. Watson, Proc. Am. Acad., xxv.
126-7 (Sept. 25, 1890).

SILENA PALMERI S. Watson.
SILENA PLATYOTA S. Watson.

Genus CERASTIUM Linnaeus.

CERASTIUM NUTANS Raf.
C. TRIVIALE Lnk.
CERASTIUM VISCOSUM Linn.

Genus STELLARIA Linnaeus.

STELLARIA MEDIA Linn.
S. NIGENS Nuttall

Genus ARENARIA Linnaeus.

ARENARIA ALSINOIDES Willd.
ARENARIA DOUGLASII T. & G.
ARENARIA MACRADENIA Watson.
ARENARIA MACROPHYLLA Hook.

SAPONARIA VACCARIA Linn.

Sagina occidentalis Watson da 3 w

Genus LEPIGONUM Fries.

LEPIGONUM GRACILE Watson.
LEPIGONUM MACROTHECUM F. & M.
LEPIGONUM MEDIUM Fries.

Genus POLYCARPON Linnaeus.

POLYCARPON DEPRESSUM Nutt.

Genus LOEFLINGIA Linnaeus.

LOEFLINGIA SQUARROSA Nutt.

ILLECEBRACEAE.

Genus PENTACAENA Bartling.

PENTACAENA RAMOSISSIMA H. & A.

Genus ACHYRONYCHIA Tor. & Gr.

ACHYRONYCHIA COOPERI T. & G.

PORTULACACEAE.

Genus PORTULACA Tournefort.

PORTULACA OLERACEA Linn.

Genus CALANDRINIA H. B. K.

CALANDRINIA BREWERI S. Watson.
CALANDRINIA MARITIMA Nutt.
CALANDRINIA MENZIESII Hook.
C. ELEGANS Spach da 3

Genus CLAYTONIA Linnaeus.

CLAYTONIA CHAMISSONIS Esch.
CLAYTONIA EXIGUA T. & G.
CLAYTONIA PARVIFLORA Dougl.
CLAYTONIA PERFOLIATA Don.

California or Spanish lettuce; cv 4 72, da 3, j
CLAYTONIA SPATHULATA Dougl.

Genus CALYPTRIDIDIUM Nuttall.

CALYPTRIDIDIUM MONANDRUM Nutt.
CALYPTRIDIDIUM PARRYI A. Gray.

Genus LEWISIA Pursh.

LEWISIA BRACHYCALYX Engelm.
LEWISIA REDIVIVA Pursh.
SPRAGUEA UMBELLATA Torr.

Genus FOUQUIERA H. B. K.

FOUQUIERA GIGANTEA Orcutt.

In February, 1899, the writer collected some small plants of the "curio" tree, near the gold mines at Calmalli, Lower California; May 2, 1900, the last two were planted in the ground in San Diego, having been in a box during the interim; the longest branchlets on one of these was over a foot long and bearing green foliage when at last planted in the ground. As there is no natural rainfall for two or three years at a time in the region where it grows, it is naturally well adapted to survive a long continued drouth; it is one of the most curious productions of the plant world, forming a tree often over 30 or 40 feet high, resembling a great carrot with its roots in the air. Dr. Albert Kellogg named it *Idria Colamaria*; later it was recognized as belonging to the genus *Fouquiera*. The mushroom cactus, found in Texas, resembles a silk-covered button, and can be handled without gloves. The delicate, starry net work of snowy-white spines over the green plant gives it a very beautiful appearance.

FOUQUIERA SPLENDENS Engelm.

ELATINACEAE.

Genus ELATINE Linnaeus.

ELATINE AMERICANA Arn.
ELATINE BRACHYSPERMA Gray.
E. CALIFORNICA Gray

Genus BERGIA Linnaeus.

BERGIA TEXANA Seubert.

HYPERICACEAE.

Genus HYPERICUM Linnaeus.

HYPERICUM ANAGALLOIDES C.-S.
HYPERICUM SCOULERI Hook.

MALVACEAE.

Genus MALVA Linnaeus.

M parviflora L. (borealis Wallm.) da 3 cv 4 73
M rotundifolium G. Or s

Genus SIDALCEA A. Gray.

SIDALCEA MALVAEFLORA A. Gray.
SIDALCEA NEOMEXICANA A. Gray.
SIDALCEA PEDATA A. Gray.

S. delphinifolia Ge da 3
humilis Ge da 3
Modiola caroliniana Don. da 3

Genus MALVASTRUM A. Gray.
MALVASTRUM DENSIFLORUM S. W.
MALVASTRUM EXILE A. Gray.
M. fasciculatum Ge da 3
MALVASTRUM FREMONTII Torr.
MALVASTRUM MARRUBIODES D.-H.
MALVASTRUM ROTUNDIFOLIUM A.G.
MALVASTRUM THURBERI A. Gray.

Genus SPHAERALCEA S. N. Hilaire.
SPHAERALCEA AMBIGUA A. Gray.
SPHAERALCEA EMORYI Torr.
SPHAERALCEA FREMONTII Torr.
S. ORCUTTII Rose.

"Perennial (?), 60-90 cm high, with dense, stellate pubescence throughout; leaves thickish, ovate, entire or somewhat 3 lobed, with slightly cordate or truncate base, obtuse; fls small, in close, glomerate clusters, on short or long racemes; calyx 4 mm long, with ovate lobes; petals 8 mm long brick-red; styles clavate, thickened; carpels 12, reniform, strongly reticulated except the minute terminal portion, 2 mm in diameter, 1-seeded. Collected near Carriso [not Canso] creek, c. 1 N 1890, by Or (No. 2210). This species, although referred to *Sphaeralcea*, can hardly be kept out of *Malveopsis*. The carpel is more like that of the latter genus than of any other known species, & yet very similar to those of *S. coulteri* and *S. californica*." - Rose n. h. b. cont 1 289

SPHAERALCEA SULPHUREA S. Wat.

Genus SIDA Linnaeus.

SIDA HEDERACEA A. Gray.

Genus LAVATERA Linnaeus.

Genus HIBISCUS Linnaeus.

HIBISCUS DENUDATUS Benth.
HORSFORDIA NEWBERRYI A. Gray.
HORSFORDIA PALMERI S. Watson.

Genus ABUTILON Tournefort.

ABUTILON AURANTIACUM S. Wats.
"Woody at base, the herbaceous stems 1/2-2' high, pubescent and somewhat villous: leaves densely soft-tomentose, velvety and whitish, round-cordate, acute, the rounded basal lobes overlapping, unequally serrate, 1/2-1 1/2' broad, shorter than the petioles; fl. axillary and solitary, on villous-pubescent pedicels, which are

as long as the petioles and mostly jointed near the base or the lower above the middle: calyx-lobes broadly ovate, acute; corolla bright orange, 6-9" long: calyx and fr. villous-pubescent; carpels 10, abruptly short-beaked, 3-seeded, 4" long, about equalling the calyx. On Todos Santos Bay, Lower California, by C. C. Parry, January, 1883, and at Tia Juana, by C. R. Orcutt, in May of the same year."—S. Watson, Proc. Am. Acad., xx. 357 (Feb. 21, 1885).

ABUTILON CRISPUM Sweet.

ABUTILON LEMMONI S. Watson.

"Perennial, the stout half-woody branching stems 1-2° high, hoary throughout with a very dense short stellate pubescence, its stellate character scarcely perceptible on the calyx: leaves cordate to cordate-lanceolate, acute or slightly acuminate, dentate, the blade usually 1' or less (sometimes 2') long, about equalling or shorter than the slender petioles, slightly greener above: peduncles axillary, solitary, shorter than the leaves, joined near the top: calyx with broadly ovate acute lobes; corolla y. or orange, small (3-4" long): carpels about 9, acute, 4-5" long, finely pubescent, 3-seeded, equalling or a little exceeding the enlarged calyx."—S. Watson, Proc. Am. Acad., xx. 357-8 (Feb. 21, 1885).

STERCULIACEAE.

Genus FREMONTIA Torrey.

F. CALIFORNICA Torrey
Fremontodendron californicum C. v. 474.

AYENIA PUSILLA Linn.

LINACEAE.

Genus LINUM Linnaeus.

LINUM PERENE Linn.

ZYGOPHYLLACEAE.

Genus TRIBULUS Linnaeus.

TRIBULUS GRANDIFLORUS B. & H.
TRIBULUS MAXIMUS Linn.

Genus FAGONIA Linnaeus.

FAGONIA CALIFORNICA Benth.

Genus LARREA Cav.

LARREA MEXICANA Moric.

GERANIACEAE.**Genus GERANIUM Linnaeus.**

GERANIUM CAESPITOSUM James.
GERANIUM CAROLINIANUM Linn.

Genus ERODIUM L'Herit.

ERODIUM CICUTARIUM L'Herit.
ERODIUM MACROPHYLLUM H. & A.
ERODIUM MOSCHATUM L'Herit.
ERODIUM TEXANUM A. Gray.
Limnanthes douglasii R Br da 4

Genus OXALIS Linnaeus.

OXALIS CORNICULATA Linn.

Fls lemon y, veined with crimson, near the center & on back of petals & calyx deeply tinged with carmine. s j

OXALIS OREGANA Nutt.
OXALIS WRIGHTII A. Gray.

RUTACEAE.**Genus PTELEA Linnaeus.**

P. APTERA Parry. Or j

Genus THAMNOSMA Torrey.

THAMNOSMA MONTANUM Torr.

Genus CNEORIDIUM Hooker, f.

CNEORIDIUM DUMOSUM Hook. f.

CELASTRACEAE.**Genus EUONYMUS Tournefort.**

EUONYMUS PARISHII Trelease.

RHAMNACEAE.**Genus ZIZYPHUS Juss.**

ZIZYPHUS PARRYI Torr.

Parry's lotus or jujube is found in gravelly ravines near San Felipe and Rock Springs, in San Diego county, south into Lower California, and east of San Bernardino. The fruit is $\frac{1}{2}$ - $\frac{3}{4}$ inch long, of a dull brownish cadmium yellow color, mealy and dry. It is an unsymmetrical thorny shrub, 4-15 feet high. Said to make excellent jelly like its near relatives, the classic lotus and jujubes, so well known as the source of jellies and confections of various kinds.

Genus RHAMNUS Linnaeus.

RHAMNUS CALIFORNICA Esch.
RHAMNUS CROCEA Nutt.

CONDALIA SPATHULATA A. Gray.**Genus ADOLPHIA Meisner.**

ADOLPHIA CALIFORNICA S. Watson.

Genus CEANOTHUS Linnaeus.

CEANOTHUS CUNEATUS Nutt.

CEANOTHUS DIVARICATUS Nutt. "Deerbrush," a beautiful flowering shrub, with delicate blue flowers.

CEANOTHUS INTEGERRIMUS H. & A.

CEANOTHUS ORCUTTII Parry.

"Branches flexible, dull reddish, with short, hispid pubescence; leaves petiolate, broadly orbicular to oblong-cordate, usually rounded obtuse, 30-40 mm. in length, often as broad, irregularly glandular-serrate, sparingly hispid above, strongly triple-nerved beneath, with prominent hairy ciliate veins; inflorescence axillary, oval scarcely exceeding the leaves, rather compact, with pubescent rachis, and smooth pedicels; fl. apparently white or light blue (seen only in fallen fragments); fr. glandular-hispid, with corrugated resinous epicarp, and conspicuous crests; seeds light brown."—Parry, Proc. Dav. Acad. Natl. Sci. v. 194 (Aug. 31, 1889).

CEANOTHUS RIGIDUS Nutt.

CEANOTHUS SOREDIATUS H. & A.

C spinosa Nutt da 1

C oliganthus Nutt da 4

C megacarpus Nutt da 4

C crassifolius Nutt cv 478, da 4, Cr 58 b

C vestitus Ge.

"Near C. cuneatus, & like it in size & habit: leaves & branchlets ashy-tomentulose, the former opposite, coriaceous, subsessile, 4-6 lines long, round-obovate, obtuse or retuse, somewhat concave above, sharply spinulose-dentate all around: fls white: capsule apparently small, the short salient appendages inserted at about the middle." Ge pitt 2 101 da 4

C verrucosus Nutt Or 53 j; d

C hirsutus Nutt Or 54 d

SAPINDACEAE.**Genus AESCULUS Linnaeus.**

AESCULUS PARRYI A. Gray.

Genus ACER Tournefort.

ACER CIRCINNATUM Pursh.

ACER GLABRUM Torr.

ACER MACROPHYLLUM Pursh.

VITACEAE.

Genus VITIS Tournefort.

VITIS CALIFORNICA Benth. The wild grapevine of California.

ANACARDIACEAE.

Genus RHUS Linnaeus.

RHUS AROMATICA Ait.

RHUS DIVERSILOBA T. & G.

RHUS LAURINA Nutt.

RHUS INTEGRIFOLIA Nuttall. A stout evergreen shrub, at times attaining to the rank of a tree, and a diameter exceeding five feet. The rose colored flowers produced in close panicles one to three inches long, followed by deep brilliant red berries, coated with an icy-looking, wax-like substance that is even more tart than the pleasantly acid berries. These berries make a cooling drink, equal to lemonade (almost indistinguishable in flavor.)

In Southern and Lower California this is often called Mahogany, from the rich and beautiful color of the wood.

RHUS OVATA S. Watson.

"A shrub, 5-10° high, glabrous excepting the finely pubescent branches and the bracts of the inflorescence: leaves coriaceous and shining, ovate, acute or acuminate, entire or rarely sparingly toothed, 2-3' long, on a stout, usually reddish petiole 4-8" long: fl. in dense closely paniced spikes ½' long or less, the rounded bracts and sepals purplish; petals light y.: fr. compressed-ovate, 2-3" long, viscid-pubescent."—S. Watson, Proc. Am. Acad., xx. 358-9 (Feb. 21, 1885).

The Sugar-bush is a handsome evergreen shrub, noted for its glossy foliage and graceful, oval form. The small dark red berries make a cooling drink, pleasantly flavored, resembling lemonade, and when dry are covered with a thin, waxy, white substance, that is very sweet, which the Indians are said to have formerly gathered for sugar.

LEGUMINOSAE.

Genus THERMOPSIS R. Brown.

THERMOPSIS CALIFORNICA S. Wat.

HOFFMANSEGGIA MICROPHYLLA Tr.

HOFFMANSEGGIA STRICTA Benth.

Genus PICKERINGIA Nuttall.

P montana Nutt d northward.

Genus CERCIS Linnaeus.

C occidentalis Torr d

Genus HOSACKIA Douglas.

This genus is included in the old world genus Lotus by Greene, Coville & others, along with Syrmatium; we prefer to retain all under Hosackia, though Syrmatium may well be treated as a distinct genus.

§1—Euhosackia

H. OBLONGIFOLIA Bentham.

H. CRASSIFOLIA Benth.

H. GRANDIFLORA Benth.

H. RIGIDA Bentham.

Var ARGYREA S. Watson.

H MARITIMA Nutt.

H STRIGOSA Nutt.

LOTUS HUMILIS Greene pit 2 140—

"Hosackia maritima Ge pit 1 288 non Nutt. Habit and texture of salsuginosus, but every way smaller, the branches apparently prostrate: leaflets 4 or 5, obovate, obtuse: peduncles shorter than the leaves, 1-3-flowered, naked or bracted: corolla 2" long, reddish, the banner & wings notably shorter than the broad obtuse abruptly inflexed keel: pod nearly terete, less than an inch long, 6-8 seeded: seeds very small, almost spherical, smooth. —Ge pitt 2 140. San Bartolome bay. j

Cv 4 83 mj

LOTUS TOMETELLUS Ge

"Prostrate, much branched, canescently tomentulose: leaflets 5 or 7, cuneate-obovate or oblong, obtuse: peduncles slender, shorter than the leaves, the lowest bractless & 1-fl'ed, the later often bracted & 2-fl'ed: corolla y, 3" long, twice the length of the calyx; pod narrow, compressed, an inch or more in length, 5-7 seeded; seeds from orbicular to oval, compressed, the surface covered with a minute & low tuberculation."—Ge pitt 2 140 j, cv 4 84 mj

§2 Microlotus

H. PURSHIANA Bentham.

H. BRACHYCARPA Benth.

Lotus humistratus Ge Pittonia 2:139.

H SUBPINNATA T-G

§3—Syrmatium

H. GLABRA Torr.

H PROSTRATA Nutt.

H. MICKANTHA Nutt.

H. ARGOPHYLLA Gray.

H. HEERMANNI D. & H.

H. DECUMBENS Benth.

HOSACKIA HAYDONI Orcutt.

"Suffrutescent, 6-12' high or more, the slender stems woody at base, at first slightly spreading, then recurving inward and slightly intertwining, forming a loosely-compact bush, glabrous or nearly so throughout: leaflets 3 or less, oblong, obtuse, 1-2 mm. long: fl. single or more rarely in pairs, short pedunculate, 2 mm long: calyx of equal length, the teeth narrowly subulate, erect, $\frac{1}{4}$ - $\frac{1}{2}$ as long as the tube: pod but slightly incurved, usually twice the length of the persistent calyx, 1-seeded: seed dark olive-green, $2\frac{1}{2}$ mm. long, slightly curved. I take pleasure in dedicating this delicate species to Mr. Marion D. Haydon, in return for his hospitality and for his directing my attention to various forage plants whose valuable qualities had previously been unsuspected. Collected in April, 1889, growing among the rocks in a canyon leading into the Colorado desert, on the old stage line from San Diego to Ft. Yuma. With H. glabra, Torrey, this plant is commonly known as deer weed, but its smaller growth will render it less valuable for cultivation and it is apparently too limited in its distribution to assume importance as a wild forage plant."—Orcutt, West American Scientist, vi, 63, Pl 1889.

SYRMATIMUM DENDROIDEUM Greene.

"Shrubby, erect, 4-7' high, with roughish brown stem an inch or 2 in thickness, & many short ascending branches: branchlets angular, their growing parts more or less minutely appressed-silky, the plant otherwise glabrous: leaflets 3, narrowly oblong, obtuse: umbels numerous, on short peduncles, not bracted: calyx 3-4" long, the triangular-subulate teeth $\frac{1}{4}$ as long as the nearly cylindrical tube: corolla 4-6" long: pod $\frac{3}{4}$ " long, slightly curved, 3-seeded: seeds terete & straight. Hill tops, among other bushes, on the higher parts of Santa Cruz Island. Near S. glabrum, but of entirely different habit, with much larger fls & fruit, on short, rigid, crowded branchlets."—Ge pitt 2 146—referred to Hosackia glabra by Br Ca ac pr II 1 208, who says:—"Some of its forms are exactly the mainland plants."

Genus SOPHORA Linnaeus.

S arizonica wat z

Genus LUPINUS Linnaeus.

LUPINUS AFFINIS Agardh.
LUPINUS ALBICAULIS Dougl.
LUPINUS ARIZONICUS S. Watson.
LUPINUS BREVICAULIS S. Watson.
LUPINUS CHAMISSONIS Esch.
LUPINUS DENSIFLORUS Benth.
LUPINUS DOUGLASII Agardh.
LUPINUS GRACILIS Agardh.
L. burkei Or d
L arboreus Sim da 5
L albifrons Bth da 5
L formosus bridgesii Ge da 5
L cystisoides Agardh da 5, cv 4 82
L nanus Dougl da 5
L umbellatus Ge da 5
LUPINUS HIRSUSSIMUS Benth.
LUPINUS LITTORALIS Dougl.
LUPINUS MICRANTHUS Dougl.
LUPINUS ORCUTTII S. Watson.

"Diffusely much branched from the base, low (2-4' high), pubescent throughout with short stiffish spreading hairs: leaflets 5, oblong-spatulate, 3-6" long, shorter than the petioles: racemes numerous, sessile in the axils, 1-2' long, the scattered p. or reddish fl. 3" long: pod oblong, 4" long, 2-3-seeded: seeds 1" in diameter."—S. Watson, Proc. Am. Acad., xx, 359 (Feb. 21, 1885).
LUPINUS SPARSIFLORUS Benth.
LUPINUS TRUNCATUS Nutt.

Genus TRIFOLIUM Linnaeus.

TRIFOLIUM CILIATUM Nutt.
TRIFOLIUM EXILE Greene.
TRIFOLIUM FUCATUM Lindl.
TRIFOLIUM GRACILENTUM T. & G.
TRIFOLIUM INVOLUCRATUM Willd.
TRIFOLIUM MACRAEI H. & A.
v albopureum H-A da 4
T ciliolatum Bth da 4
T bifidum Ge da 4
T repens L da 4
T roscidium Ge da 4
T stenophyllum Nutt da 4
T depauperatum Desv da 4
T cyathiferum Lindl da 5
TRIFOLIUM MONANTHUM A. Gray.
TRIFOLIUM MICROCEPHALUM Pursh
TRIFOLIUM RUSBYI Greene.

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