BAL.

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after no. 93

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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).

RANUNCULACEAE.

Crowfoot family: herbs or woody vines with colorless usually acrid 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, 1½–3 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. s j 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, ¼–1 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, 2½–3 lines long: seed linear, terete, nearly ⅛ inch long. j–o he 54 da 1

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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 ¼ inch long. b-w Parish 1481 b mts. he 54

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

THALICTRUM SPARSIFLORUM Turcz.

Slender, glabrous, 1-3 ft high, leaves sessile or nearly so; leaflets ⅛-¼ inch long, with obtuse often mucronate lobes: panicle loosely few-flowered; pedicels elongate 1: fr-ing heads nodding, the large div ricate 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 minn 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-j.

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 nervose: 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, terrestial: 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.

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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 Erythea 3:54
Var douglasii Davis Or d—reported by Rose.

Genus ACTAEA Linnaeus.

'Baneberry. Sepals 4–6, nearly equal, petal-like, falling 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.
PÆONIA 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.

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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 Bentham.

PLATYSTEMON CRINITUS Ge.

'Subacaulescent, 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 tomulose pods scarcely longer than the persistent linear stigmas.'—Gopitt 2 13. Kern county

PLATYSTEMON CALIFORNICUS Bnth.

Slender branching annual, 2-12 in high, villous with spreading hairs: leaves 3-4 in. long, sessile or clasping, broadly linear, obtuse: peduncles 3-8 i long, erect: sepals villous: petals deep 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. Called 'Cream-cups' by the children Southern Utah, Arizona, Mendocino county to San Diego, & Baja Calif. Socorro).

PLATYSTEMON DENTICULATUS Gne.

Genus DENDROMECON Bentham.

DENDROMECON FLEXILE Greene.

Greene Bul. Torrey club, xiii. 215.

——Bull. Calif. Acad. Sci 1. 389: Santa Cruz Island, 'on bushy hillsides everywhere: quite plentiful on the northwood 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, flowers, 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 Bentham.

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 Viguier.

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

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and compact: scape-like peduncles numerous, 6 inches high, terete, and rather stout: corolla as in [E. tennifolia], 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: toras 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 rotate-spreading, ¼ 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 ½ 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 Jo 18-7 (No. 1951)—Ge Littonia 1:69 6 Ja 888.

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., 1. 183 (Aug. 29, 1885).

ESCHSCHOLTZIA PENINSULARIS Gn.

"Annual, smooth and glaucous, slender, erect, much more branched that 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 fovose."—Greene, Bull. Cal. Acad. Sci., 1. 68-9 (Mar. 7, 1885); 1. 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 el 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 placentæ: seeds, etc. as in Papaveraceæ.

Genus DICENTRA Borkh.

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

DICENTRA CHRYSANTHA H. & A.

Dielytra chrysantha H. & A. Bot Beech 320. Bikukulla chrysantha Cv 4:60.

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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 ½ inch long, base slightly cordate: capsule oblong-ovate or narrower.

Lake county-j

DICENTRA OCHROLEUCA Engelm
L fl white.

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 PLATYSPERMA 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 Dav.

Genus THELYPODIUM Endl.

T. INTEGRIFOLIUM Endl.
T. LASIOCARPUM Greene.
V. inallenum 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. DICHOTOMUM 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 Dithyræa wislizeni E

Genus CAPSELLA Moench.

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

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Genus BRASSICA Linnaeus.

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

Genus SISYMBRIUM Linnaeus.

SISYMBRIUM CANESCENS Nutt. da 2
SISYMBRIUM incisum E. da 2
V. HARTWEGIANUM Wat.
SISYMBRIUM REFLEXUM Nutt. Or e
SISYMBRIUM ACUTANGULUM D C. da 2
SISYMBRIUM DIFFUSUM G. cv 4 63
SISYMBRIUM OFFICINALE Scop. da 2

Genus ERYSIMUM Linnaeus.

ERYSIMUM ASPERUM DC. da 2 Or d
ERYSIMUM GRANDIFLORUM Nutt.
ERYSIMUM INSULARE Ge.
STANLEYA PINNATIFIDA Nutt. da 2
v. pinnata Britton N Y ac tr 8:62. Cv 4:64

Genus STREPTANTHUS Nuttall.

STREPTANTHUS CAMPESTRIS Wat.
STREPTANTHUS HETEROPHYLLUS Nutt.
STREPTANTHUS LONGIROSTRIS Wat.
LYROCARPA COULTERI H & H.
L. PALMERI Watson
RAPHANUS SATIVUS L. da 2
Raphanistrum L Wild radish, a bad weed.
THYSANOCARPUS CONCHULIFERUS Ge.
V. plasiusculus Robinson.
T. CURVIPES Hook. Or d
V. elegans Robinson.
V. pulchellus Greene
T. PATULUS 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. PARVIFLORA Gray

Genus ISOMERIS Nuttall.

I. ARBOREA Nuttall
V. globosa cv

Genus WISLIZENIA Engelmann.

W. REPACTA 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. praemorsa 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. GALLICA 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

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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. NITENS Nuttall

Genus ARENARIA Linnaeus.

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

SAPONARIA VACCARIA Linn.

Sagina occidentalis Wat 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 CALYPTRIDIUM Nuttall.

CALYPTRIDIUM MONANDRUM Nutt.
CALYPTRIDIUM 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 Columnaria; 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.

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S delphinifolia Ge da 3
v 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 MARRUBIOIDES 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 througeout; 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, e. 1 N 1890, by Or (No. 2210). This species, although referred to Sphæralcea, 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 na hb 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 ½-2° high, pubescent and somewhat villous: leaves densely soft-tomentose, velvety and whitish, round-cordate, acute, the rounded basal lobes overlapping, unequally serrate, ½-1½' broad, shorter than the petioles: fl. axillary and solitary, on villous-pubsecent 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 Cv 4:74.

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.

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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 EUNONYMUS 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 ½-¾ 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. "Deer-brush," 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 hisp'd 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 4
C oliganthus Nutt da 4
C megacarpus Nutt da 4
C crassifolius Nutt cv 4 78, da 4, Cr 58 b
C VESTITUS Gr.

"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." Gr 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.

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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 panicled 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 TOMENTELLUS 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 2:189.

H SUBPINNATA T-G

§3—Syrmatium

H. GLABRA Torr.

H PROSTRATA Nutt.

H. MICRANTHA Nutt.

H. ARGOPHYLLA Gray.

H. HEERMANNI D. & H.

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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, ¼–½ as long as the tube: pod but slightly incurved, usually twice the length of the persistent calyx, 1-seeded: seed dark olive-green, 2½ 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, Jl 1889.

SYRMATIUM 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 ¼ as long as the nearly cylindrical tube: corolla 4–6″ long: pod ¾′ 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."—Pitt. 2 146—referred to Hosackia glabra by Brandegee pr 11 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 HIRSUTISSIMUS 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.

T albopureum H-A da 4

T ciliolatum Bth da 4

T bifidum Ge da 4

T repens L da 4

T roseidium 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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A COCCINEUS Br Zoe 2 72

"? cæspitose densely white-hirsute petioles nearly as long as the leaves; leaflets, 12-15 oval to obovate, obtuse, 6-10 mm long; stipules triangular-lanceolate: peduncles considerably surpassing the leaves; fls numerous shortly pedicellate, clustered near the top; calyx cylindrical slender, the linear nearly equal teeth ⅓ the length of the tube: corolla spreading, bright red, 35-40 mm long, double the length of the calyx; banner lanceolate: the oblong keel equalling it in length, very shallow & little curved not hiding the stamens, which are free for nearly ¼ their length; keel & banner barely emarginate: pods an inch long resembling A. Purshii, but not mature & exact shape therefore not determinable." Or J e mj

A purshii ? coccineus Py W 7 10

A grandiflorus Wat Am ac pr 18 370 non Pajl.

A pycnostachyus G da 5

A nuttallianus DC Or d j

A circumdatus Ge

A gambellianus Sheldon Or 63 j d

A didymocarpus da 5 &c non t -A

A antiselli G da 5

A tener G da 5

Genus OLNEYA A. Gray.

OLNEYA TESOTA A. Gray.

Iron wood, palo hierro, una de gato; a beautiful tree, characteristic of the desert regions; the wood is of great density, rich, dark color, taking an extremely fine polish, when dry an axe makes slight impression. j e z

Genus VICIA Tournefort.

VICIA EXIGUA Nutt.

Vicia americana Muhl da 5

Vicia linearis Ge da 5

Vicia sativa L. da 5

VICIA THURBERI Watson Am ac pr 25 129

"*a*, about 1° high, the young leaves, etc., pubescent, becoming glabrous: leaflets 4-12, narrowly linear, acute, 3-7 lines long; stipules small, subulate-lanceolate or linear, not at all sagittate, entire: peduncles short (3-6" long), bearing 1 or rarely 2 small w or purplish fls: calyx nearly glabrous, the teeth rather short-acuminate: pods glabrous, sessile, oblong, obliquely acute at each end, about 9" long by 2½ -3 broad, 5-7 ovuled. From southern Utah & Colo to z & n"—Watson.

VICIA HASSEI S. Watson.

"Often tall: leaflets 3-6 pairs, linear to narrowly oblong, acute or obtuse and apiculate, or more frequently truncate and emarginate or toothed at the apex; stipules semi-sagittate with the rather broad lower lobe usually 2-4-toothed: peduncles 6-15" long, 1-fl. or sometimes remotely 2-fl.: pod more attenuate at each end and short-stipitate, 5-9-ovuled, 9-16" long. On open grassy hills about Los Angeles, California, growing with V. exigua: Dr. H. E. Hasse. Also collected at Santa Cruz by Dr. C. L. Anderson, at Benicia by Dr. Bigelow (V. exigua var (?) Californica Torr. in Pac. Railroad Rep. 4.76), and on Guadelupe Island by Dr. Palmer."—S. Watson. Proc. Am. Acad., xxv. 129-130 (Sept. 25, 1890).

Genus ACACIA Willd.

ACACIA GREGGII A. Gray.

Acacia Farnesiana Willd.—Dr. Harvard classes this among the medicinal plants of Texas, probably because "a decoction of the pod contains tannin."

Genus CASSIA Linnaeus.

CASSIA COVESII A. Gray.

Genus LATHYRUS Linnaeus.

LATHYRUS WATSONI White he 75

"Lathyrus californicus. Stem stout, tall & more or less winged: stipules semi-sagittate, dilated & often coarsely toothed, or the upper narrower; leaflets 3-7 pairs, ovate oblong to linear-lanceolate, ½-2" long or more, acute or acuminate softly pubescent on both sides, as also the rachis: peduncles stout, nearly equaling the leaves, many fl'ed: calyx teeth short (the lower 2" long or less); petals 7-9" long, apparently y'ish or pinkish: pod linear, 2' long by 3" broad, attenuate at base to a stipe."—A at Am ac pr 20 363, he 73, C r 78 d

L venosus Muhl of former lists.

LATHYRUS SPLENDENS Kellogg.

Pride of California, distinguished for its profusion of large brilliant rose red to crimson fls borne in clusters of 10 or more the 2d year from seed—the most magnificent of the native climbing plants of West America. Or d, 76 j Also of promise as a forage plant; half-hardy.

Genus PARKINSONIA Linnaeus.

PARKINSONIA TORREYANA S. Wat.

Parkinsonia Aculeata L.—Valued by the Mexican Indians as a febrifuge and suborific, and also as a remedy in epilepsy (fide Schott). See Proc. U. S. Nat. Mus. VIII. 501.

Genus PROSOPIS Linnaeus.

PROSOPIS JULIFLORA D. C.

The mesquite is the most abundant desert tree, rarely over 20 feet high,

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often forming extensive groves miles in extent. The mesa back of San Diego, near the normal school, is its western limit, where it is only a small shrub, but it extends east to Texas and south to the Argentine republic.

PROSOPIS PUBESCENS Benth.

The screw-bean is a characteristic desert tree, slender, 15-20 feet high; not rare from Riverside county southward into Lower California, abundant in Palm valley, not far from San Diego.

ROSACEAE.

Suborder AMYGDALEÆ

Genus PRUNUS Tournefort.

PRUNUS DEMISSA Walp.

PRUNUS ILICIFOLIA Walp. "Islay;" evergreen, or holly-leaved cherry; attractive for the beauty of its shining dark green foliage: fruit dull red, of a delicate flavor, with a kernel "almost equal in flavor to the almond." A desirable ornamental shrub and useful as a hedge plant.

The holly-leaf cherry is a beautiful dark evergreen shrub, yielding a pleasant edible fruit. Useful for hedges or ornamental planting.

PRUNUS FASCICULATA A. Gray.

PRUNUS FREMONTI S. Watson.

Suborder POMEÆ

Genus AMELANCHIER Medicus.

A. ALNIFOLIA Nuttall

Shrub 3–8 feet high, glabrous throughout or often more or less woolly-pubescent; leaves broadly ovate or rounded, occasionally oblong-ovate, obtuse at both ends or acute. often somewhar cordate at base, serrate usually only toward the summit ½–1½ inches long: racemes short: calyx usually tomentose within: peta's 3–12 lines long, narrowly oblong: fr mostly ¼–⅓ inch in diameter.

Cv 4 97, British Columbia–j

Genus HETEROMELES J. Roemer.

HETEROMELES ARBUTIFOLIA Rœm.

The California toyon, or tollon. is a handsome evergreen shrub found throughout the state, better known as the Christmas berry, or California holly. The scarlet berries are borne in the greatest profusion, and, ripening at Christmas time, are extensively used in decorating. The berries are said to have formed an important article of food with the Indians, and school children frequently eat them: but, so far as known, they are not otherwise utilized. They are not unpleasant to the palate, having a healthy, bitterish bytaste. The toyon is more useful as a hedge plant, doubtless, than for its fruit. It ranks high as an ornament l evergreen, the dark foliage forming a beautiful setting for the panicles of white flowers. It appears in many horticultural catalogues under the name of Photinia arbutifolia.

Suborder ROSACEÆ

Genus RUBUS Linnaeus.

RUBUS NUTKANUS. Mocino. Salmonberry, the West American Mayberry; a singularly beautiful fruit, varying in color from a clear golden yellow to an orange red; delicious when served with sugar and cream.

RUBUS URSINUS C. & S.

R vitifolius C-S Linnæa 2 10. cv 4 92

Genus ALCHEMILLA Tournefort.

ALCHEMILLA ARVENSIS Scop.

Genus SPIRAEA Linnaeus.

S discolor Pursh da 5

Holodiscus discolor cv 4 91

Genus ADENOSTOMA Hook & Arn.

ADENOSTOMA FASCICULATUM H.-G.
ADENTOSTOMA SPARSIFOLIUM Torr.

Genus ROSA Tournefort.

ROSA CALIFORNICA C. & S.
ROSA MINUTIFOLIA Engelm.

Genus IVESIA Torrey & Gray.

IVESIA BAILEYI S. Watson.

Genus FRAGARIA Tournefort.

FRAGARIA CALIFORNICA C. & S.

Genus CERCOCARPUS H. B. K.

CERCOCARPUS PARVIFOLIUS Nutt.

Genus PURSHIA De Candolle.

PURSHIA TRIDENTATA DC

Kunzia tridentata Spreng Anleit ed 2, 2 869.
Tigarea tridentata Pursh fl 1 333 (1814).

Genus CHAMAEBATIA Bentham.

CHAMAEBATIA FOLIOLOSA Benth.

Genus CANOTIA Torrey.

CANOTIA HOLACANTHA Torr.

Genus POTENTILLA Linnaeus.

POTENTILLA CALIFORNICA Greene.

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POTENTILLA PUBERULA Greene.
POTENTILLA SAXOSA Lemmon.
POTENTILLA CLEVELANDI Greene.

"Size and habit of [puberula], but more slender, more densely puberulent and not at all viscid: leaflets smaller, cuneate- to round-obovate, crenate-toothed: calyx half as large: filaments only lanceolate-dilated; anthers less than $\frac{1}{2}$" long & nearly as broad: petals apparently pale y: pistils rather few: akenes hardly $\frac{1}{2}$" long, broadly ovate with a slightly incurved tip, not compressed. Laguna mountains, back of San Diego, Jl 1885, D Cleveland: also collected in n j by Or 905 "—Ge Pitt 1:102 (8 N 1887).

SAXIFRAGACEAE.

Genus SAXIFRAGA Linnaeus.

SAXIFRAGA PARRYI Torr.
SAXIFRAGA REFLEXA Hook.

Genus TELLIMA R. Brown.

TELLIMA CYMBALARIA Walp.

Genus HEUCHERA Linnaeus.

HEUCHERA RUBESCENS Torr.

Genus RIBES Linnaeus.

RIBES MENZIESII Pursh.
RIBES SANGUINEUM Pursh.
RIBES SPECIOSUM Pursh.
RIBES VIBURNIFOLIUM A. Gray.
RIBES VISCOSISSIMUM Pursh.

CRASSULACEAE.

Genus TILLAEA Linnaeus.

TILLÆA ANGUSTIFOLIA Nuttall.

'Branching from the base, rooting; leaves linear-lanceolate, acute, connate, $1\frac{1}{2}$" long; flowers axillary, solitary, on short pedicels; sepals 4, ovate, not half the length of the oblong white petals; carpels broad, obtuse, 8-seeded; style none, stigma minute; seeds nearly horizontal, linear-oblong, minutely tuberculate in longitudinal rows. Stems 1-2' high.'

TILLAEA MINIMA Miers.

Genus SEDUM Linnaeus.

SEDUM SPATHULIFOLIUM Hook.
SEDUM VARIEGATUM S. Watson.

ROCHEA FALCATA DC. See Crassula falcata.

COTYLEDON ATTENUATA Watson.

A dwarfish species resembling edulis, with yellowish flowers, discovered in 1886, and introduced by C. R. Orcutt; useful for borders.

C. Californ ica—the true name of this pretty sp. proves to be Sempervivum calcareum.

C. EDULIS Brewer (Sedum edule).

Ladies' Finger Tips so called from the round, slender leaves, said to be eaten for salad by the Indians: much larger than attenuata.

C LANCEOLATA Bentham & Hooker.

Does well under good treatment, producing a spike of red or yellow flowers. The lanceolate flat leaves sometimes of a dull crimson color, but commonly green; 6 inches across. da 6

C. LAXA Bentham & Hook r

Leaves curiously twisted; flowers red or yellowish—much like lanceolata otherwise.

C. LINEARIS Greene Lower California.

Another plant first introduced into cultivation by C. R. Orcutt, and similar to lanceolata.

C. ORBICULATA Linnæus. South Africa

An old time garden favorite, attaining a height of several feet and tropical in aspect; produces large pendulous orange colored flowers of rare beauty and permanence; of rapid growth

COTYLEDON ORCUTTII Greene.

Near attenuata, but different inflorescence, flowers tinged with pink; excellent border.

C. PULVERULENTA Baker.

A plant of great beauty when at its best. with broad leaves covered with a thick white powder, elegant in form. da 6

C. SECUNDA Baker. Mexico.

Very beautiful symmetrical plant—used extensively in parks, rockeries, borders, &c

COTYLEDON VISCIDA S. Watson.

Handsome apple green foliage and sprays of rose purple flowers; a great novelty.

CRASSULA FALCATA Wendl. A South African plant, grayish in color, producing gorgeous panicles of brilliant red flowers.

LYTHRACEÆ

AMMANIA COCCINEA R.
A. LATIFOLIA L.
LYTHRUM ALBUM HBK.
L. alatum Pursh & v. linariifolium G.
L. californicum Watson.
LYTHRUM HYSSOPIFOLIA L.

ONAGRACEÆ

Epilobium angustifolium . cv 4 102
E californicum Hauss da 6
E holosericeum Trel. da 6 cv 4 102
E coloratum Muhl.
E adenocaulon v occ dentale Trel da 6
Ludwigia palustris Ell. da 6
Zauschneria californica Presl. da 6, cv 4 103

Genus GODETIA Spach.

GODETIA EPILOBIOIDES S. Watson.
GODETIA TENELLA S. Watson.
G purpurea Wat, da 6.
G quadravulnera Spach. da 6
G bottæ Spach da 6 cv 4 106

Genus BOISDUVALIA Spach.

BOISDUVALIA DENSIFLORA S. Wat.
B. CLEISTOGAMA Cur. da 6
Jussiæa repens L. da 6
Gayophytum diffusum T-G da 6
Clarkia elegans Doug. da 6, cv 4 103
C rhomboidea Dougl. " "
OENOTHERA BIENNIS Linn.
v hirsutissima Ge da 6

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OENOTHERA BISTORTA Nutt.
v veitchiana Hook. da 6
OENOTHERA BREVIPES A. Gray.
OE leptocarpa Ge da 6
OE californica Wat da 6
OE virescens Hook. da 6
OE micrantha Horn. da 6
OE strigulosa T-G da 6
OE decorticans Ge da 6
OENOTHERA CARDIOPHYLLA Torr.
OENOTHERA GAURAEFLORA T. & G.
OENOTHERA REFRACTA S. Watson.

LOASACEAE.

Genus PETALONYX A. Gray.

PETALONYX LINEARIS Greene.
PETALONYX THURBERI A. Gray.

Genus MENTZELIA Linnaeus.

MENTZELIA ALBICAULIS Dougl.
MENTZELIA INVOLUCRATA S. Wat.
MENTZELIA LAEVICAULIS T. & G.
MENTZELIA MICRANTHA T. & G.
MENTZELIA TRICUSPIS A. Gray.
M gracilenta T-G da 6
M dispersa Wat cv 4 108. da 6

Genus EUCNIDE Zuccarini.

EUCNIDE CORDATA Kellogg.
EUCNIDE URENS Parry.

CUCURBITACEAE.

Genus CUCURBITA Linnaeus.

CUCURBITA PERENNIS A. Gray.
See Cucurbita foetidissima.
CUCURBITA PALMATA S. Watson.

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., 1:239).

C perennis G. da 6, cv 4 109

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."

M macrocarpa Ge ca ac b 1 185 under Echinocystis; Pitt 2 129; cv 4 109.
Micrampelis fabacea Ge da 6
M LEPTOCARPA Ge pitt 2 282 (1892).

"Habit of M fabacea, but more slender, with smaller & more deeply lobed foliage: leaves very thin, rather sparsely & delicately scabrous: fls w, apparently open-campanulate rather than rotate; the staminate about 8-12 in a simple raceme; pistillate ones twice as large (¾' broad), with oblong prickly ovary ½' long or more: mature fr rather narrowly oblong, acute, about 5' long, less than 2' thick, strongly armed with flattened prickles ¼-1' long: seed-cavities 2, each with perhaps 5 or 6 seeds, but these unknown. h—W & Wright"

Genus MEGARRHIZA Torrey.

M californica Torrey - see Micrampelis fab.
ECHINOCYSTIS FABACEA Naudin.
See Micrampelis fabacea.
ECHINOCYSTIS GUADALUPENSIS Cn.
Micrampelis guadalupensis fide Ge.

DATISCACEAE.

Genus DATISCA Linnaeus.

DATISCA GLOMERATA B. & H.
"The root is a bitter tonic known as Durango root" (Mrs. Bingham).

CACTACEAE.

Many people who have been acquainted only with the prickly pear and the cholla cactus of the plains—perhaps to the detriment of their epidermis, will be surprised to learn that over one thousand valid species exist, to which more than three thousand names have been applied by botanists and horticulturists.

Genus ANHALONIUM Lemaire.

ANHALONIUM ENGELMANNI Lem Cact 42 (1868). Is A. fissuratum Engelmann.

A. FISSURATUM Engelmann.
Living Rock, found in Texas and Mexico. "Upper and exposed part of tubercle triangular in outline, convex, carinate and almost smooth below, convex and variously fissured and thereby verrucose above, sharp and crenate on the edges."—Engelmann.

A. FURFURACEUM—Mammillaria furfuracea Watson—near prismaticum.

A. LEWINII—a form of Williamsii

A. SULCATUM Salm Dyck, of a very distinct aspect, flattened top, small growth.

A. WILLIAMSII—more properly an Echinocactus, "mescal buttons"—see Lophophora.

Genus ARIOCARPUS Scheidw.

An older name than Anhalonium, recently revived by Schumann and other botanists, but we prefer to retain the name by which they are and have been universally known over 50 yrs.

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Genus ASTROPHYTUM Lemaire.

ASTROPHYTUM MYRIOSTIGMA Lem.

'Bishop's hood,' a beautiful thing & odd. m

CACTUS DENSISPINUS Coulter.

Mammillaria densispina, M. fuscata. m

Genus CEREUS Haworth.

CEREUS ALAMOSENSIS Coulter.

?C. Sonorae Rungs; sina borbonu; 2-8 ft. high, 2-10 branches from the base with joints 1-4 ft. long, flexuous or decumbent, often forming arches and rooting at the joints and thus widely spreading, often covering 10 feet; ribs about 7, slightly tuberculated, flower red. Mexico.

CEREUS BERLANDIERI Engelm.

A small decumbent species bearing large purple sweet-scented flowers.

CEREUS CAESPITOSUS Engelm. The Lace Cactus, a beautiful little species, found in Texas and Mexico, with large magenta colored flowers, blooming when only 2 inches high, the flowers 2 inches across, and lasting 2 days. The plant is enveloped with fine white spines, and can be "handled without gloves."

CEREUS CHLORANTHUS Engelm.

A form of viridiflorus, with beautiful red and white spines and greenish flowers.

CEREUS COCHAL Orcutt.

CEREUS COLUBRINUS Otto.

Native of Cuba; night blooming; sweet scented white flowers 6 inches across,

C. compressus (triangularis v.).

CEREUS DASYACANTHUS Engelm.

Texas; densely covered with delicately colored spines & bearing showy orange yellow flowers.

C. EHRENBERGII Pfeiffer. Mexico.

Resembles Berlandieri, but larger & more erect

CEREUS EMORYI Engelmann. This is one of the best-known of California cacti, the slender, thickly-set yellowish spines giving it a peculiarly beautiful appearance. The spines on the young joints are shorter, soft and flexuous; the flowers are yellowish, followed by a small edible fruit.

CEREUS ENGELMANNI Parry. Heads several (sometimes, though rarely, a hundred,) 4 to 12 inches high, cylindric or ovate, with 11 to 13 ribs bearing bunches of about 13 pale radiating spines, and about 4 darker (yellow, brown or black), stout and angular, straight or curved central spines, 1 to 3 inches long. Flowers very numerous, bright magenta, often 4 inches across, followed by delicious fruits, with much the same flavor of a strawberry, red, pulpy, filled with black seeds. Utah, California, Baja California and Arizona.

V. albispinus: ivory-white spines,

V. chrysocentrus: canary yellow spines.

V. variegatus: black & white spines,

CEREUS ENNEACANTHUS Engelm.

CEREUS ERUCA Brandegee.

Chilenoid;

CEREUS FENDLERI Engelmann.

Quite irregular cæspitose plants, 3-4 inches in diameter, about 6 inches high, rarely more than 12 heads in a cluster, distinguished by the one usually black central spine which often curves upward, magenta flowers, variable.

CEREUS FLAGELLIFORMIS Haworth. The well-known whip-cord or Rat's-tail Cactus, so useful in hanging baskets or for grafting on columnar species; the bright rose-colored flowers are extremely attractive.

CEREUS FOSSULATUS Hort. Mexico.

CEREUS GEMMATUS Zucc. Mexico.

CEREUS GIGANTEUS Engelm.

CEREUS GRANDIFLORUS Haworth. "The night-flowering cereus has gained a fame which entitles it to prominent notice, and plants might well be included in every garden, for its flowering is a source of interest to the least observant persons."—Castle.

CEREUS GREGGII Engelm.

Gregg's night blooming cactus occurs in the arid regions of Southern Arizona, New Mexico, Texas, Chihuahua and Sonora, and is notable for its large tuberous root and slender inconspicuous stems, 1 to 3 or 4 feet high, a half inch in diameter. Flower 6 inches long, 2 inches in diameter, with pale, purple petals, followed by the smooth, oval, acuminate, scarlet fruit, succulent, crowned with the remains of the corolla, and suported by a distinct stipe of a bright crimson.

CEREUS GUMMOSUS Engelm.

The pitahaya agria, or cord-wood cactus, of Lower California, is noted for its large, bright, scarlet fruit, possessing a delicious flavor, pleasantly acid, like a strawberry, the pulp the color of a ripe watermelon, with the small black seeds scattered throughout. The flowers are 4 to 5 inches long, purple, and quite handsome. The stems are 4 to 10 feet high, 3 to 5 inches in diameter, armed with stout angular, blackish spines.

CEREUS HOPPENSTEDTI.

CEREUS MAC DONALDIAE Hook. A handsome slender-stemmed species, of Honduras, Central America, and one of the finest of the night-flowering cacti. Flowers 12 to 14 inches across, with creamy white lanceolate petals, with an outer fringe of narrow yellow sepals; with a fragrance like vanilla.

We no longer consider this distinct from Cer. grandiflorus.

CEREUS MARITIMUS M. E. Jones.

CEREUS MOJAVENSIS Engelm.

Occurs in almost inaccessible mountain canyons in the Mohave desert where its blood-red blossoms have oft enchanted the solitary prospector; the clusters of short heads form a very symmetrical plant like a cushion of green satin filled with needles—a form of polyacanthus

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V. Zuniensis from Arizona—a finer form.

CEREUS MULTIPLEX Hort. (§Echinopsis).

Beautiful pink fls.

CEREUS NAPOLEONIS R. Graham.

Near triangularis—probably a form only?

CEREUS NYCTICALUS Link.

Yellowish fls., night-blooming, distinguished from grandiflorus by its 4-angled stems

CEREUS PACIFICUS (Engelmann) Coulter.

Form of polyacanthus, cæspitose, crimson fls. Originally described as a form of phœniceus.

CEREUS P. CTEN-ABORIGINUM Engelm.

Erect, about 20 feet high, branching, bearing reddish fls. & curious spiny fruit resembling giant chestnut burs, from which the Indians made combs—hence its name; 'Hecho'.

CEREUS PECTINATUS Engelm.

§Echinocereus. Fragrant magenta fls.

CEREUS PENTALOPHUS De Candolle.

Related to Berlandieri.

CEREUS PERUVIANUS MONSTROSUS Hort.

Grotesque in the extreme.

CEREUS POLYACANTHUS Engelm.

Hardy, crimson fls., of easy growth.

CEREUS PRINGLEI S. Watson.

The Cardon is the giant cactus of Lower California and Sonora, where it forms forests, attaining a height of 20 to 35 feet. The ribs are usually 13, and it differs from the giant cactus of Arizona (Cereus giganteus) in that the spine bearing areolae on the ribs are connected by wooly grooves. The trunk is often 3 to 4 feet in diameter; the older portions of the branches usually quite thornless. The dead wood is used for fuel, but otherwise this mammoth production of the desert seems to be without use.

OLD MAN CACTUS.

CEREUS SENILIS Salm-Dyck.

§Pilocereus. The old man cactus attracts universal attention, receiving its popular & very appropriate name from the long, flexible, ivory white spines, giving the plant a most grotesque appearance, like the top of an old man's head in miniature. In Mexico it attains a height of 20 to 50 ft., 9 or 10 inches in diameter, its fluted character giving it somewhat the appearance of an architectural column. When young the stems are succulent, but with age the tissues become filled with 60 to 80 per cent. of oxalate of lime in small sand like grains.

CEREUS SPECIOSISSIMUS DC.

Mexico; bears in profusion large crimson fls often 8 inches across

C. SPLENDENS Hort.

Our plants under this name are indistinguishable from colubrinus, but have not yet fld.

CEREUS STRAMINEUS Engelm.

CEREUS THURBERI Engelm.

The Pitahaya Dulce is an abundant species in Sonora and portions of Lower California, also said to occur in southern Arizona. It grows from 5 to 20 feet high, many stems 6 to 10 inches in diameter from the same base, bearing greenish or reddish white white flowers followed by large luscious fruit, rather too sweet it is said for northern palates. It was named in honor of George Thurber, a widely renowned botanist.

CEREUS PROCUMBENS Engelmann.

Near Berlandieri, spreading prostrate stems with fls. 3 inches across, rose purple.

CEREUS PUGIONIFERUS Lem.

None in stock, Mexico; form of geometrizans

CEREUS REGELII Hort

Form of grandiflorus named in honor of Dr. R.

CEREUS RIGIDISSIMUS Engelm.

Echinocereus candicans of catalogs, famous as the Rainbow cactus, considered by Engelmann as a form of pectinatus

CEREUS SARGENTIANUS Orcutt.

§Pilocereus. Form of Schottii. 18 inch cuttings with beautiful flesh-colored hair.

CEREUS SCHOTTII Engelm.

§Pilocereus Sonora.

V. AUSTRALIS Brandegee, new.

CEREUS TRIANGULARIS Miller. The Strawberry Pear bears most beautiful flowers scarcely less handsome than C. grandiflorus, measuring 12 to 14 inches across; the bright scarlet fruit, the size of a goose's egg, has a flavor compared to strawberries; the plant is easily distinguished by its triangular stems, and makes a most luxuriant growth, climbing readily to the top of its support.

CEREUS TUBEROSUS.'

The small tuberous roots produce slender stems 1–4 feet high, covered with a delicate lacework of interlacing white spines. Flowers terminal, over 2 inches across, pale rose purple. A liniment can be made by steeping the tubers in alcohol, "said to be a 'sure cure' for rheumatism." C. Poselgerianus Coulter & probably C. Poselgeri Hort. are other names of this plant.

CEREUS VARIABILIS Pfeiffer.

Engelmann's variabilis is the plant commonly sold under this name—the older stems triangular, armed with sharp straight spines, & a night bloomer, true name is C. princeps Hort. True Pfeiffer's variabilis I have yet to see.

CEREUS VIRENS DC.

Pilocereus Houlletianum & tilophorus, &c.

CEREUS VIRIDIFLORUS Engelm.

§Echinocereus. "Lovely purple & white spines."

Genus ECHINOCACTUS Link & Otto.

E. ACANTHODES Lem.

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This old name has recently been revived by Dr. Weber of Paris for the plant now familiar to us under the name of E. cylindraceus

E ARRIGENS Link.

Wavy ribs, straight leaf-like central spines, with dark lilac flowers. None on hand.

ECHINOCACTUS BICOLOR Gal.

Fls. 2-3 inches long, bright rose purple; plan 4-8 inches high, with spines of rainbow tints.

ECHINOCACTUS BREVIHAMATUS E.

Body bright green, spines white & brown, the lower spines strongly hooked, profuse flowering

ECHINOCACTUS CALIFORNICUS Mon.

E. viridescens has been cultivated in Europe it is said, but Dr. Weber has recently published a description of a plant from Lower California & claims it to be identical with Monville's plant.

E. CAPRICORNIS Dietr. Mexico

Few deeply cut ribs spotted with white dots & entirely spineless but for a crown or tuft of interlacing spines; fls. satiny yellow with a deep red center; called an Astrophytum by some.

ECHINOCACTUS CHRYSACANTHUS O.

Originally sent out as a variety of Emoryi, it is globose to cylindrical, with about 18 ribs & numerous annulated central spines 2 inches long, & 4 to many slender white radial spines; satiny yellow to crimson fls.

ECHINOCACTUS COPTONOGONUS Lm.

A small growing bluish plant, with few broad upturned light colored spines lying close to the ribs, fls. striped with purple.

ECHINOCACTUS CORNIGERUS DC.

Lizard cactus—broad sharply hooked reddish spines ¼ inch across.

Var. FLAVISPINA: yellowish spined; both var have rose purple fls. & are not very distinct.

ECHINOCACTUS CRISPATUS DC.

Mexico; 30-40 compressed ribs; fls. striped.

ECHINOCACTUS CYLINDRACEUS E.

Handsome, sometimes 10 feet high, fls. & spines yellow, but in young plants the color of the spines is variable—hence the following:—

Var. ALBISPINUS—with ivory white spines;

Var. BICOLOR—red & yellow spines;

Var. RUBRISPINUS—with red spines.

ECHINOCACTUS EMORYI Engelm.

ECHINOCACTUS ERECTOCENTRUS C.

"Mamillaria Childsi A grand new Cactus from the mountains of Arizona. It is quite hardy, being found at a latitude where snow and ice is plentiful. One of the loveliest plants known to cultivation. Grows short and globular, with numerous spines which have a peculiar and beautiful luminous blue color, making it at all times a lovely object and a fine companion to the Rainbow Cactus. Its flowers are freely borne large, white, tinted pink and with a deep pink bar through the center. 30c. each; 2 for 50c." John Lewis Childs, 1894. with figure.

Near E. intertextus—a well marked variety.

E. COULTERI Orcutt, Review Cactaceae, i. 56

Globose, 6 inches or more in diameter, with about 18 tuberculated narrow ribs closely set with clusters of stout ashy gray spines, 4 central, annulated, the longest 1¼ inches long, and hooked; 2 slender spines above with about 14 divergent radials; flower an inch across, about 32 rose purple petals in 2 series, 9 greenish stigmats, style tinged with red, filaments red at top and yellow at base, anthers orange yellow. Near Lagoon head, Baja California, named for Lyman M. Ford, of San Diego, who has taken a great interest in these plants. Apparently the same plant was distributed in 1894 from near San Quintin bay as a form of E peninsulae

ECHINOCACTUS HORIZONTHALONIUS Lem

Glaucous, globular, 8 ribbed, with clusters of rigid gray spines; fls rose purple

ECHINOCACTUS INTERTEXTUS Em.

Var. DASYACANTHUS—egg shaped

ECHINOCACTUS JOHNSONII Engelm.

Johnson's hedghog cactus was named for J. E. Johnson, an early Mormon naturalist, who discovered it about S. George in southern Utah. It is a rare and handsome plant, 4 to 7 inches high, oval, 3 to 5 inches in diameter, densely covered with stout reddish-gray spines—turning deep red when wet. The flower is about 2¼ inches broad, of a rose purple normally, but some plants which opened their flowers while packed in a box away from the light leave light yellowish-green petals marked with deep maroon at base. Anthers pale primrose yellow; filaments ½ inch lond, the inner ones white, outer ones reddish. Growing in out-of-the-way desert places in Nevada, Arizona, and California, it costs much trouble to secure this beautiful species.

ECHINOCACTUS LECONTEI Engelm.

Typical form not in hand; the Californian var. (perhaps a form of cylindraceus) is the plant commonly sold under this name.

ECHINOCACTUS LIMITUS Engelm.

Form only of viridescens—not distinct.

ECHINOCACTUS LONGIHAMATUS Gal.

Heavily notched dark green ribs with very long hooked central spines; fls reddish.

E. LOPHOTHELE Salm. Mexico.

Ribs broken into irregular tubercles bearing long central spines.

ECHINOCACTUS McDOWELLII Rebut.

A very beautiful Mammillaria-like species of Mexico, thickly set with long bright straw colored spines which completely hide the plant.

ECHINOCACTUS MULTICOSTATUS.

A remarkable species, small, with 90-120 narrow ribs None on hand.

ECHINOCACTUS ORCUTTII Engelm.

ECHINOCACTUS PAPYRACANTHUS E.

No living plant known in cultivation.

ECHINOCACTUS PENINSULAE Eng.

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Globose to cylindrical, rarely over 18 inches in diameter but sometimes 8 feet high, with 12-21 compressed tuberculated ribs; spines dull red, 7 stout centrals and 11 radials—the stoutest not rarely 4-6 inches long and ¼ inch broad, hooked.

ECHINOCACTUS POLYANCISTRUS EB

The Hermit cactus, so-called because it is rare to find more than one in a place, is a strikingly beautiful cactus which I have sen only on the Mohave desert in its wild state. The largest plant I have seen is 18 inches high and 4 inches in diameter; each tubercle bears three to seven hooked, round, brownish-pink spines, with which are interspersed fewer ivory white spines, not hooked, very pleasing in contrast. Flower over 2 inches long, of equal width, petals bright magenta, green at base, filaments and stigmata green, anthers white. They were once catalogued at $15 apiece, and are still rare in collections, unfortunately seldom long surviving transplanting from their native sands. Too much moisture soon proves fatal.

ECHINOCACTUS POLYCEPHALUS E.

Mohave desert, a rare & handsome species occurring usually in great clusters: spines p.

ECHINOCACTUS SCHEERII Sm-Dyk.

Texas, a pretty species resembling brevihamatus.

ECHINOCACTUS SETISPINUS Engelm.

Large yellow fls., coral red fruit.

ECHINOCACTUS SILERI Engelm.

ECHINOCACTUS SIMPSONI Engelm.

ECHINOCACTUS SINUATUS Dietr.

"E. subglobosus, apice rotundatus; costis 18 crassis angulato-sinuatis, sinubus profundis acutis, areolis innatis demum subnudis, aculeis subduodenis, marginalibus 10-11 inæqualibus setaceis rectis, junioribus hyalinis erubescentibus, adultioribus albo-griseis opacis, centrali unico longiore ensiformi apice hamato. Habitat in Texas '—Dietr. AGZ 1851. 345.

ECHINOCACTUS TEXENSIS Hoepf. Depressed, 13 to 27 acute ribs; spines stout, annulated, 6 to 7 radical ones and a stronger central spine; flowers rose colored; fruit subglobose, pulpy, red, covered with spiny bristles and soft wool, crowned by the wooly remains of the flower.

ECHINOCACTUS TROLLIETI Rebut.

Identical with E. unguispinus?

ECHINOCACTUS UNCINATUS Gal.

Var. WRIGHTII Engelmann. Texas, rare,

ECHINOCACTUS UNGUISPINUS Engm

Rare. Mexico.

ECHINOCACTUS VIRIDESCENS Nutt.

The Turk's Head cactus, that occurs at San Diego, California; very variable, but usually depressed, less than a foot in diameter, with strong, annulated reddish spines; 13 to 21 ribs; fruit greenish or sometimes tinged with magenta, very sour, enclosing numerous black seeds.

ECHINOCACTUS WHIPPLEI E. & B.

Whipple's hedgehog cactus is only 2 to 5 inches high, ovate-globose, characterized by seven compressed white radial spines and four broad hooked central spines. Flower 1½ inch long, petals and filaments pale straw color, the style and seven stigmata green.

E. WILLIAMSII Lem ex Salm.

"(Lem Cat. Cels. 1845, sine descriptione). C. humili inferne ramoso superne tuberculato cinerascente viridi, vertice impresso, tuberculis latis obsoletissime polyedris is costas subconfluentibus pulvillisque instructis remotiusculis lanigeris, lana cinerascente densa longa in penicillum erectum collecta. Floribus parvulis roseis."—Salm. AGZ. 1845, 385

The Mescal Button, or Turnip cactus, as it is sometimes called (which forms the type of Coulter's genus Lophophora) is a small spineless plant with pretty rose-colored flowers. The plant rarely exceeds 3 inches in diameter, little appearing above the surface of the ground, but when eaten it produces peculiar intoxicating effects similar to those from the use of opium, and the plant enters into certain religious rites of the Indians of the Sierra Madre mountains in Mexico. A powerful drug is prepared from the plant by chemists.

ECHINOCACTUS WISLIZENI Engelm.

The strong hooked central spine gives this the name of the Fish-hook cactus said to have so been utilized by the Indians; the large size and have given it the name of Barrel cactus; to the Mexicans, in common with most species of the genus, it is the Visnaga, utilized in confections.

Var ALBISPINA Toumey, white spined.

Var. DECIPIENS Engelmann.

E WRIGHTII Engelm.—var. of uncinatus.

Genus ECHINOCEREUS Engelmann.

Included under Cereus,

E. candicans Hort.—see rigidissimus.

Genus ECHINOPSIS Zuccarini.

Included under Cereus.

E. EYRIESII: short spines, white fls,

ECHINOPSIS MULLERI. A hybrid, of rapid growth, blooming early, and with its large satiny rose-colored flowers is justly called the finest of its class.

Doubtless only a form of multiplex.

Genus EPIPHYLLUM Pfeiffer.

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E. GAERTNERI: white fls.

E. MACOYANUM: ?

E. RUSSELIANUM:

EPIPHYLLUM TRUNCATUM Haw.

Inch, crab or lobster cactus.

Genus LEPISMIUM Pfeiffer.

This genus is merged into Rhipsalis by some botanists, we have none to offer at present.

Genus LEUCHTENBERGIA Fisch.

LEUCHTENBERGIA PRINCIPIS Fisch.

Triangular tubercles about 3 inches long & surmounted by straw-like spines 4-6 in. long

Genus LOPHOPHORA Coulter.

LOPHOPHORA WILLIAMSII Coulter.

Best known as Anhalonium, & more properly as an Echinocactus (which see).

Var LEWINII (Anhalonium Lewinii):

Genus MALACOCARPUS Salm.

Genus MAMMILLARIA Haworth.

MAMMILLARIA ALVERSONI Hort.

The Fox-tail cactus is of robust branching habit, densely covered with long stout straight spines, usually tipped with black or black half way down, shading into red, but often pure ivory white throughout. The large rose purple flowers are quite showy. The largest of some fifty plants was a cluster of six heads measuring 3 inches in diameter and about 8 inches high.

MAMMILLARIA ARIZONICA Engelm.

§Coryphantha. The plant advertised as impexicoma is a form of this, also Alversoni.

MAMMILLARIA BARBATA Engelm.

MAMMILLARIA BOCASANA Poselg.

This beautiful plant is covered with the finest tender hair like spines.

M. CARNEA, an elegant plant,

M. COMPACTA, clusters.

M. CORNIFERA, large showy fls

MAMMILLARIA DECIPIENS Schw.

Low tuber led small growing species with dull cane & pretty yellow fls.

MAMMILLARIA DOLICHOCENTRA Lm

M. lava more properly; very long tubercles & spines, of quaint appearance.

M. DIOICA K. Brandegee.

M. Goodridgii Engelmann (not of Scheer), small globular species, closely set with brownish or white spines, the central one curved into a hook. The delicate yellowish white flowers are succeeded by the club-shaped, scarlet berries that possess the flavor of wild-wood strawberries, and are sometimes called "hep-pitallas," the "llavina" of the Mexicans.

MAMMILLARIA ECHINUS Engelm.

Hedgehog mammillaria heavy stout centrals, & large unique yellow flowers.

MAMMILLARIA ELEGANS DC.

Neat lovely white spines, like a ball of snow, small crimson fls.—most attractive

MAMMILLARIA ELEPHANTIDENS Lem.

Elephant's Tooth—so-called from the size & shape of the tubercles.

M. ERECTA Lem.

Mineral del Monte - on high mountains in the cold region of Mexico, yellow spines & fls.

M. FISSURATA see ANHALONIUM fissuratum.

M. FORDII Orcutt.

Ovate, 2 inches in diameter, and about 3 high, rarely branching at base; tubercles obtuse, $\frac{1}{4}$ inch across, short, 12 radial spines cinereous, $\frac{1}{8}$-$\frac{1}{4}$ inch long, the solitary central black and hooked, $\frac{1}{4}$ inch long; flower an inch long, white with about 9 petals and 9 sepals—the latter with purplish midvein on the back, 6 stigmata of a brownish-green style greenish, filaments white and anthers orange yellow; flowers in July; Baja California on the west coast, collected for L. M. Ford, 1889. Near M. Goodridgii

MAMMILLARIA FULVISPINA Haw.

MAMMILLARIA GABBII Engelm.

Cactus Brandegeei & Gabbii Coulter, near M. Heyderi, with milky juice, "No. 302."

MAMMILLARIA GOODRIDGII Scheer.

We have just collected what is now believed by K. Brandegee to be the typical form.

MAMMILLARIA GLOCHIDIATA Mart.

Once distributed as zephyranthoides.

MAMMILLARIA GRAHAMI Engelm. Plant 1 to 3 inches high, subglobose, simple or branching from the base; tubercles ovate, axils naked; radial spines in one series, 20 to 30 in number, 3 to 6 lines long, rigid and whitish, surrounding a stouter and longer hooked brown one. Flowers small, nearly 1 inch wide, reddish; berry oval, green, with small pitted seeds. The well-known "Arizona Strawberry" or small Fishhook Cactus of N. M., Arizona and Utah, rare in California.

Var. ARIZONICA, a much larger, stouter-spined plant—perhaps barbata? Either form,

MAMMILLARIA HALEI Brandegee.

§Cochemiea, cereus like, with straight, long stiff purplish brown spines, scarlet fls. similar to Epiphyllum, & large red fruit.

MAMMILLARIA HEYDERI Muehlenpf.

Var APPLANATA Engelmann,

M. KRAMERI, m

MAMMILLARIA LASIACANTHA Engelm.

A beautiful feathery looking species, small & irregular, looking more like a bunch of down

M. LONGIMAMMA DC. Mexico,

Flower 1¼ inches across, 18 canary yellow petals & 12 brownish sepals, 9 greenish yellow stigmata, style green, filaments white, anthers orange color; state of Hidalgo, torrid zone

MAMMILLARIA MACROMERIS Engelm.

Tubercles large, spines long, flowers 2¼-3½ inches across of a distinct carmine & fine.

MAMMILLARIA MEIACANTHA Engelm.

Form of Heyderi, milky juice.

Var. LONGISPINA, more & longer spines.

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M. MICROMERIS Engelmann. Texas.

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.

Var GREGGII, larger,

MAMMILLARIA MINIMA Reichb. A tiny Mexican species, cylindrical, forming numerous heads around the base, which readily take root when detached. About 20 slender white spines radiate from the center of each hemispherical tubercle, enveloping the plant like a bit of delicate lace; no central spine.

Stands wet & heavy soil,

M. NICHOLSONI Hort Mexico.

The plant 3 inches across, producing copious wool in the depressed top, tubercles 4-angular, crowded, 4 cruciate centrals, the longest ½ inch & numerous short slender white radial spines.

MAMMILLARIA PECTINATA Engelm.

A beautiful plant bearing very large yellow fls, 2¼ inches across when fully open, outer sepals reddish-green; petals sulphur yellow.

M. PETERSONI, 'long white spines interlacing the plant, fine scarlet fls.'

M. PFEIFFERI, covered with golden spines which 'fairly dazzle in the sunlight.'

MAMMILLARIA PHELLOSPERMA E.

Fls rose purple, blooming in the fall; many soft white radial spines, 1-6 hooked brown or black centrals, fruit clavate, bright scarlet, as it is a desert species it needs dryness.

MAMMILLARIA PONDII Greene.

MAMMILLARIA PUSILLA Sweet.

'This beautiful little cactus is always admired for its bright silvery spines, which radiate in the sun, fls yellowish white with a red stripe in center of petal.

M. RHODANTHA Link & Otto. Mexico.

Fls produced in succession during the summer, bright rose, a pretty sort.

MAMMILLARIA ROSEANA Bndg.

MAMMILLARIA SCHEERII Muehlpf.

MAMMILLARIA SENILIS Lodd.

MAMMILLARIA SPINOSISSIMA Lem.

MAMMILLARIA STELLA-AURATA Mt.

Golden-star; yellow spines in a flat-spreading star-like rosette, a dwarf, much branched

MAMMILLARIA STROBILIFORMIS Shr.

Better known as tuberculosa, 2-5 in. high, often with globose branches at the base

MAMMILLARIA UNCINATA Zucc.

Our plants of this are not typical, but a very pretty distinct form from Mexico.

MAMMILLARIA WILCOXI Tourmey.

MAMMILLARIA WRIGHTII Engelm.

Genus MELOCACTUS De Candolle.

MYRTILLOCACTUS GEOMETRIZANS C

Cereus geometrizans of old authors, probably correctly is the same, or a form.

Genus NOPALEA Salm.

NOPALEA AUBERI Salm-Dyck. A Cuban cactus, of rapid growth, assuming a tree-like form, and bearing numerous rose-colored flowers with exsert stamens; the branches armed with stout spines; readily grown from cuttings.

NOPALEA COCCINELLIFERA Salm.

The cochineal cactus; cuttings

N. DEJECTA, Cuba, cuttings

Genus OPUNTIA Tournefort.

"Tube of the flower very short, cup shaped. Petals spreading or rarely erect. Ovary with bristle-bearing areolæ in the axils of small terete deciduous sepals. Berry succulent or sometimes dry, marked with bristly or spiny areolæ, truncate with a wide umbilicus. Seeds large, white, compressed, with the embryo coiled around the albumen: cotyledons large, foliaceous. Articulated much-branched plants, of various shapes, low and prostrate, or erect and shrub-like; young branches with small terete subulate early deciduous leaves, and in their axils an areola with numerous short easily detached bristles and, usually, stouter spines, all barbed. Flowers on the joints of the previous year, on the same areolæ with the spines, mostly large, open only in sunlight. Fruit often edible, often large."—E.

OPUNTIA ACANTHOCARPA E. & B.

E-B 4:51 t 18 f 1-3, t 24 f 11 seeds. E syn 308; k 5: 120. Wp an 5: 56. Wat 1 405. ct 3: 454 461. Tourney G-F 8:325. cov 4: 112 242 277. He 91. Fr 984.

"Arborescens; ramis alternis adscendentibus; articulis cylinbricis; tuberculis elongatis; aculeis 8–25 stellato-divaricatis; bacca subglobosa tuberculata aculeata; seminibus multangnlaris. Mountains of Cactus Pass, between Santa Fe and the western Colorado. Stems 5–6° high; branches few, alternate, and separating from the stem at an acute angle. Joints as in [O. arborescens] 4–6 or 8′ long, about an inch in diameter; tubercles 9–10 lines long; interior spines 1–1¼′, exterior ones 4–10 lines long. Spines of fr on the depressed tubercles 3–6 lin. long. Seeds large, unlike those of any other Opuntia seen by me."—E syn.

?O. californica E Em 157 f 11.

OPUNTIA ANGUSTATA E. & B.

E-B 4:39, t 7 f 3-4, t 22 f 11, seeds.

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E syn 292; bot ca 1: 248. Wp an 5: 59. Wat I 405. ct 3: 425 462 Cov 4: 112 245. He 91. Fr 953.

"Prostrata vel adscendens; articulis elongato-obovatis versus basin angustatis: pulvillis remotis setas fulvas graciles aculeosque paucos (2–3) validos compressos stramineos seu albidos versus basin rufos deflexos gerentibus; bacca obovata tuberculata; seminibus magnis.

OPUNTIA ARBORESCENS Engelm.

E Wis 90; Em 157 f 10; In 52: 5: 208; syn 307; m b 58 77 t 75 f 16-17 seeds; I 14; k 120; wh 130; bot wr. E-B 4: 51, t 17 f 5-6, t 18 f 4, t 24 f 12 seed. Sm 250. Lab 492. Wp an 3: 896; 5:56.

"Caule ligneo erecto, ramis horizontalibus, ramulis cylindricis, tuberculatis, aculeatissimis; areolis oblongis, brevissime tomentosis, aculeos 12–30 corneos stramineo-vaginatos teretes undique porrectos gerentibus; ramulis versus apicem floriferis; ovario tuberculato, tuberculis sub-20 apice sepala subulata et areolas tomentosas cum setis paucis albidis gerentibus; sepalis interioribus 10–13 obovatis; petalis obovatis, obtusis s. e marginatis; stigmatibus sub-8 patulis; bacca flava, sicca, ovato-globosa, tuberculata, profunde umbilicata. Mountains of New Mexico to Chihuahua, Parras, and Saltillo; flowers in May and June; fruit, at least about Santa Fe, ripening the second year (Fendler); in the north 5–10, south 20 and more feet high, 5–10′ in diameter, last branches 2–4′ long; spines of the specimens on Waggon-mound 20–30 in each bunch; further south only 12–20, generally fewer on the under side of the branchlets; spines horn-colored, with straw-colored loose sheaths, from 3–10 lines, generally about 6 lines long. Flowers purple 3′ in diameter; stamens red; fruit about 1′ long, y.

"On Waggon-mound the first (flowerless) specimens of a strange Opuntia were found, with an erect, ligneous stem, and cylindrical, horridly spinous horizontal branches. The plant was here, only 5° high, but grows about Santa Fe to the height of 8 or 10°, and continues to be found as far as Chihuahua and Parras. In the latter more favorable climate it grows to be a tree of 20 or 30, and perhaps even 40 feet high, as Dr. Wislizenus informs me, and offers a most beautiful aspect when covered with its large red flowers. It is evidently the plant which Torrey and James doubtfully, though incorrectly, refer to Cactus Bleo. HBK. It is nearly allied to Opuntia furiosa, Willd., but well distinguished

OPUNTIA ARENARIA Engelm.

E syn 301; m b 52 57 t 75 f 15 seed. Wp an 5: 53. Wat I 405. ct 3: 439, 462. Hm 549. He 91. Fr 970.

OPUNTIA BASILARIS Engelm. & Bigelow. Low; joints 5 to 8 inches long, triangular, proliferous from their base, pubescent, unarmed, but beset with numerous dense fascicles of short brownish bristles, as is also the ovary. Flowers large, 2½ to 4 inches in diameter, bright magenta, and very numerous: fruit dry, with large and thick seeds.

Var RAMOSA Parish. In cultivation the typical form becomes branched like the variety. One of the most satisfactory cacti that we know for an amateur's collection, flowering profusely and growing readily. In the deserts of California, Arizona, Nevada and Mexico, the whole plant sometimes assumes a brownish red, but in cultivation it seems to maintain a glaucous green color.

OPUNTIA BERNARDINA Engelm.

OPUNTIA BIGELOVII Engelm.

E in E-B 50 t 19 f 1-7; syn 307; bot ca 1: 259. Wp an 5: 56. Wat wh 9; I 405. Toumey G-F 8: 325. ct 3: 449, 461. Or W 6: 22 23 25. He 91.

O. Bigelowii Fr 981.

Opuntia bonplandi HBK. is ficus-indica.

OPUNTIA BRACHYARTHRA E. & B.

E-B 47 t 12 f 9. E syn 302. Fr 979

OPUNTIA BRASILIENSIS Haw.

OPUNTIA CHLOROTICA Engelm.

E-B 38 t6 f 1-3. E syn 291; bot ca 1: 248. Wp an 5: 49. Wat I 405. ct 3: 422 492. Cov 4: 113 240. He 91. Fr 952.

O. tidballi Bigelow Pac Ry r 4: 11.

OPUNTIA CURASSAVICA Mill.

OPUNTIA CYLINDRICA DC.

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OPUNTIA DAVISII E. & B.
E-B 49 t 16. E syn 305. Wp an 5:55. Wat I 405. ct 3 445 460. He 91. Fr 978.

OPUNTIA DULCIS Engelm.

OPUNTIA ECHINOCARPA E. & B.
E syn 305; I 14; bot ca 1:250. E-B 49 t 18 f 5-10 t 24 f 8 seeds. Wp an 5:55. Py Am nat 9:20. Wat I 406. ct 3: J45 460 461. Hm 550. cov 4:21 45 46 49 113 236 276-8. He 91 Fr 979.

OPUNTIA EMORYI Engelm.
E syn 393; bot ca 1:249; m b 53 t 70 71. Wp an 5:54. Wat I 406. ct 3:443 461. Hm 550. He 91. Fr 972.

OPUNTIA ENGELMANNI Sim-Dyck.
Sm 235. E Ld 207; Am J sc 2 14: 338; syn 290 [34]; m b 47 t 75 f 1-4, seeds; bot ca 1:248. Scheer bot Her 293. Wp an 2:686; 5:49. Lab 460. Young F-Texas 278. Wat I 406. Hm 550. He a 68. Fr 950.

OPUNTIA FICUS-INDICA Mill.
Mill G-D ed 8, no 2. [illegible] Fl 1:555. E syn 290 [24]; m b 49; bot ca 1:248 Wat I 406. ct 3:419 461. Hm 551. Or W 7:156; Ca board hort r 1890. He 91. Fr 931.

OPUNTIA FRAGILIS Haw.
OPUNTIA FULGIDA Engelm.
OPUNTIA FULVISPINA Sim-Dyck.
OPUNTIA GLAUCOPHYLLA Wendl.
OPUNTIA GRAHAMII Engelm.
OPUNTIA GRANDIS Hort.
OPUNTIA INVICTA Brandegee.

OPUNTIA LEPTOCAULIS D C. This is the widely advertised O. frutescens, Engelm., of Texas and Mexico; 2 to 4 feet high, with slender terete joints a fourth of an inch thick; very small yellow flowers; berries scarlet. Quite ornamental and a favorite with cactus fanciers.

OPUNTIA LURIDA Hort.
OPUNTIA MACROCENTRA Engelm.
OPUNTIA MACRORHIZA Engelm.
OPUNTIA MAMILLATA Schct.
OPUNTIA MICRODASYS Pfeiff.
OPUNTIA MONACANTHA Haw.
OPUNTIA NIGRICANS Haw.

OPUNTIA OCCIDENTALIS Engelm. A Prickly Pear of luxuriant growth, with stout woody stems and innumerable branches: joints 9 to 12 inches long and 6 to 8 inches across; flower yellowish and orange; fruit 2 inches long, very sour and juicy.

OPUNTIA PARISHII Orcutt.
OPUNTIA PHAEACANTHA Engelm.

OPUNTIA PROLIFERA Engelmann. This densely-branching shrub bears a small flower of a pomegranate purple, and once grew in great abundance where the city of San Diego now exists.

OPUNTIA RAFINESQUII Engelm.
OPUNTIA ROSEA DC.
OPUNTIA RUFIDA Engelm.
OPUNTIA RUTILA Nutt.
OPUNTIA SENILIS Roezl.

OPUNTIA SERPENTINA Engelm. Procumbent, with yellow flowers, comparatively rare in cactus collections.

OPUNTIA SUBULATA Engelm. A beautiful tropical species of rapid and rank growth, with persistent vivid green leaves, and long, straight spines.

OPUNTIA TENUISPINA Engelm.
OPUNTIA TESSELLATA Engelm.
OPUNTIA TUNA Mill.

Opuntia ursina is a name given by Albert Weber to a curious and beautiful plant of the Mohave desert, advertised as the Grizzly Bear cactus. The joints are about 3 by 5 inches, densely covered with slender flexuous ivory white spines, the longest over 6 inches long, and completely hiding the plant. A cutting reminds one of the "Old Man" cactus of Mexico, but this belongs among the prickly pears—forming low wide spreading masses of interlacing snow white spines.

OPUNTIA VULGARIS Mill.
OPUNTIA WHIPPLEI E. & B.

Genus PELECYPHORA Ehrenb.

PELECYPHORA ASELLIFORMIS Ehrenb.

The Hatchet cactus is a little gem from Mexico, so-called from the shape of the tubercles. It bloomed in San Diego on May day, scarce ½ inch in length and breadth, with thirteen bright magenta colored petals and seven or eight pale lavendar sepals, the four stigmata white, style and filaments tinged with purple, and anthers bright orange. The largest plant among a hundred is but little over an inch in height and diameter, and in earlier days they were literally worth their weight in gold. The flowers are open only in sunlight.

PERESKIA ACULEATA Mill.

The Barbadoes gooseberry or Blad-apple, a cactus with leaves like an orange tree, excellent for grafting.

Genus PFEIFFERA Salm.

Only one species, which we have never seen.

Genus PHYLLOCACTUS Link.

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PHYLLOCACTUS ACKERMANNI Walp.

The King cactus was taken from Mexico to England prior to 1829 by George Ackermann, and bears the most gorgeous flowers, 6 to 8 inches in diameter, the acutely pointed, wavy petals of a deep brilliant crimson, bordered at the base with bright magenta, the interior decorated with a mass of white filaments and antlers, the 11 stigmata and style also white. The plant blooms freely and may be seen in many San Diego gardens. The plant before me is about a foot high and bears one open flower and three buds today (May 3, 1900).

PHYLLOCACTUS ANGULIGER Lem.

Deep notches along the stems like the teeth of a large saw; fls pure white, fragrant.

P. BOLLWILLERIANA, fls carmine scarlet, 5 inches across.

P. Conway's Giant; fls often 2 ft. in circumference, deep scarlet shading to purple.

PHYLLOCACTUS CRENATUS Walp.

This species, which is a native of Honduras, rivals in size and fragrance of its fls the famous Night-blooming cereus; it grows to a height of 2 feet, with round base branches, the upper portion flattened out and the margins serrated; the flower tube 4 in. long, brownish green like the sepals; petals 4 in. long, creamy white.

PHYLLOCACTUS KAMPMANNI Hort.

Kampmann's Case-knife cactus is a less robust plant than the King cactus, and the flowers are only about 3 inches in diameter, the petals broader in proportion, of a bright, but lighter, crimson. Filaments white, antlers canary yellow. This is a general favorite in San Diego gardens, also, producing its lovely flowers in the greatest profusion.

QUEEN CACTUS.

PHYLLOCACTUS LATIFRONS Walp.

The Queen cactus is quite the giant among the Phyllocacti, the stout flattened stems 4 to 5 inches broad, deeply crenated and commonly 8 to 10 feet high. The flowers are 7 to 8 inches long, about 6 inches in diameter, the petals of a delicate, clear, creamy white, the sepals and tube of a reddish hue. Native of Mexico.

PHYLLOCACTUS WRAYI Hort.

Fls 8 in. across, yellowish-white.

Genus PILOCEREUS Lemaire.

Included under Cereus.

Genus RHIPSALIS Gaertn.

RHIPSALIS CASSYTHA Gaertn.

RHIPSALIS SALICORNIOIDES Haw.

FICOIDEAE.

Genus MESEMBRIANTHEMUM Linn.

MESEMBRYANTHEMUM AEQUILATERALE. Haworth. Beach Strawberry or Sea-apple. An Australian and West American creeping plant, spreading readily over sandy ground, whether clayey, sandy or rocky. "Sheep are very fond of this succulent plant, and require but little water when browsing on it; or in cold coast districts they will do without any water, even in summer, while thriving well on the foliage." The brilliant red flowers are very fragrant, followed by large, sweet and delicious fruit, faintly suggestive of a strawberry. An ornamental plant, easily grown from cuttings.

The "beach strawberry," "sea apple," or "Hottentot fig," is a stout, prostrate perennial plant, abundant on the sea shore from Santa Cruz, California to Chili, Tasmania, and Australia bearing large, solitary brilliant rose-red flowers, that are very fragrant, followed by luscious dull-red berries that are very acceptable to children, large and small, when enjoying a day on the beach.

MESEMBRIanthemum NODIFLORUM L

MESEMBRIanthemum CRYSTALLINUM

Genus SESUVIUM Linnaeus.

SESUVIUM PORTULACASTRUM Linn.

Or 2062 e.j. da 7, ev 4 114

UMBELLIFERAE.

(—— indicates Coulter & Rose Revision N. A. Umbelliferæ (D 88)

Genus HYDROCOTYLE Tournefort.

HYDROCOTYLE PROLIFERA Kellogg.

H AMERICANA L. da 7

HYDROCOTYLE RANUNCULOIDES L.

H verticillata c-r 137 ev d

Genus BOWLESIA Ruiz & Pavon.

BOWLESIA LOBATA R. & P.

Genus ERYNGIUM Tournefort.

E petiolatum Hook. da 7. c-r 97 (r s.)

E armatum C-R d-Butte County, Ca.

Genus DEWEYA Torrey & Gray.

DEWEYA ARGUTA Torr. & Gray.

Is Velæa arguta

Genus VELÆA DC.

VELÆA ARGUTA C-R 120 (Deweya a T-G fl 1)

VELÆA PARISHII C-R 121

"Glaborous throughout, nearly acaulescent, about 1° high; leaves thickish, ternate-pinnatifid, the segments ovate, irregularly cuspidate-toothed & lobed, with revolute margins; umbel about 30-rayed, with no involucre & involucels of few setaceous bractlets; rays 2' or

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more long; pedicels about 4" long: calyx-teeth prominent: fr (immature) oblong, glabrous, about 3" long, with prominent ribs: oil-tubes 3 or 4 in the intervals, 4 or 5 on the commissural side."—C-R 121

VELEA VES ITA C-R

Genus CARUM Linnaeus.

CARUM GAIRDNERI Benth. & Hook.

Genus OENANTHE Linnaeus.

OENANTHE CALIFORNICA S. Watson

Œ sarmentosa Presl v calif rni a fide c-r 82.

Genus DAUCUS Tournefort.

DAUCUS PUSILLUS Michx.

Daucus Pusillus Michx.—Mrs. R. F. Bingham (S. B. Soc. Nat. Hist., C. 1:2-35) 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.

D. carota L c-r 34 da 7

Genus SANICULA Tournefort.

SANICULA BIPINNATIFIDA Dougl.

SANICULA LANCINIATA Hook. & Arp.

SANICULA MENZIESII Hook. & Arp

S tuberosa Torrey c a 7 c-r 107

S nudicaulis H-A da 7 is S laciniata fide c-r

Genus PEUCEDANUM Linnaeus.

PEUCEDANUM DASYCARPUM T. & G.

PEUCEDANUM EURYPTERA A. Gray.

P villosum Nutt Or d c-r 64 z n

P mohavense c r 62, Curran mj

P. caruifolium T-G, c r 68, da 7

P. utriculatum Nutt. c-r 67, da 7

P. Hasseic-r da 7

P parishii c r 68, bot gazette 13 209; Parish b

P. vaseyi c-r 67, bot gaz 13 144; Vasey b mts

Sium erectum Huds da 7

Berula angustifolia Koch c r 133; da 7

Cicuta bolanderi Wat c-r 139; da 7

Pastinica sativa L c-r 49 da 7

Fœniculum vulgare Gaertn. da 6; c-r 108

Coriandrum sativum L c-r 3 ; da 7

Selinum capitellatum B-H c-r 43

Genus APIUM Linnaeus.

APIUM GRAVEOLENS Linn.

Genus APIASTRUM Nuttall.

APIASTRUM ANGUSTIFOLIUM Nutt.

Genus CAUCALIS Linnaeus.

CAUCALIS MICROCARPA H. & A.

ANGELICA TOMENTOSA S. Watson.

ARALIACEAE.

Aralia californica Watson da 7

Hedera helix L da 7

CORNACEAE.

Genus CORNUS Linnaeus.

CORNUS CAPITATA Wall. The Himalayan strawberry-tree, also known as Benthamia fragifera, Lindl.

CORNUS NUTTALLII Audubon. A showy tree, or large shrub, the flowers followed by large cluster of crimson berries. "Dogwood."

Cornus californica C. A. Meyer

C pubescens c-riforn.ca C R da 7

Genus GARRYA Douglas.

G. flavescens Wat v palmeri Wat. Or d j

CAPRIFOLIACEAE.

Genus SAMBUCUS Tournefort.

SAMBUCUS GLAUCA Nutt.

The California elder is considered superior to either the eastern or the European species in the quality of its fruit. Edward J. Wickson says: "It is common throughout the state; and frequently becomes a tree 20 feet or more in height with a trunk 18 inches in diameter. The fruit is very abundant, and largely used."—California Fruits, Ed. 2, p. 65.

Genus SYMPHORICARPUS Dill.

SYMPHORICARPUS MOLLIS Nutt.

SYMPHORICARPUS RACEMOSUS Mex.

Genus LONICERA Linnaeus.

LONICERA HISPIDULA Dougl.

Lonicera subspicata Hook & Arn.—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.

RUBIACEAE.

Genus KELLOGGIA Torrey.

KELLOGGIA GALIOIDES Torr.

Genus GALIUM Linnaeus.

GALIUM ANDREWSII A. Gray.

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GALIUM ANGUSTIFOLIUM Nutt.
GALIUM APARINE Linn.

Galium Aparine L.—"Cleavers are regarded as a most valuable cooling diuretic, useful in most diseases of the urinary organs" (Gunn). "Considered as a sovereign remedy in kidney diseases" (Mrs. Bingham). A cold infusion is used, as heat destroys its medicinal virtues. Goose grass, as this plant is sometimes called, is abundant in Southern and Baja California—in fact throughout the west, but our plant differs from the eastern and European form.

GALIUM PUBENS A. Gray.
GALIUM ROTHROCKII A. Gray.
G californicum H-A da 8
G spurium L da 8
GALIUM STELLATUM Kellogg.

VALERIANACEAE.

VALERIANELLA MACROCERA A. Gy.

COMPOSITAE.

Genus BRICKELLIA Ell.

BRICKELLIA ATRACTYLOIDES A. G.
BRICKELLIA CALIFORNICA A. Gray.
BRICKELLIA FRUTESCENS A. Gray.

Genus GUTIERREZIA Lagasca.

GUTIERREZIA CALIFORNICA T. & G.
GUTIERREZIA EUTHAMIAE T. & G.

Genus ERIGERON Linnaeus.

ERIGERON CANADENSIS Linn.
ERIGERON FOLIOSUS Nutt.
ERIGERON INCOMPTUS A. Gray.
ERIGERON PHILADELPHICUS Linn.

Genus SOLIDAGO Linnaeus.

SOLIDAGO CALIFORNICA Nutt.

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.

SOLIDAGO CONFINIS A. Gray.

Genus ASTER Linnaeus.

ASTER ADSCENDENS Lindl.
ASTER ANDERSONI A. Gray.
ASTER CANESCENS Pursh.
ASTER EXILIS Linn.
ASTER ... DULINUS A. Gray.
ASTER ORCUTTII Vasey & Rose.
ASTER PARVIFLORUS A. Gray.
ASTER SPINOSUS Benth.

Genus BACCHARIS Linnaeus.

BACCHARIS DOUGLASII DC.
BACCHARIS EMORYI A. Gray.
BACCHARIS GLUTINOSA Pers.

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!

BACCHARIS SAROTHROIDES A Gray.

Genus PLUCHEA Cass.

PLUCHEA CAMPHORATA DC.
PLUCHEA BOREALIS A. Gray.

Genus TESSARIA Ruiz & Pavon.

T borealis T-G is Pluchea b.

Genus MICROPUS Linnaeus.

MICROPUS CALIFORNICUS F. & M.

Genus PSILOCARPHUS Nuttall.

PSILOCARPHUS OREGONUS Nutt.
PSILOCARPHUS TENELLUS Nutt.

Genus STYLOCLINE Nuttall.

STYLOCLINE GNAPHALIOIDES Nutt.

Genus EVAX Gaertn.

EVAX CAULESCENS A. Gray.

Genus FILAGO Linnaeus.

FILAGO ARIZONICA A. Gray.

Genus GNAPHALIUM Linnaeus.

GNAPHALIUM PALUSTRE Nutt.
GNAPHALIUM PURPUREUM Linn.
GNAPHALIUM SPRENGELII H. & A.

Genus HYMENOCLEA Torrey & Gray.

HYMENOCLEA MONOGYRA T. & G.
HYMENOCLEA SALSOLA T. & G.

Genus IVA Linnaeus.

IVA HAYESIANA A. Gray.

Genus AMBROSIA Tournefort.

AMBROSIA PSILOSTACHYA DC.
AMBROSIA PUMILA A. Gray.

Genus PERITYLE Bentham.

PERITYLE CALIFORNICA Benth.
PERITYLE EMORYI Torr.
PERITYLE GRAYI Rose.
PERITYLE GREENEI Rose.
PERITYLE INCANA A. Gray.
PERITYLE MICROGLOSSA Benth.

Genus HETEROTHECA Cass.

HETEROTHECA GRANDIFLORA Nutt.

Genus APLOPAPPUS Cass.

APLOPAPPUS BERBERIDIS A. Gray.
APLOPAPPUS JUNCEUS Greene.
"Near A. spinulosus, but more slender,

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sparingly leafy, the stems tufted, and 2° high, from a woody base: leaves linear, the lowest broader and pinnatifid, the upper often only 3-toothed at apex, lobes and teeth all spinulose-tipped: heads few and corymbose, ½′ high: involucres turbinate, glandular-scabrous, not at all pubescent; scales setaceous-tipped: rays numerous, light y.: akenes conspicuously nerved."—Greene, Bull. Cal. Acad. Sci., i. 190 (Aug. 29, 1885).

APLOPAPPUS LINEARIFOLIUS DC
APLOPAPPUS ORCUTTII A. Gray.

APLOPAPPUS PALMERI A. Gray. "Pasmore" of the Mexicans and Indians is reputed to be invaluable in cases of lockjaw.

APLOPAPPUS SQUARROSUS H. & A.

Genus BIGELOVIA De Candolle.

BIGELOVIA BRACHYLEPIS A. Gray.
BIGELOVIA GRAVEOLENS A. Gray.
BIGELOVIA PANICULATA A. Gray.
BIGELOVIA SPATHULATA A Gray.
BIGELOVIA TERETIFOLIA A. Gray.

Genus CARPHEPHORUS Cass.

Genus DYSODIA Cav.

DYSODIA COOPERI A. Gray.
DYSODIA POROPHYLLOIDES A. Gray.

Genus EREMIASTRUM Gray.

EREMIASTRUM BELLIOIDES A. Gray.
EREMIASTRUM ORCUTTII S. Watson. "Pappus consisting of 5 white oblong-ovate laciniate paleae and as many inner alternate bristles twice as long: in every other respect—habit, foliage, pubescence, involucre, etc.—the nearly exact counterpart of E. bellioides."—S. Watson, Proc. Am. Acad., xxv. 132-3 (Sept. 25, 1890). Southwestern part of the Colorado desert, San Diego County, California (C. R. Orcutt, April, 1889).

Genus COLEOGYNE Torrey.

Genus LESSINGIA Cham.

LESSINGIA GLANDULOSA A. Gray.

Genus HELIANTHUS Linnaeus.

HELIANTHUS CALIFORNICUS DC.
HELIANTHUS DEALBATUS A. Gray.
HELIANTHUS GRACILENTUS A. Gray
HELIANTHUS PETIOLARIS Nutt.

Genus VIGUIERA H. B. K.

VIGUIERA LACINIATA A. Gray.
VIGUIERA PARISHII Greene.

Genus LEPTOSYNE De Candolle.

LEPTOSYNE BIGELOVII A. Gray.

Genus BIDENS Linnaeus.

BIDENS CHRYSANTHEMOIDES Michx
BIDENS PILOSA Linn.

Genus MADIA Molina.

MADIA ELEGANS Don.
MADIA FILIPES A. Gray.
MADIA GLOMERATA Hook.

Genus HEMIZONIA De Candolle.

HEMIZONIA FASCICULATA T. & G.
HEMIZONIA FLORIBUNDA A. Gray.
HEMIZONIA HEERMANNI Greene.
HEMIZONIA PANICULATA A. Gray.
HEMIZONIA TENELLA A. Gray.
HEMIZONIA WRIGHTII A Gray.

Genus LAYIA Hooker & Arn.

LAYIA CARNOSA T. & G.
LAYIA ELEGANS Torr & Gray.
LAYIA GLANDULOSA Hook & Arn.
LAYIA PLATYGLOSSA A. Gray.

Genus JAUMEA Pers.

JAUMEA CARNOSA A. Gray.

BURRIELIA MICROGLOSSA H. & A.

ERIOPHYLLUM AMBIGUUM A. Gray.
ERIOPHYLLUM CAESPITOSUM Dougl.
ERIOPHYLLUM CONFERTIFLORUM
ERIOPHYLLUM LANOSUM A. Gray.
ERIOPHYLLUM PRINGLEI A. Gray.
ERIOPHYLLUM STAECHADIFOLIUM
ERIOPHYLLUM WALLACEI A. Gray.

HIERACIUM ARGUTUM Nutt.
HIERACIUM PARISHII A. Gray.

HOFMEISTERIA PLURISETA A. Gray.

HYMENOPAPPUS FILIFOLIUS Hook.
HYMENOTHRIX WRIGHTII A. Gray.

LYGODESMIA EXIGUA A. Gray.

TRICHOPTILIUM INCISUM A. Gray.

TRIXIS ANGUSTIFOLIA D. C.

Genus WYETHIA Nuttall.

WYETHIA CORIACEA A. Gray.

Genus XANTHIUM Tournefort.

XANTHIUM STRUMARIUM Linn.

Genus BAERIA Fischer & Meyer.

BAERIA AFFINIS A. Gray.
BAERIA ANTHEMOIDES A. Gray.
BAERIA CLEVELANDI A. Gray.
BAERIA CORONARIA A. Gray.
BAERIA GRACILIS A. Gray.
BAERIA MUTICA A. Gray.
BAERIA PALMERI A. Gray.
BAERIA PARISHII S. Watson.
BAERIA TENELLA A. Gray.
BAERIA ULIGINOSA A. Gray.

Genus LASTHENIA Cass.

LASTHENIA GLABRATA Lindl.

Genus BAILEYA A. Gray.

BAILEYA MULTIRADIATA H. & G.
BAILEYA PAUCIRADIATA H. & G.

Genus AMBLYOPAPPUS Hook & Arn.

AMBLYOPPUS PUSILLUS H. Arn.

Genus HULSEA Torrey & Gray.

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HULSEA CALIFORNICA T. & G.
HULSEA VESTITA A. Gray.

Genus PALAFOXIA Lagasca.

PALAFOXIA LINEARIS Lagasca.

Genus CHAENACTIS De Candolle.

CHAENACTIS ASTEMISIAEFOLIA A G
CHAENACTIS CARPHOCLINIA A. Gry.
CHAENACTIS DOUGLASII Hook & Arn
CHAENACTIS FREMONTI A. Gray.
CHAENACTIS HETEHOCARPHA A. G.
CHAENACTIS LANOSA D. C.
CHAENACTIS MACRANTHA Eaton.
CHAENACTIS PARISHII A.Gray.
CHAENACTIS SANTALINOIDES Grne.
CHAENACTIS STEVIOIDES Hook-Arn.
CHAENACTIS SUFFRUTESCENS A. G.
CHAENACTIS TENUIFOLIA Nutt.

Genus HELENIUM Linnaeus.

HELENIUM BIGELOVII A. Gray.
HELEIUM PUBERULUM DC.

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 sarsaparailla. 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.

Genus SYNTRICHOPAPPUS A. Gray.

SYNTRICHOPAPPUS FREMONTI A. G.

Genus GRINDELIA Willd.

GRINDELIA ROBUSTA Nutt.

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 alcholic 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 valuble 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.

Genus PENTACHAETA Nuttall.

PENTACHAETA AUREA Nutt.

PENTACHÆTA ORCUTTII A. Gray.
"P. aureæ subsimilis; capitulis parvulis; involucro villoso-pubescente, bracteis virid oribus; ligulis brevioribus; pappi setis 8-10 capillaribus basi haud dilatatis caducis!—Vallecito, in the northern part of Lower California, C. R. Orcutt, May 4, 1886."—A. Gray, Proc. Am. Acad., xxii, 309 (March 4, 1887).

PENTACHŒTA PALEACEA Greene.
"A span high, with very numerous filiform branches: involucres small, scales in 2 series, pubescent, setaceous-tipped: corollas of ray and disk y.: akenes nearly l near; pappus-bristles 5, slender, with a thin, triangular palea at base."—Greene. Bull. Cal. Acad. Sci., I. 189-190 (Aug. 29, 1885).

Genus FRANSERIA Cav.

FRANSERIA BIPINNATIFIDA Nutt.
FRANSERIA CAMPHORATA Greene.
FRANSERIA CHENOPODIFOLIA Benh.
FRANSERIA DUMOSA Gray.
FRANSERIA FLEXUOSA A. Gray.
FRANSERIA HOOKERIANA Nutt.
FRANSERIA ILICIFOLIA A. Gray.
FRANSERIA TENUIFOLIA A. Gray.

Genus ENCELIA Adanson.

ENCELIA CALIFORNICA Nutt.
ENCELIA ERIOCEPHALA A. Gray.
ENCELIA FARINOSA A. Gray.
ENCELIA VISCIDA A. Gray.

Genus CENTAUREA Linnaeus.

CENTAUREA MELITENSIS Linn.
CENTAUREA SOLSTITIALIS Linn.

Genus PEREZIA Lagasca.

PEREZIA MICROCEPHALA A Gray.

Genus SILYBUM Gaertn.

SILYBUM MARIANUM Gaertn.

Genus CNICUS Linnaeus

CNICUS CALIFORNICUS A. Gray.
CNICUS DRUMMONDII A. Gray.
CNICUS OCCIDENTALIS A. Gray.

Genus CORETHROGYNE De C.

CORETHROGYNE FILAGINIFOLIA Nt.

Genus STEPHANOMERIA Nuttall.

PTILORIA CICHORIACEA Greene.
PTILORIA EXIGUA Greene.
PTILORIA PANICULATA Greene.
PTILORIA PARRYI Orcutt.
PTILORIA PAUCIFLORA Raf.
PTILORIA PENTACHAETA Greene.
PTILORIA VIRGATA Greene.

Genus RAFINESQUIA Nuttall.

RAFINESQUIA CALIFORNICA Nutt.
RAFINESQUIA NEO-MEXICANA A. G.

Genus ANISOCOMA Torrey & Gray.

ANISOCOMA ACAULE T. & G.

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Genus MICROSERIS Don.

MICROSERIS ELEGANS Greene.
Span or more high, slender, head less than ½'; akenes turbinate, slightly over 1" long; palese ovate-deltoid, ½" long, the slender awn about 2". Mesas, San Diego, Cal.

MICROSERIS LINDLEYI A. Gray.
MICROSERIS LINEARIFOLIA A. Gray.
MICROSERIS MACROCHAETA A. Gray.

MICROSERIS PARISHII Greene.
"Rather smaller and more slender than M. Douglasii; akenes slender, strictly columnar, 2" long or more, dark brown; paleæ lanceolate, 3" long, very gradually tapering to an awn of 1 or 1½"."—Greene, Bull. Cal. Acad. Sci., ii. 46 (Mar. 6, 1886).

MICROSERIS PARRYI A. Gray.

MICROSERIS PLATYCARPHA A. Gray.
Span or more high, head ½' or less in length; main bracts of involucre about 8, oblong; akenes turbinate, 2" long, tapering abruptly into a very short awn. San Diego county, Cal., southward.

Genus MALACOTHRIX De Candolle.

MALACOTHRIX CALIFORNICA DC.
MALACOTHRIX COULTERI A. Gray.
MALACOTHRIX CLEVELANDI A. Gy.
MALACOTHRIX GLABRATA A. Gray.
MALACOTHRIX INCANA T. & G.
MALACOTHRIX INDECORA Greene.
MALACOTHRIX INSULARIS Greene.
MALACOTHRIX SAXATILIS T. & G.
MALACOTHRIX SQUALIDA Greene.

Genus GLYPTOPLEURA D. C. Eaton.

GLYPTOPLEURA MARGINATA Eaton.
GLYPTOPLEURA SETULOSA A. Gray.

Genus CALYCOSERIS A. Gray.

CALYCOSERIS PARRYI A. Gray.

Genus TROXIMON Nuttall.

TROXIMON GRANDIFLORUM A. Gray.
TROXIMON HETEROPHYLLUM Gine.
TROXIMON RETRORSUM A. Gray.

Genus SONCHUS Linnaeus.

SONCHUS ASPER Vill.
SONCHUS OLERACEUS Linn.
SONCHUS TENERRIMUS Linn.

Genus ACHYRACHAENA Schauer.

ACHYRACHAENA MOLLIS Schauer.

Genus LAGOPHYLLA Nuttall.

LAGOPHYLLA RAMOSISSIMA Nutt.

Genus POROPHYLLUM Vaillant.

POROPHYLLUM GRACILE Benth.

Genus ACHILLEA Linnaeus.

ACHILLEA MILLEFOLIUM Linn.

Genus ANTHEMIS Linnaeus.

ANTHEMIS COTULA Linn.

Genus ARTEMISIA Linnaeus.

ARTEMISIA CALIFORNICA Less.
ARTEMISIA DRACUNCULOIDES Psh.
ARTEMISIA LUDOVICIANA Nutt.
Artemisia ludoviciana Nutt.—Mrs. Bingham says this is "recommended for the effects of poison oak."
ARTEMISIA PALMERI A. Gray.
ARTEMISIA PARISHII A. Gray.
ARTEMISIA TRIDENTATA Nutt.

Genus COTULA Linnaeus.

COTULA CORONOPIFOLIA Linn.

Genus SOLIVA Ruiz & Pavon.

SOLIVA SESSILIS R. & P.

Genus TETRADYMIA De Candolle.

TETRADYMIA CANESCENS A. Gray.
TETRADYMIA SPINOSA H. & A.

LEPTOSYNE MARITIMA A. Gray.

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.)

Genus ANTENNARIA Gaertn.

A dioica Gaertn b—W G Wright

Genus ACTINOLEPIS De Candolle.

A multiradiis DC da 9
A tenella G da 9
A Wallacei G da 9 Or d j

Genus CHRYSOPSIS Nuttall.

C villosa Nutt Or d 582

Genus EUPATORIUM Tournefort.

E sagittatum G

Genus GAILLARDIA Fougeroux.

G arizonica Or z

Genus MONOPTILON Torrey & Gray.

M bellidiforme T G

Genus PUGIOPAPPUS A. Gray.

P bigelovii, breweri & palliopsideus G

Genus PECTIS Linnaeus.

P papposa G Or j z

Genus SERICOCARPUS Nees.

S rigidus Lindl

Genus VENEGASIA De Candolle.

V carpesioides DC

Genus VERBESINA Linnaeus.

V dissita G Or j
V encelioides Bth-Hook

Genus PSATHYROTES A. Gray.

PSATHYROTES RAMOSISSIMUS A. G.

PEUCEPHYLLUM SCHOTTII A. Gray.

Genus SENECIO Linnaeus.

SENECIO AMMOPHILUS Greene.

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SENECIO CALIFORNICUS DC.
SENECIO CEDROSENSIS Greene.
SENECIO DOUGLASII DC.
SENECIO LYONI A. Gray.
SENECIO MOHAVENSIS A. Gray.
SENECIO NEO-MEXICANUS A.Gray.
SENECIO PALMERI A. Gray.
SENECIO PARRYI A. Gray.
Slemmoni G Or j
Seuryeephalus T-G da 10
SENECIO PENINSULARIS Vasey-Rose.
SENECIO SYLVATICUS Linn.
SENECIO VULGARIS Linn.
Brickellia Nevinii G da 8
Gutierrezia linearifolia Lag da 8
Euthamiæ microcephala G Or d da 8
Aster chamissonis G da 8
hesperius G da 8
Baccharis pilularis DC da 8
viminea DC da 8
plummeræ G da 8
sergiloides G Or 2089 d
salicina T-G Or d [salicifolia Nutt.]
Psilocarphus globuliferus Nutt da 8, he 145
Filago californica Nutt da 9
Gnaphalium decurrens Ives Or d, da 9
v californicum G b
microcephalum Nutt da 9
ramosissimum Nutt da 9
chilense Sp eng. da 9 is sprengelii
Acamptopappus sphærocephalus G. b z, da 8
Conyza coulteri G Or d
Conyzella coulteri Ge da 8, he 136
Solidago sempervirens L he 148, da 8
S. occidentalis Nutt. da 8
Euthamia occidentalis Nutt he 139
Bellis perennis L. garden daisy. da 8 he 132
Chrysopsis villosa sessiliflora G. da 8
villosa echioides G da 8
Melampodium perfoliatum HBK. da 9

Achillea Millefolium L.—Yarrow. "Used by the natives in the form of a poultice, for healing indolent ulcers. The fresh plant is also used for staunching blood in recent wounds" (Mrs. Bingham).

Bigelovia furfuracea Ge Caac b 1:87.
Lessingia germanorum Cham da 8
Helianthus annus L da 9
oliveri G da 9
Leptosyne maritima G
douglasii DC Or d, da 9
calliopsidea G da 9
Madia sativa Mol. da 9
dissitiflora T-G da 9
Martynia ——? Or d
Hemizonia ramosissima Benth. da 9
virgata G he 141, da 9
pungens T-G da 9
parryi Ge da 9
Gymnolomia multiflora B-H. da 9
Blenosperma californicum T-G da 9
Grindelia squarrosa Dunal Or d z
Chænactis glabriuscula DC da 9
Bæria chrysostoma F-M he 132, da 9
Crepis biennis L he 150, da 9
Taraxacum dens-leonis Desv. da 10
Hieracium parishii G he 151, da 10
Dicoria canescens T-G. Or 2184 d, he 136
Monolopia major lanceolata G. da 9
Cotula australis Hook da 10
Lepidosparton squamata G da 10
Microseris aphantocarpha G he 151
v tenella G da 10
Artemisia biennis Willd. da 10
trifida Nutt. da 10
vulgaris L. v californica Besser da 10

☞ Omitted from page 59:—

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.

☞ Omitted from page 48:—

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.

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LOBELIACEAE.

Genus NEMACLADUS Nuttall.

NEMACLADUS CAPILLARIS Greene.
NEMACLADUS LONGIFLORUS A. Gry.
NEMACLADUS PINNATIFIDUS Greene
NEMACLADUS RAMOSISSIMUS Nutt.
NEMACLADUS RUBESCENS Greene.
NEMACLADUS TENUISSIMUS Greene.

Genus DOWNINGIA Torrey.

DOWNINGIA PULCHELLA Torr.

LOBELIA SPLENDENS Willd.

PALMERELLA DEBILIS A. Gray.
PARISHELLA CALIFORNICA A. Gray.

CAMPANULACEAE.

Genus GITHOPSIS Nuttall.

GITHOPSIS DIFFUSA A. Gray.
GITHOPSIS SPECULARIOIDES Nutt.

Genus SPECULARIA Helster.

SPECULARIA BIFLORA A. Gray.
SPECULARIA PERFOLIATA A. D. C.

ERICACEAE.

Genus ARBUTUS Tournefort.

ARBUTUS MENZIESII Pursh. Madrono. A surpassingly beautiful tree, with white flowers and orange-colored berries. Sometimes grows 100 feet high.

Genus ARCTOSTAPHYLOS Adanson.

§Uva-ursi G syn fl 2 27; Daphnidostaphylis Klotzsch.

A UVA-URSI L

Bear berry—not reaching So. Calif.

ARCTOSTAPHYLOS TOMENTOSA Lindl. Wooly Manzanita.

da 10

ARCTOSTAPHYLOS MANZANITA Parry. The common Manzanita of California. The berries make excellent sauce, and the finest quality of vinegar; much eaten by Indians.

Manzanita is a Spanish name, the diminutive of manzana (apple), hence means a "little apple." The name is generally applied to all the species of Arctostaphylos, and a writer in Meehan's Monthly (3:85) uses the name Arbatus Menziesii. The manzanita once so common on the mesas back of San Diego, is Arctostaphylos bicolor. The shrub to which the name more especially belongs in California, and which sometimes becomes a small tree, is that named Arctostaphylos manzanita by Dr. Charles Christopher Parry—the A. pungens of the earlier writers on California botany. This manzanita is common from Mexico to Oregon, through the foothills and mountains, in dry, rocky soil. The fruit is a dull red, mealy, and pleasantly sub-acid, well-named by the Mexicans the "little apple," though botanically a near relative of the cranberry instead of the apple. The Indians gather the fruit in September in great quantities for food, and it is eaten freely by animals and birds. It makes excellent jelly, and the finest flavored vinegar, as clear as water, may be prepared from the fruit. The numerous other varieties of manzanitas all produce more or less similar edible fruit, and are all mostly small, straggly evergreen shrubs, graceful in their own peculiar way, and bearing in earliest spring time a profusion of lovely white blossoms, sometimes blushing a rosy red in a snowstorm.

ARCTOSTAPHYLOS PRINGLEI Parry.

"Young branches, including the petioles and margins of the leaves, copiously ciliate-pubescent, with mixed glandular hairs leaves short, petiolate, glaucous, minutely net-veined, with conspicuous mid-nerves, ovate to broadly subcordate, abruptly short mucronate; inflorescence closely paniculate from a thickened base, intermixed with budscales, indicating a late flowering period, racemose branches slender, thickly covered as well as the bracts, pedicles and calyx, with ciliate and glandular hairs, bracts lanceolate membraneous, petaloid, deciduous, bracteoles linear nearly ¼ as long, pedicels slender, divaricate, 4-5 times as long as the bracts, calyx ciliate-glandular, corolla smooth, broadly urceolate: ovary and fr. glandular, hisp'd, nutlets irregularly coalescent, 5-7-celled."—Parry, Bull. Cal. Acad. Sci. ii. 494 (Nov. 2, 1887).

Variety? drupacea Parry Ca ac b 2 495: —' Differing from the above only in the completely consolidated stone, deeply sculptured, & usually with a conspicuous 1-sided furrow. Mts east of San Diego; Or 543; S 1886, distributed as A glauca."

§Xylococcus G

ARCTOSTAPHYLOS GLAUCA Lindl. The great-berried Manzanita.

Py Dav ac pr 4 34; Ca ac b 2 495;da 10

ARCTOSTAPHYLOS BICOLOR A. Gray.

Densely branched irregular shrub, 3–5 ft high, with brown shreddy bark; leaves dull green above, whitish tomentose beneath; fls in condensed racemes, w with

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TRILLIUM SESSILE Linn.

ERYTHRONIUM GRANDIFLORUM

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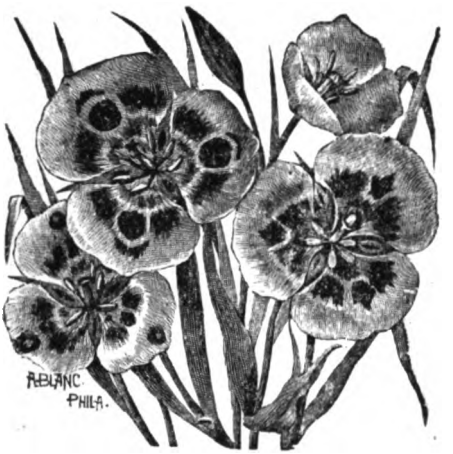

CALOCHORTUS VENUSTUS Dougl.

CALOCHORTUS PULCHELLUS Dougl.

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a pinkish tinge; fr often persistent until 2d fl'ing in F, smooth & shining, deep p-red, 4½ lines in diameter; copious and rather dense granular pulp; putamen smooth externally, solid, 5-celled, 1 or more abortive. Or s j Py Dav ac pr 4 34; Xylococcus bicolor Nutt, Py Ca ac b 2 496. Arc clevelandi G?

ARCTOSTAPHYLOS PARRYANA Lmn.

"A much branched shrub, 3–5° high: foliage coriaceous, bright green; blade ovate or oblong ½–1′ long, acute or obtuse, entire, conspicuously impressed veiny; petioles slender, ¼–⅓′ long: inflorescence paniculate corymbose, the pedicels & bracteoles w-tomentose: bracts foliaceous, narrow; bracteoles 2 or 3 lines long, deltoid, with callous tips: segments of the rotate calyx obtuse: fr ovate or globose, ¼–⅓′ long, y'ish; exocarp smooth & glabrous, rather thin; endocarp of from 5–7 firmly united bony carpels, apiculate at each end, & marked with longitudinal ridges corresponding with the back of the carpels: seeds 2 lin. long, incurved, w. Tehachapi mts."—Lemmon pitt 2 68

§Comarostaphylis G:—fr warty, putamen solid, 5-celled.

A ARGUTA Zucc. v. diversifolia Parry.

"Shrub 6–15 ft high; stems 1–3 inches in diameter, with light gray bark slightly furrowed, on the upper branches shreddy, & on the young, growing shoots tomentose; leaves varving greatly in size & form, according to position or season of growth; in young, vigorous offshoots or suckers, broably lanceolate, 3½′ long by 1½′ broad, smooth on both sides, reticulate, scarcely at all revolute; on the upper & fl'ing branches, narrowly lanceolate, strongly revolute, & tomentose beneath, in all more or less irregularly serrate, with mucronate cartilaginous teeth & short petioles. Inflorescence racemose, from the axils of the upper terminal leaves, secund & horizontal, rachis, bracts, pedicels, and calyx long tomentose; bracts about ½ as long as the pedicels, corolla 3 lines long, stamens 10 (occasionally 8), filaments bearded below, anther appendages about as long as the anthers; style shortly exserted; ovary hairy hispid above. Fr small, 2 lines broad, warty, with a solid 5-celled putamen cells more or less abortive. Needs comparison with the Mexican type, which probably includes several published species."—Parry Dav ac pr 4 35.

Or s j A polifolia B-W non H.K.

A colored portrait of this in Datos para la materia medica Mexicana, (pt 3 11) well represents our shrub. It enjoys in m the names madronyo borracho, and garambullo—the latter name in j is applied to Cereus sargentianus—and is in medicinal repute.

§Micrococcus Py Dav ac pr 4 36:—Fr with thin pericarp, without mealy pulp, wrinkled at maturity; 4 or 5 nutlets easily separating—in 2 divisions.

*Pericarp persistent, nutlets 2-celled.

ARCTOSTAPHYLOS OPPOSITIFOLIA P

"Shrub 3–10° high, densely branched above, more or less naked below; stems 1–3′ in diameter, with light greenish or gray bark smooth or with loose, shreddy fibers on the upper branches, young shoots minutely tomentose; leaves opposite or ternately whorled, narrowly lanceolate, entire, revolute, 1–2′ long, 2–3″ wide, light green above, minutely tomentose beneath, with a prominent midnerve, the narrow blade gradually tapering to a short or obsolete petiole. Inflorescence paniculate, the lower floral branches in the axils of the upper opposite leaves, which higher up pass gradually into deltoid, more or less acuminate bracts, disposed in whorls of 3 or less at regular intervals, each bract subtending a branch or pedicel, & decurrent as a ridge down the rachis; pedicels 3 or 4

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times longer than the bract, bibracteolate close to the base; corolla orbicular, 2–2½″ high, shortly urceolate, with broad, reflexed lobes; stamens 10, anthers comparatively large, as long as the appendages filaments short, densely bearded at base; style about twice the length of the ovary, included, or slightly exsert; ovary densely tomentose at the summit; fr orbicular, 2–3″ broad, with a smooth, thin pericarp & scanty pulp, becoming wrinkled at maturity, enclosing 5 easily separated nutlets, nearly equal in size, & 2-celled by a partition from the ventral suture, occasionally both cells fertile or more or less abortive."—Parry Dav ac pr 4 36–37. Or j A salicifolia.

BRYANTHUS BREWERI A. Gray.

Genus RHODODENDRON Linnaeus.

RHODODENDRON OCCIDENTALE A G
Azalea, 2–6° high, mts above 5000°, d

Genus PYROLA Tournefort.

PYROLA APHYLLA Smith.
PYROLA PICTA Smith.

Genus SARCODES Torrey.

SARCODES SANGUINEA Torr.

PTEROSPERA ANDROMEDEA Nutt.

PLUMBAGINACEAE.

Genus STATICE Linnaeus.

STATICE LIMONIUM Linn.
v californica G da 11

LENNOACEAE

Genus PHOLISMA Nuttall.

PHOLISMA ARENARIUM Nutt.
PHOLISMA DEPRESSUM Greene.

"Stems solitary, completely covered by the rhombic-ovate, or sometimes oblong, closely imbricated scales, fls in a depressed, barely convex head, an inch or 2 broad: sepals 6, linear-filiform, minutely glandular ciliolate: corolla tubular-funnelform, 6-lobed, lilac-p: stamens shorter & style longer than in P. arenarium."—Ge ca ac b 1 198 j

Genus AMMOBROMA Torrey.

AMMOBROMA SONORAE Torr.

PRIMULACEAE.

Genus DODECATHEON. Linnaeus.

DODECATHEON CLEVELANDI Greene

"A foot or 2 high, pale green & glandular: new roots formed not at the end of the dry season but at its beginning, remaining dormant through the summer, no tubers formed either originally or by root-metamorphosis: leaves scarcely fleshy not depressed but ascending or erect, spatulate-obovate, the margins erose: fls 5-merous: corolla bright-p with a y base & some dark-p spots next the androecium: androecium about 3‴ long, filaments connate, the tube dark-p, the ornate exterior of each filament changing to y at the base of the anther & continued up the back of it nearly to the apex in a lanceolate form & lying in irregular folds; anthers otherwise p, not quite twice the length of the stamineal tude, slightly divergent around the moderately exserted pistil, retuse at the rather blunt apex: capsule oblong, circumscissile at top: seeds reddish-brown, somewhat cubical, the testa sinuously reticulate."—Ge pitt 1 214 Or s j da 11. Or W 7 128 (& v alba & splendens), giant cyclamen, shooting star.

DODECATHEON ELLIPTICUM Nutt.
DODECATHEON HENDERSONI A. G.
DODECATHEON JEFFREYI Moore.

Ge ca ac b 1 406 82; pitt 1 210, 214.

These are mostly considered as forms of one species—the D. Meadia of Linn.

Genus ANAGALLIS Tournefort.

ANAGALIS ARVENSIS Linn.

Poor man's weather glass da 11, Or j

Genus SAMOLUS Linnaeus.

SAMOLUS VALERANDI Linn.
v americana G da 11 Ge ca ac b 1 406

Genus CENTUNCULUS Linnaeus.

CENTUNCULUS MINIMUS Linn.

Genus GLAUX Linnaeus.

G. maritima L. Sea-milkwort, in saline soil round the northern hemisphere.

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STYRACEAE.

Genus STYRAX Tournefort.

STYRAX CALIFORNICA Torr.

OLEACEAE.

Genus MENODORA Humb. & Bonpl.

MENODORA SCABRA A. Gray.
MENDORA SCOPARIA Engelm.

Genus FRAXINUS Tournefort.

FRAXINUS DIPETALA H. & A.
Flowering ash. j da 11
F OREGANA Nutt. da 11

APOCYNACEAE.

Genus APOCYNUM Tournefort.

APOCYNUM CANNABINUM L.
Apocynum Cannabinum L.—Indian hemp possesses diuretic, cathartic, emetic and diaphoretic properties. Of wide distribution, from Oregon to Baja California, eastward to the Atlantic. A very useful remedy in many diseases, sometimes called American Ipecac.

Apocynum androsasemifolium L.—Of equally wide distribution as the last, with similar medical properties.

ASCLEPIADACEAE.

Genus PHILIBERTELLA Vail.

"Calyx small, 5-parted, the lobes acute; corolla campanulate or rotate, deeply 5-parted, the lobes acute or obtuse, with a shallow entire or undulate ring forming an outer crown in its throat, the inner or stamineal crown consisting of 5 turgid fleshy or hard scales, or flattish appendages, attached in a circle at the base of the sessile or slightly stalked gynostegium (column), forming a hollow entire or undulate spreading surface near the level of the conical stigmas; follicles naked, slender, attenuate at both ends or obtuse at the base. Twining herbs, or partly shrubby plants, of warm regions, with opposite glabrous pubescent or woolly leaves & umbellate sometimes fragrant & showy fls."—Anna Murray Vail Torr cl b 24 305 (Je 1897).

P HARTWEGII Vail lc
var heterophylla Vail
P. HARTELL Vail

Genus ASCLEPIAS Linnaeus.

ASCLEPIAS SUBULATA Decsne.
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 syphillis 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 S. Watson.
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.
ASCLEPIAS ERIOCARPA Benth.
ASCLEPIAS EROSA Torr.
ASCLEPIAS MEXICANA Cav.
ASCLEPIAS VESTITA H. & A.

ASTEPHANUS UTAHENSIS Engelm.

Genus GOMPHOCARPUS R. Brown.

GOMPHOCARPUS TOMENTOSUS A. G.

Genus SARCOSTEMMA R. Brown.

S heterophyllum E is Philibertia linearis heterophylla fide G

PHILIBERTIA TORREYI A. Gray.

GENTIANACEAE.

Genus ERYTHRAEA Pers.

ERYTHRAEA DOUGLASII A. Gray.
Erythraea Douglasii Gray.—"It contains a bitter, tonic principle, valued for malarial diseases, and known as 'conchalagua,'" (Mrs. Bingham) in common with other plants of the order Gentianaceae.
ERYTHRAEA MUHLENBERGII Griseb.
ERYTHRAEA VENUSTA A. Gray.
Erythraea venusta Gray.—This is the common "canchalagua" of Southern and Baja California, which grows luxuriantly and abundantly in wet seasons and is usually gathered and kept con-

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stantly in store by many Mexican and Indian families. The following letter, published in the West American Scientist (VI. 84) will here be found of interest as giving some reliable information regarding this and other native plants possessing medicinal virtue:

Editor of the West American Scientist—We beg to acknowledge receipt of your favor, and in reply thereto, we beg to state as follows: Conchalagua is, as you mention, the Erythraea venustia Gray, but more popularly known as California Centaury, Californian Pink, etc.

Medicinally it possesses valuable antiseptic and febrifuge properties, and is in high repute as a bitter tonic and stomachic, but we see no reason for considering it to be the "August Flower" so extensively advertised. (We have been informed that such was the case.—Editor.)

In regard to the other plant mentioned by you, Golondrina, we find that several species of Euphorbia, mostly the E. albomarginata, Torr. & Gray, and the E. prostata, Ait., have acquired a reputation as antidotes for snake poisoning, under the names of "Golondrina" and "Gollindrinera." (E. polycarpa, Benth., is the common Golondrina of the Mexicans of Southern and Lower California.—Editor.)

The latter name has been applied also to the Chelidonium majus, Linne, and the Euphorbia maculata, Linne, is known in some districts as Golondrina de Filipinas, or Gatas-Gatas de Filipinas. In the case of these last two plants, however, we find no record of their having been employed as snakebite remedies.

Larrea Mexicana, Moricand, is popularly known as the creosote-bush or stinkweed, and is credited with being possessed of valuable properties for the treatment of rheumatism and syphilitic diseases. Trusting that the above will be of interest, we are, very truly yours,

PARKE, DAVIS & CO.

Genus FRASERA Walter.

FRASERA PARRYI Torr.
FRASERA NITIDA Benth.

EUSTOMA EXALTATUM Griseb.

POLEMONIACEAE.

Genus POLEMONIUM Tournefort.

P confertum G Nevada, &c

Genus PHLOX Linnaeus.

PHLOX DOUGLASII Hook.
PHLOX LONGIFOLIA Nutt.
PHLOX NANA Nutt.

P gracilis Hook da 11

P dolicantha G Parish 1838

PHLOX SPECIOSA Pursh.

V congesta G Parish 1839

P canescens T-G Parish 1617 b mts

Genus LOESELIA Linnaeus.

LOESELIA EFFUSA A. Gray.
LOESELIA GUTTATA A. Gray.
LOESELIA TENUIFOLIA A. Gray.

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.

Genus COLLOMIA Nuttall.

COLLOMIA GRACILIS Dougl.
COLLOMIA GRANDIFLORA Dougl.
COLLOMIA HETEROPHYLLA Hook.

Genus GILIA Ruiz & Pavon.

GILIA ACHILLEAEFOLIA Benth.
GILIA ANDROSACEA Stend.
GILIA AUREA Nutt.
GILIA BELLA A. Gray.
GILIA BIGELOVII A. Gray.
GILIA BREVICULA A. Gray.
GILIA CALIFORNICA Benth.
GILIA CAPITATA Dougl.
GILIA CILIATA Bentham.
GILIA DEMISSA A. Gray.
GILIA DENSIFOLIA Benth.
GILIA DIANTHOIDES Endl.
GILIA FILIFOLIA Nutt.
GILIA FLOCCOSA A. Gray.
GILIA FLORIBUNDA A. Gray.
GILIA INCONSPICUA Dougl.
GILIA LATIFOLIA S. Watson.
GILIA LATIFLORA A. Gray.
GILIA LAXA Vasey & Rese.
GILIA LEMMONI Gray.
GILIA LINIFLORA Benth.
GILIA MICRANTHA Stend.
GILIA MULTICAULIS Benth.
GILIA NEVINII A. Gray.
GILIA ORCUTTII. Parry.

"A span high, slender; leaves only 2 or 3 pairs up to the inflorescence, very small, with filiform divisions; fl. few, in the clusters; tube of the corolla less than ½' long, rather thick, dilated at summit, hardly longer than the turbinate campanulate throat and limb, its lobes ovate;

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stamens and style included."—Parry. Proc. Dav. Acad. Natl. Sci. iv. 40 (1884).
GILIA PARRYAE A. Gray.
GILIA PUNGENS Benth.
GILIA SESSEI Don.
GILIA TENELLA Benth.
GILIA TENUIFLORA Benth.
GILIA VIRGATA Stend.

NAVARRETIA FOLIACEA Greene.

"Near N. atractyloides, but more diffuse and leafy, leaves ampler, less coriaceous and of a lighter green, their segments not wholly spinose, but herbaceous below; segments of the calyx very unequal, 2 large, ovate-acuminate spinose tipped and more or less recurved, 3 very small and only broadly subulate: corolla white, small, little surpassing the calyx: herbage scentless."—Greene, Pittonia, i. 138 (N 25, 1887). Potrero, San Diego county, al. (D. Cleveland).

NAVARRETIA PENINSULARIS Greene.

"Diffusely branching, 3–10′ high, glandular-puberulent and very viscid: leaves all acerose-pinnatifid: fls. rather few, in numerous scattered and mostly pedunculate glomerules: calyx sparsely hirsute, the segments subulate, entire, very unequal, the shortest fully equalling the tube the longest surpassed by the purplish corolla: capsule 3 celled, many-seeded Hanson's ranch, in the northern part of Lower California, July 10, 1884, C. R. Orcutt, No. 1113 Related to N divaricata, but sufficiently distinguished by its clamminess and different inflorescence, as well as by its larger corollas."—Greene, Pittonia, i 136.

NAVARRETIA HAMATA Greene.

"Near N atractyloides, and like it aromatic, but smaller and comparatively slender; leaves not ioliaceous-dilated, but with a linear, or nearly linear rachis and few or many spinose-subulate segments of which the terminal one, and sometimes one or all of the lateral pairs are strongly recurved or else abruptly deflexed (forming hooks); calyx-segments all subulate and spinose-tipped, all erect, 2 twice as large as the others: corolla salverform, deep purple, large for the plant, the slender tube well exserted from the calyx. Guadalupe mt., Lower California, June, 1883, C. R. Orcutt. Also at All Saints bay, May, 1885 by the present writer."—Greene, Pit. i. 139 (N 25, 1887).

NAVARRETIA ATRACTYLOIDES Gne.
NAVARRETIA DIVARICATA Greene.
NAVARRETIA PROSTRATA Greene.
NAVARRETIA VISCIDULA Greene.

HYDROPHYLLACEAE.

LEMMONIA CALIFORNICA A. Gray.

Genus NEMOPHILA Nuttall.

NEMOPHILA AURITA Lindl.
NEMOPHILA INSIGNIS Dougl.
NEMOPHILA MENZIESII H. & A.
NEMOPHILA RACEMOSA Nutt.

Genus ELLISIA Linnaeus.

ELLISIA CHRYSANTHEMIFOLIA Bth
ELLISIA MEMBRANACEA Benth.

Genus PHACELIA Juss.

PHACELIA AFFINIS A. Gray.
PHACELIA CAMPANULARIA A. Gray.
PHACELIA CILIATA Benth.
PHACELIA CIRCINATA Jacq. f.
PHACELIA CORDIFOLIA S. Watson.
PHACELIA CURVIPES Torr.
PHACELIA DAVIDSONII A. Gray.
PHACELIA DISTANS A. Gray.
PHACELIA DOUGLASII Torr.
PHACELIA FREMONTII Torr.
PHACELIA GRANDIFLORA A. Gray.
PHACELIA HETEROSPERMA Parish.
PHACELIA HISPIDA A. Gray.
PHACELIA IXODES Kellogg.
PHACELIA IVESIANA Torr.
PHACELIA LEUCANTHA Lemmon.
PHACELIA MICRANTHA Torr.
PHACELIA MOHAVENSIS A. Gray.
PHACELIA ORCUTTIANA A. Gray.
PHACELIA PARRYI Torr.
PHACELIA RAMOSISSIMA Dougl.
PHACELIA RUGULOSA Lemmon.
PHACELIA SUFFRUTESCENS Parry.
PHACELIA TANACETIFOLIA Benth.
PHACELIA VISCIDA Torr.
PHACELIA WHITLAVIA A. Gray.

Genus EMMENANTHE Bentham.

EMMENANTHE PENDULIFLORA Bth.

Genus TRICARDIA Torrey.

TRICARDIA WATSONI Torr.

Genus NAMA Linnaeus.

NAMA DEMISSUM A. Gray.
NAMA HISPIDUM A. Gray.
NAMA PARRYI A. Gray.
NAMA ROTHROCKII A. Gray.
NAMA STENOCARPUM A. Gray.

Genus ERIODICTYON Bentham.

ERIODICTYON ANGUSTIFOLIUM Nt.
ERIODICTYON CRASSIFOLIUM Benth.

"Densely tomentose-villous, the hairs straight: corolla salver-form, twice as long as the calyx, densely villous outside: seed finely about 10-striate, with innumerable minute transverse lines."—Greene, Bull. Cal. Acad. Sci., i. 201.

ERIODICTYON GLUTINOSUM Benth.

Eriodictyon Glutinosum Bentham.—"Infusion of the balsamic-resiniferous leaves in spirit used as a tonic" (Watson, Bot., Cal., i:518). This and E. angustifolium Nuttall are probably identical. The species is very variable. These shrubs are abundant in the hills and mountains of Southern and Baja California, and held in about equal repute as remedial agents by the Mexi-

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cans who do not seem to distinguish between them. E. sessilifolium Greene, of the vicinity of Todos Santos bay, Lower California, is also known by the same name and credited with the same virtues. This seems to be a form connecting E. glutinosum and E. angustifolium with E. crassifolium.

ERIODICTYON SESSILIFOLIUM Grne.

Ge ca ac b 1:201. Br Zoe 4:208 j only.

E intermedia Parry ined. Or 77 j

ERIODICTYON TOMENTOSUM Benth. H. C. Ford gives the San Rafael mountains as the habitat of this species. Mrs. Bingham says: "Found on the banks of mountain streams, and used for lung diseases, but especially for diseases of the mucous membrane of the throat. The Yerba Santa of the Californians." It should be remarked here, that the shrub Mrs. Bingham refers to, is not the beautiful shrub with velvety foliage found around San Diego and referred to E. tomentosum by Watson. The San Diego shrub is referred to E. crassifolium Bentham (fide Greene), and is not known to possess any medicinal properties. The Yerba Santa of the Mexicans commonly referred to as possessing medical properties, is E. glutinosum.

Genus HESPEROCHIRON S. Watson.

HESPEROCHIRON NANUS Greene.

BORRAGINACEAE.

Genus COLDENIA Linnaeus.

COLDENIA CANESCENS D. C.

COLDENIA PALMERI A. Gray.

Genus HELIOTROPIUM Tournefort.

HELIOTROPIUM CURASSAVICUM Lin.

Genus AMSINCKIA Lehm.

AMSINCKIA ECHINATA A. Gray.

A lycopsoides Lehm da 12

AMSINCKIA INTERMEDIA F. & M.

Fl chrome y, with orange spots at the base of the divisions of the corolla. sz j

AMSINCKIA TESSELLATA A. Gray.
AMSINCKIA SPECTABILIS F. & M.

PLAGIOBOTHRYS CANESCENS A. G.

PLAGIOBOTHRYS NOTHOFULVUS

KRYNITZKIA ANGUSTIFOLIA A. Gray
KRYNITZKIA BARBIGERA A. Gray.
KRYNITZKIA CIRCUMSCISSA A. Gray.
KRYNITZKIA COOPERI A. Gray.
KRYNITZKIA FOLIOSA Greene.
KRYNITZKIA INTERMEDIA A. Gray.
KRYNITZKIA JONESII A. Gray.
KRYNITZKIA LEIOCARPA F. & M.
KRYNITZKIA MARITIMA Greene.
KRYNITZKIA MICROMERIS A. Gray.
KRYNITZKIA MOHAVENSIS Greene.
KRYNITZKIA MURICATA A. Gray.
KRYNITZKIA OXYCARYA A. Gray.
KRYNITZKIA OXYGONA A. Gray.
KRYNITZKIA PTEROCARYA A. Gray.
KRYNITZKIA RAMOSISSIMA A. Gray.
KRYNITZKIA TORREYANUM A. Gry.

Genus PECTOCARYA De Candolle.

PECTOCARYA LINEARIS D. C.
PE .. PENICILLATA A. D. C.
PECTOCARYA SETOSA A. Gray.

Genus HARPAGONELLA A. Gray.

HARPAGONELLA PALMERI A. Gray.

ECHINOSPERMUM GREENEI A. Gray.

CONVOLVULACEAE.

Genus CONVOLVULUS Linnaeus.

CONVOLVULUS ARVENSIS Linn.
CONVOLVULUS CALIFORNICA Choisy.
CONVOLVULUS LONGIPES S. Watson.
CONVOLVULUS LUTEOLUS A. Gray.
CONVOLVULUS OCCIDENTALIS Gray
CONVOLVULUS PENTAPETALOIDES
CONVOLVULUS SEPIUM Linn.
CONVOLVULUS SOLDANELLA Linn.

Genus CRESSA Linnaeus.

CRESSA CRETICA Linn.

Genus CUSCUTA Tournefort.

CUSCUTA CALIFORNICA Choisy.
CUSCUTA DECORA CHOISY.
CUSCUTA SALINA Engelm.
CUSCUTA SUBINCLUSA D. & H.

DICHONDRA REPENS Forst.

SOLANACEAE.

Genus SOLANUM Tournefort.

SOLANUM DOUGLASII Dunal.
SOLANUM NIGRUM Linn.
SOLANUM PALMERI Vasey & Rose.
SOLANUM XANTI A. Gray.

Genus PHYSALIS Linnaeus.

PHYSALIS AEQUATA Jacq. f.
PHYSALIS CRASOIFOLIA Benth.
PHYSALIS MURICULATA Greene.
PHYSALIS PEDUNCULATA Greene.
PHYSALIS PUBESCENS Linn.

Genus LYCIUM Linnaeus.

LYCIUM ANDERSONII A. Gray.
LYCIUM CALIFORNICUM Nutt.
LYCIUM HASSEI Greene.
LYCIUM PUBERULUM A. Gray.
LYCIUM RICHII A. Gray.
LYCIUM TORREYI A. Gray.

Genus DATURA Linnaeus.

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DATURA METELOIDES DC.
D discolor Or 2190 j

Genus PETUNIA Juss.

P parviflora Juss j, da 12

Genus NICOTIANA Tournefort

NICOTIANA BIGELOVII S. Watson.
N trigonophylla Dunal Or e
N attenuata Torrey
NICOTIANA CLEVELANDI A. Gray.

Nicotiana Glauca L.—"The large, glaucous, thickish leaves are used as healing and anodine poultices." (Harvard).

SCROPHULARIACEAE.

Genus LINARIA Tournefort.

LINARIA CANADENSIS Dum.

Genus ANTIRRHINUM Tournefort.

ANTIRRHINUM COULTERIANUM Bth.
ANTIRRHINUM FILIPES A. Gray.
ANTIRRHINUM GLANDULOSUM Lnl.
ANTIRRHINUM JUNCEUM A. Gray.
ANTIRRHINUM NEVINIANUM A. Gray
ANTIRRHINUM NUTTALLIANUM Bh.
ANTIRRHINUM ORCUTTIANUM A. G
ANTIRRHINUM SPECIOSUM A. Gray.
ANTIRRHINUM STRICTUM A. Gray.

Or d, da 12, Ge ca ac b 1:122, 409; sz.

ANTIRRHINUM SUBSESSILE A. Gray
ANTIRRHINUM WATSONI Vasey-Rose

Genus MOHAVEA A. Gray.

MOHAVEA VISCIDA A. Gray.

Genus SCROPHULARIA Tournefort.

SCROPHULARIA CALIFORNICA Chn.

Genus COLLINSIA Nuttall.

COLLINSIA BARTSIAEFOLIA Benth.
C childsii Py da 12
C parviflora Or d
COLLINSIA BICOLOR Benth.

Auridula-p fls, upper divisions of corolla white tinged with rose & auricula-p spots at the center. Or d j

COLLINSIA PARRYI A. Gray.

Genus PENTSTEMON Mitchell.

PENTSTEMON AMBIGUUS Torr.
PENTSTEMON ANTIRRHINOIDES Bh.
P azureus Benth da 13
PENTSTEMON BARBATUS Nutt.
V labrosus G da 13
P cæsiusG
PENTSTEMON CENTRANTHIFOLIUS
PENTSTEMON CERROSENSIS Kelg.
PENTSTEMON CLEVELANDI A. Gray
PENTSTEMON CORDIFOLIUS Benth.
PENTSTEMON EATONI A. Gray.
PENTSTEMON GLABER Pursh.
PENTSTEMON HETEROPHYLLUS Lin.
P laetus G da 13
PENTSTEMON PALMERI A. Gray.
PENTSTEMON PARISHII A. Gray.
PENTSTEMON PARRYI A. Gray.
PENTSTEMON PUMILUS Nutt.
PENTSTEMON ROTHROCKII Gray.
PENTSTEMON SPECTABILIS Thurber
PENTSTEMON TERNATUS Torr.

Genus PEDICULARIS Tournefort.

PEDICULARIS DENSIFLORA BENTH

Lousewort, pomegranate-p fls & bracts with v lips. Or d

PEDICULARIS SEMIBARBATUS A. G.

MIMETANTHA PILOSA Greene.

Genus MIMULUS Linnaeus.

MIMULUS BREVIPES Benth.
M bigelovii G da 13
MIMULUS CARDINALIS Dougl.
MIMULUS EXIGUUS A. Gray.
MIMULUS FLORIBUNDUS Dougl.
MIMULUS FREMONTI A. Gray.
MIMULUS INCONSPICUUS A. Gray.
MIMULUS LATIFOLIUS A. Gray.
MIMULUS LUTEUS Linn.
MIMULUS MOHAVENSIS Lemmon.
MIMULUS MOSCHATUS Dougl.
MIMULUS NANUS Hook & Arn.
MIMULUS NASUTUS Greene.
MIMULUS PALMERI A. Gray.
MIMULUS PARISHII Greene.

"Stout, 2° high, villous and very slimy; leaves ovate-lanceolate, erose-dentate 1-2' long, the uppermost clasping: pedicels shorter than the leaves: calyx-teeth triangular, acute, nearly equal: corolla pale rose-red, only the small, nearly regular limb exserted from the calyx: seed small oblong, with a loose, wrinkled coat."—Greene, Bull. Cal. Acad. Sci., I. 108-9 (Mar. 7, 1885).

DIPLACUS GLUTINOSUS Nutt.

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.

DIPLACUS GRANDIFLORUS Greene.
DIPLACUS LATIFOLIUS Nutt.
DIPLACUS LINEARIS Greene.
DIPLACUS LONGIFLORUS Nutt.
DIPLACUS PUNICEUS Nutt.
DIPLACUS STELLATUS Kellogg.

Genus STEMODIA Linnaeus.

STEMODIA DURANTIFOLIA Swartz.

Genus LIMOSELLA Linnaeus.

LIMOSELLA AQUATICA Linn.

Genus VERONICA Linnaeus.

VERONICA ALPINA Linn.
VERONICA AMERICANA Schw.
VERONICA PEREGRINA Linn.

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Genus CASTILLEIA Linnaeus.

C cinerea G

C sessiliflora Pursh

CASTILLEIA AFFINIS Hook & Arn.

Tips of floral bracts brilliant poppy-red.

ff j sz da 13

CASTILLEIA FOLIOLOSA Hook.-Arn.
CASTILLEIA HOLOLEUCA Greene.
CASTILLEIA LINEARIFOLIA Benth.
CASTILLEIA MINIATA Dougl.
CASTILLEIA OBLONGIFOLIA A. Gray.
CASTILLEIA PARVIFOLIA Bong.
CASTILLEIA PLAGIOTOMA A. Gray.
CASTILLEIA STENANTHA A. Gray.

Genus ORTHOCARPUS Nuttall.

ORTHOCARPUS ATTENUATUS A. Gry.

O densiflorus Bentham Ge ca ac b 2:

409 sz

ORTHOCARPUS HISPIDUS Benth.
ORTHOCARPUS PARISHII A. Gray.
ORTHOCARPUS PURPURASCENS Bh.

Genus CORDYLANTHUS Nuttall.

CORDYLANTHUS FILIFOLIUS Nutt.
CORDYLANTHUS NEVINI A. Gray.
CORDYLANTHUS MARITIMUS Nutt.

da 14, ff

Adenostegia maritima Nutt in DC pd 10:598; KBr Zoe 2:368

CORDYLANTHUS ORCUTTIANUS A. G.

OROBANCHACEAE.

Genus APHYLLON Mitchell.

APHYLLON CALIFORNICUM A. Gray.
APHYLLON COMOSUM A. Gray.
APHYLLON COOPERI A. Gray.
APHYLLON FASCICULATUM A. Gray.
APHYLLON LUDOVICIANUM A. Gray.
APHYLLON TUEROSUM A. Gray.
APHYLLON UNIFLORUM A. Gray.

BIGNONIACEAE.

MARTYNIA ALTHEAEFOLIA Benth.

Genus CHILOPSIS Don.

CHILOPSIS SALIGNA Don.

Chilopsis Saligna Don.—Desert willow. "Mexicans use the flowers in fevers and as a stimulant in cardiac diseases." (Harvard).

ACANTHACEAE.

Genus BELEPERONE Nees.

BELEPERONE CALIFORNICA Benth.

LABIATAE.

Genus HYPTIS Jacq.

HYPTIS EMORYI Torr.

Genus MENTHA Linnaeus.

MENTHA CANADENSIS Linn.

M piperata L da 14

MENTHA VIRIDIS Linn.

LYCOPUS SINUATUS Ell.

L lucidus americanus G da 14

Genus PYCNANTHEMUM Mich.

PYCNANTHEMUM CALIFORNICUM T.

Genus MONARDELLA Bentham.

MONARDELLA CANDICANS Benth.
MONARDELLA HYPOLEUCA A. Gray.
MONARDELLA LANCEOLATA A. Gray.

V microcephala G

MONARDELLA LINOIDES Gray.
MONARDELLA MACRATHA A. Gray.

V tenuiflora G

MONARDELLA NANA A. Gray.
MONARDELLA ODORATISSIMA Benth
MONARDELLA PRINGLEI A. Gray.
MONARDELLA TENUIFLORA S. Wat.
MONARDELLA THYMIFOLIA Greene.
MONARDELLA VILLOSA Benth.

CALAMINTHA PALMERI A. Gray.

ACANTHOMINTHA ILICIFOLIA A. G.

Genus POGOGYNE Bentham.

POGOGYNE NUDIUSCULA A. Gray.
POGOGYNE SERPYLLOIDES A. Gray.
POGOGYNE TENUIFLORA A. Gray.

Genus SALVIA Linnaeus.

S bernardina Parish; G - ca ac b 1:211 b

SALVIA COLUMBARIAE Benth.

Salvia Columbriae Bentham.—Mrs. Bingham says this is "the chia of the aborigines, and grows in soil in the foothills of the coast range. The seeds are demulcent, and used in gastro-intestinal disorders. The Indians roasted the seed, ground them between two stones, and used the meal for food. It is said to improve the taste of poor water, and on that account is of use to persons in crossing deserts. It quenches thirst and lessens the quantity of water desired, sometimes in that way preventing serious illness from excessive drinking of bad water. It is valued as a poultice, and the seeds are sometimes placed in the eye to form a mucilage by means of which foreign bodies may be removed from that organ. Quantities of these seeds have been found buried in graves several hundred years old, proving that the use of the seed reaches back into the remote past."

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Prof. Sereno Watson (Bot. Cal. 1:599) says, "The seed-like nutlets, infused in water, form a pleasant mucilaginous drink, which is largely used."

SALVIA CARDUACEA Benth.

Salva Carduacea Bentham—The seed of this and the above species are identical except in size, and both known by the Indian name of "chia," "chio," or "chius." As the seed of this is much larger it is the one most largely used among the Indians of Southern and Lower California, and the above remarks of Mrs. Bingham concerning S. columbariae may be considered to apply equally well to this species.

SALVIA CEDROSENSIS Greene.

Genus SPHACELE Bentham.

SPHACELE CALYCINA Benth.

V wallacei G da 14

S fragrans Ge pi't 1:38; ca ac b 2:409 sz

Genus AUDIBERTIA Bentham.

AUDIBERTIA CAPITATA A. Gray.
AUDIBERTIA CLEVELANDI A. Gray.
AUDIBERTIA GRANDIFLORA Benth.
AUDIBERTIA INCANA Benth.

V pilosa G

V pachystaceya G j

AUDIBERTIA NIVEA Benth.
AUDIBERTIA PALMERI A. Gray.
AUDIBERTIA POLYSTACHYA Benth.
AUDIBERTIA STACHYOIDES Benth.

A Vaseyi Porter

SALIZARIA MEXICANA Torr.

Micromeria Douglasii Bentham.—"Yerba Buena." Valued as a blood purifier.

BRUNELLA VULGARIS Linn.

TEUCRIUM CUBENSE Linn.

Genus MARRUBIUM Linnaeus.

MARRUBIUM VULGARE Linn.

Marrubium Vulgare L.—Hoarhound, widely naturalized in California, is much used for coughs and lung diseases.

Genus STACHYS Linnaeus.

STACHYS ACUMINATA Greene.

S adjugoides Bentham da 14

S albens G da 14

STACHYS BULLATA Benth.

S californica Bentham da 14

Genus TRICHOSTEMA Linnaeus.

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).

TRICHOSTEMA LANCEOLATUM Bth.
TRICHOSTEMA MICRANTHUM A. Gry.
TRICHOSTEMA OVATUM Curran.
TRICHOSTEMA PARISHII Vasey.

"romero" of the Mexicans is valued for medicinal properties unknown to the writer. Dr. Edward Palmer, I believe, has published notes on the virtues of this plant in the American Naturalist, and also under the title of "Food Products," in one of the reports of the United States department of agriculture.

LOPHANTHUS URTICIFOLIUS Benth.

Genus SCUTELLARIA Linnaeus.

SCUTELLARIA ANGUSTIFOLIA Psh.
SCUTELLARIA BOLANDERI A. Gray.
SCUTELLARIA TUBEROSA Benth.

VERBENACEAE.

Genus VERBENA Linnaeus.

Verbena bracteosa Mich da 13

VERBENA CANESCENS H. B. K.
VERBENA CILIATA Benth.
VERBENA LILACINA Greene.
VERBENA LITTORALIS H. B. K.
VERBENA OFFICINALIS Linn.
VERBENA POLYSTACHYA H. B. K.
VERBENA PROSTRATA R. Br.

Genus LIPPIA Linnaeus.

LIPPIA LANCEOLATA Michx.
LIPPIA NODIFLORA Michx.

PLANTAGINACEAE.

Genus PLANTAGO Linnaeus.

PLANTAGO BIGELOVII A. Gray.
PLANTAGO HIRTELLA H. B. K.
PLANTAGO LANCEOLATA Linn.
PLANTAGO MAJOR Linn.

P maritima L ff

PLANTAGO PATAGONICA Jacq.

V gnaphaloides G Or e

PLANTAGO VIRGINICA Linn.

NYCTAGINACEAE.

Genus MIRABILIS Linnaeus.

MIRABILIS CALIFORNICA A. Gray.
MIRABILIS FROEBELII Behr.
MIRABILIS LAEVIS Curran.
MIRABILIS MULTIFLORA A. Gray.

Is M frœbèlii

MIRABILIS TENUILOBA S. Watson.

Genus ALLIONIA Linnaeus.

ALLIONIA INCARNATA Linn.

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Genus ABRONIA Jussieu.

ABRONIA LATIFOLIA Esch.

A arenari- Menzies

ABRONIA MARITIMA Nutt.
ABRONIA TURBINATA Torr.
ABRONIA UMBELLATA Lam.

ABRONIA VILLOSA S. Watson.
"Pubescence more or less densely villous, subglandular, spreading; stems weak and slender; leaves ¼-1′ long, oblong or ovate, obtuse or acutish, attenuate into a slender petiole; heads 5-10-flowered; involucral scales narrowly lanceolate, long-acuminate, 3-4″ long; fl. pink, the lobes obcordate with a deep sinus; fr. with a firm body, strongly reticulate-pitted, the 3-5 broad wings consisting of a simple lamina, usually truncate above. Nearest to A. umbellata, Arizona (Wheeler)."—S. Watson, Amer. Natl., vii. 6 (May 1873).

OXYBAPHUS NYCTAGINEUS Sweet.

Genus BOERHAAVIA Linnaeus.

B erecta L Or 2090 j

BOERHAAVIA VISCOSA A. Gray.

POLYGONACEAE.

Genus RUMEX Linnaeus.

R acetosella L ff da 14

RUMEX CONGLOMERATUS Mun.
RUMEX CRISPUS Linn.

RUMEX HYMENOSEPALUS Torr.

"Sandy soils from El Paso to the canyons of the Rio Grande; Mr—Ap. Root white. Stem 2-3° high. 'Foliage intensely bitter;' Thurber. Lower leaves a ft or more long & 2–3′ wide, somewhat undulate on the margin: upper ones nearly flat. Panicle a ft long, fls crowded. Inner sepals of the fructiferous calyx nearly ½′ long, roundish-ovate, strongly cordate, of a very thin texture, often rose-colored, slightly reticulate-veined, twice as long as the achenium" * * * Torr bot m boundary 177–8. Or 71 j; d; z; da 14

RUMEX MARITIMUS Linn.
RUMEX SALICIFOLIUS Wein.

Genus POLYGONUM Linnaeus.

P acre HBK da 14

POLYGONUM AMPHIBIUM Linn.
POLYGONUM AVICULARE Linn.
POLYGONUM BISTORTA Linn.
POLYGONUM HARTWRIGHTII A. G.
POLYGONUM HYDROPIPEROIDES Mx.
P incurvatum Ell da 14
POLYGONUM NODOSUM Pers.
POLYGONUM TENUE Michx.

Genus NEMACAULIS Nuttall.

NEMACAULIS DENUDATA Nutt.

Genus ERIOGONUM Michx.

ERIOGONUM CLAVATUM Small.

"Annual, acaulescent. Leaves basal; blades 5–13 mm. broad, much broader than long, undulate, strigose-hispid on both sides, cordate at the base or rarely truncate; petioles about twice as long as the blades, hispid: scapes erect, solitary, glaucous, forked above, the ultimate division filiform, the lower internodes more or less swollen above the middle: bracts scale-like: peduncles hair-like, ½ cm. long, spreading: involucres narrowly turbinate, very small, less than 1 mm. long; segments obtuse, as broad as long, shorter than the tube: calices densely hirsute less than 1 mm. long, the segments nearly equal, ovate-lanceolate, acutish: filaments glabrous."—Small. j

ERIOGONUM GLAUCUM Small.

"Annual, slender, acaulescent. Leaves basal; blades ovate or oval-ovate, 5–10 mm long, obtuse, undulate-crisped, often inequilateral, softly hispid on both surfaces, obtuse or subcordate at the base; petioles 2–3 times longer than the blades, hirsute: scapes erect, solitary or several together, 1–6 cm tall, glaucous, forked, the branches ascending or spreading: peduncles filiform, about one cm. long, more or less spreading: involucres glabrous, turbinate, 1 mm. long; segments oblong, obtuse, about as long as the tube: calices densely hirsute, 2 mm. long; segments lanceolate, acute, erect; filaments glabrous."– Small, Bull. Torr. club, xxv, 51, Ja. 25, 1898. e

E latifolium Smith da 14; ff
E virgatum Bentham da 15
E delicatulum Wat da 15
E molestum Watson da 15
E insigne Watson Or 1466
E grande Ge pitt 1:38; ca ac b 2:410 sz
E rubescens Ge pit 1:39; ca ac b 2:410; sz
ERIOGONUM ANGULOSUM Benth.
ERIOGONUM APICULATUM S. Watson.

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ERIOGONUM ARBORESCENS Greene.
ERIOGONUM BAILEYI S. Watson.
ERIOGONUM BRACHYPODUM T. & G.
ERIOGONUM CINEREUM Benth.
ERIOGONUM CRENULATUM Parry.

ERIOGONUM DESERTICOLA S. W ts.
"Apparently an annual of the E. Pusillum group (base and foliage unknown) tall, several times dichotomously branched, white-tomentose, becoming mostly glabrous and yellowish green; bracts all small and deltoid; involucres shortly pedicellate or subsessile toward the end of the branches, erect or spreading, turbinate-campanulate, 1" long; perianth villous, the elliptical segments y. with greenish or reddish m dveins, 1-1 ½" long. In the southwestern part of the Colorado desert, San Diego Co., California; C. R. Orcutt, November, 1890 (n. 2189)."—S. Watson, Proc. Am. Acad. xxvi. 125-6 (July 31, 1891).

ERIOGONUM ELONGATUM Benth.
ERIOGONUM FASCICULATUM Benth.

ERIOGONUM FOLIOSUM S. Watson.
"Of the E. vimineum group: annual, branching from the base, floccose-tomentose, the branches sparse and spreading; leaves ovate, cordate or cuneate at base, obtuse or acute, undulate, tomentose beneath, 3-9" long besides the petiole, radical, and in the axils of the subulate bracts; involucres broadly turbinate, cleft nearly to the middle, green, 1" long; fl. ½" long, the segments white or pinkish w th a green midvein."—S. Watson, Proc. Am. Acad., xx. 371-2 (Feb. 21, 1885). Cantillas, Lower California (Palmer, 1875; Orcutt, 1882).

ERIOGONUM GIGANTEUM S. Watson.
ERIOGONUM GRACILE Benth.
ERIOGONUM INFLATUM Torr.

ERIOGONUM MINUTIFLORUM Wats.
"Of the E. Pusillum group: very slender, 6' high or less, diffusely branching, glabrous, excepting the small ovate rosulate leaves which are densely white-tomentose on both sides, becoming less tomentose above; bracts minute; peduncles filiform, divericately spreading; 3-8" long; involucres very small (1-3" long), broadly turbinate-campanulate, purplish; perianth y., minutely puberulent, very small."—S. Watson, Proc. Am. Acad., xxvi., 125 (July 31, 1891). Colorado desert, San Diego Co., California (Orcutt, April, 1890).

ERIOGONUM NUDUM Dougl.

ERIOGONUM ORCUTTIANUM S. Wats.
"Of the E. Heermanni group: the very short herbaceous leaf stems from a woody base, and the rigid divaricate branches finely subtomentose-pubescent: leaves scattered, thick, nearly glabrous, broadly ovate or obovate, obtuse, shortly petiolate, ¾" long; bracts ternate, deltoid-subulate, small, subherbaceous: involucres solitary, tubinate-campanulate, subtomentose, nearly 1" long; fl. tomentose., greenish white, 2-3" long, the oblong-obovate lobes of the perianth nearly equal."—S. Watson, Proc. Am. Acad., xx. 371 (Feb. 21, 1885). Shrub, 2' high; Cantillas Canyon, Lower California (H. C. and C. R. Orcutt, August, 1883).

ERIOGONUM PALMERI S. Watson.
ERIOGONUM PARISHII S. Watson.
ERIOGONUM PARRYI A. Gray.
ERIOGONUM PARVIFOLIUM Smith.
ERIOGONUM PLUMATELLA D. & H.
ERIOGONUM PONDII Greene.
ERIOGONUM PUSILLUM T. & G.
ERIOGONUM RENIFORME Torr.
ERIOGONUM SAXATILE S. Watson.
ERIOGONUM STELLATUM Benth.
ERIOGONUM THOMASII Torr.

ERIOGONUM THURBERI Torr.

"Sandy ravines, San Pasqual, Calif., My; Thurber. * * Wallace. Leaves in a subradical cluster, about ½' long undulate-rugose pubescent above. white tomentose underneath. Stem a scape about a span high, trichotomously subdivided below the middle, with ovate acute ternate bracts at the forks Pedicels 1' long. Involucre less than a line in diameter, cleft nearly to the middle into 6 rather obtuse lobes; exterior segments of the perianth nearly four times broader than the inner. Filaments & ovary smooth. Styles short. Achenium smooth. Embryo strongly curved. No bracteoles were detected; in their place are only woolly hairs." * * * Torr bot m boundary 176–7 Or j; da 14

ERIOGONUM NODOSUM Small.

"A white-tomentose shrub, .5–1.5 meters tall, with spreading, forking branches. Leaves small, 2-6 mm. long; blades elliptic or elliptic-ovate, acutish, revolute, narrowed into short petioles: bracts scale-like, acute or acuminate: involucres turbinate-campanulate, 2 5 mm. long, angled, sessile: segments broad, much shorter than the tube; calices glabrous, pink, 3 mm. long; segments rounded at the apex, the 3 outer oblong or obovate-oblong, the 3 inner cuneate: filaments villous below the middle: achenes 3-angled, scabro-pubescent above the middle."—Small, Bull. Torr. club, xxv, 49. Ja 25 1898. e

ERIOGONUM TRICHOPODUM Torr.
ERIOGONUM UMBELLATUM Torr.
ERIOGONUM VIMINEUM Dougl.
ERIOGONUM WRIGHTII Torr.

Genus CHORIZANTHE R. Brown.

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CHORIZANTHE BREVICORNU Torr.
CHORIZANTHE CALIFORNICA A. G.
CHORIZANTHE CORRUGATA T. & G.
CHORIZANTHE FERNANDINA S. Wat.
CHORIZANTHE FIMBRIATA Nutt.
CHORIZANTHE LACINIATA Torr.
CHORIZANTHE LEPTOCEROS S. Wat.
CHORIZANTHE ORCUTTIANA Parry.
"Decumbent, 2-6′ broad, appressed pubescent throughout, densely branched from the base; radical leaves narrowly lanceolate, obtuse, tapering to a slender petiole; cauline leaves smaller, sessile, opposite, connate, obtuse; upper involucral bracts broadly triangular, scarious, accuminate; involucres in the lower forks and loosely scattered on the slender branches, sharply triangular, with short chartaceous tube (not corrugated); divisions 3, nearly equal, not conspicuously foliaceous, broadly divergent, with recurved uncinate awns; fl. partly exsert, pedicellate; perianth as long as the pedicel, tube narrowly turbinate, segments equal, narrowly spathulate, with long ciliate hairs externally, extending beyond the segments in an irregular fringe; stamens 9 (or less), with short filaments on the throat; anthers dull reddish, orbicular; stigmas short, recurved; akene narrowly triangular; embryo 1″ in length, with linear cotyledons and slender radicle."—Parry, Proc. Dav. Acad. Natl. Sci., iv. 54-5 (1884).
CHORIZANTHE PARRYI S. Watson.
CHORIZANTHE PERFOLIATA A. Gray.
CHORIZANTHE POLYGONOIDES T.-G.
CHORIZANTHE PROCUMBENS Nutt.
CHORIZANTHE RIGIDA T. & G.
CHORIZANTHE SPINOSA S. Watson.
CHORIZANTHE STATICOIDES Benth.
CHORIZANTHE THURBERI S. Watson.
CHORIZANTHE WATSONI T. & G.
CHORIZANTHE XANTI S. Watson.

Genus OXYTHECA Nuttall.

OXYTHECA CARYOPHYLLOIDES Pry.
OXYTHECA INERMIS S. Watson.
OXYTHECA LUTEOLA Parry.
OXYTHECA PARISHII Parry.
OXYTHECA PERFOLIATA T. & G.
OXYTHECA TRILOBATA A. Gray.

Genus LASTARRIAEA Remy.

LASTARRIÆA CHILENSIS Remy.
"Involucral whorls closely adherent, each similar to the external cauline leaves; perianth sharply triangular, coriaceous, segments unequal, with prolonged uncinate awns."—Parry, Proc. Dav. Acad. Natl. Sci., v. 36 (Nov. 1, 1886).

Genus HARFORDIA Parry.

HARFORDIA FRUTICOSA Greene.
HARFORDIA MACROPTERA Parry.

Genus PTEROSTEGIA F. & M.

PTEROSTEGIA DRYMARIOIDES Nutt.

AMARANTACEAE.

Genus AMARANTUS Tournefort.

AMARANTUS ALBUS Linn.
AMARANTUS CALIFORNICUS S. Wat.
AMARANTUS FIMBRIATUS Benth.
AMARANTUS PALMERI S. Watson.
AMARANTUS REFLEXUS Linn.

Genus NITROPHILA S. Watson.

NITROPHILA OCCIDENTALIS S. Wat.

Genus CLADOTHRIX Nuttall.

CHLADOTHRIX LANUGINOSA Nutt.
CHLADOTHRIX OBLONGIFOLIA Nutt

CHENAPODIACEAE.

Genus APHANISMA Nuttall.

APHANISMA BLITOIDES Nutt.

Genus CHENOPODIUM Tournefort.

CHENOPODIUM ALBUM Linn.
CHENOPODIUM AMBROSIOIDES Linn.
Chenopodium Ambrosioides L.—"A common weed in many parts of the world, is used as a vermifuge under the name of worm seed." (Mrs. Bingham).
CHENOPODIUM CALIFORNICUM S. W.
CHENOPODIUM FREMONTI S. Watson
CHENOPODIUM MURALE Linn.

Genus MONOLEPIS Schrader.

MONOLEPIS CHENOPODIOIDES Moq.
MONOLEPIS SPATHULATA A. Gray.

Genus ATRIPLEX Tournefort.

ATRIPLEX BRACTEOSA S. Watson.
ATRIPLEX CANESCENS James.
ATRIPLEX COULTERI Dietr.
ATRIPLEX DILATATA Greene.
ATRIPLEX EXPANSA S. Watson.
ATRIPLEX HYMENELYTRA S. Watson
ATRIPLEX JULACEA S. Watson.
ATRIPLEX LEUCOPHYLLA Dietr.
ATRIPLEX MICROCARPA Dietr.
ATRIPLEX ORBICULARIS S. Watson.
ATRIPLEX PALMERI A. Gray.
ATRIPLEX PARISHII S. Watson.
ATRIPLEX PATULA Linn.

Genus EUROTIA Adanson.

EUROTIA LANATA Moq.
Eurotia Lanata Moquin.—"Of good repute as a remedy for intermittents." (Watshon, Bot. Cal. II. 56).

GRAYIA POLYGALOIDES Hook-Arn.

Genus SALICORNIA Tournefort.

SALICORNIA AMBIGUA Michx.
SALICORNIA HERBACEA Linn.
SPIROSTACHYS OCCIDENTALIS S. W.

Genus SUAEDA Forskal.

SUAEDA TORREYANA S. Watson.

BATIDEAE.

Genus BATIS P. Browne.

BATIS MARITIMA Linn.

LAURACEAE.

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Genus UMBELLALARIA Nuttall.
UMBELLULARIA CALIFORNICA Nutt.

URTICACEAE.

Genus URTICA Tournefort.
URTICA HOLOSERICEA Nutt.
URTICA URENS Linn.

Genus HESPEROCNIDE Torrey.
HESPEROCNIDE TENELLA Torr.

Genus PARIETARIA Tournefort.
PARIETARIA DEBILIS Forst.

PLATANACEAE.

Genus PLATANUS Tournefort.
PLATANUS RACEMOSUS Nutt.

The sycamore is a spreading, lofty tree common near water courses from the coast to the desert, up to an altitude of 3,000 or 4,000 feet. "A tree growing in sandy loam at San Bernardino measures 9½ feet in circumference at 3½ feet from the ground; height about 60 feet."—Parish, Zoe, 4:3.

BUXACEAE.

Genus SIMMONDSIA Nuttall.
SIMMONDSIA CALIFORNICA Nutt.

The goat-nut, or deer-nut, is an acorn-like fruit, edible and pleasant to the taste, produced by a low, oval-formed, rigid shrub, in profusion, under all conditions of soil from the sea coast to the borders of the desert to eastern Arizona. The Indians at the Catalina mission, in Lower California, claim not to eat them, and I find no record of their ever having been utilized for food. It occurs on Cedros island, and the mainland opposite to the gulf shores.

EUPHORBIACEAE.

Genus EUPHORBIA Linnaeus.
EUPHORBIA ALBOMARGINATA T.-G.
EUPHORBIA ERIANTHA Benth.
EUPHORBIA HIRTULA Engelm.
EUPHORBIA MISERA Benth.
EUPHORBIA PALMERI Engelm.
EUPHORBIA PARISHII Greene.
EUPHORBIA POLYCARPA Benth.

Euphorbia Polycerpa Benth.—The name Golondrina is applied indiscriminately by Mexicans to various species of small prostrate herbs belonging to the genus Euphorbia, each of which is reputed to be a certain antidote against the bite of the rattlesnake or of any of the poisonous reptiles or insects. It is popularly believed that wherever the rattlesnake may occur that some form of this rattlesnake weed may be found. Some form is sure to be found in any portion of the southwest, from California to Texas, southward into Mexico.

Indians are said to chew the plant when bitten by a snake, and swallowing the juice, stuff the cud into the wound or apply it as a poultice, or sometimes make a weak tea. Said also to be useful in cases of internal as well as of external poisoning, but I have found no evidence to sustain this statement, and as the plant is in itself poisonous to some people when the juice is externally applied to the skin, it should be handled with caution, except in dire necessity. It seemingly has no effect upon the writer.

A CURE FOR SNAKE BITES.
steeped in milk and given to children in cases of their being bitten by a rattlesnake.

v micromera Millsp. Or e
EUPHORBIA SERPYLLIFOLIA Pers.
v eo sanguinea Boiss Or d
E longicruris Scheele. Or
E peplo'des Nutt Or
E dictyosperma E.M Or
E dentata Mx Or
E heterophylla graminifolia E Or
E baja californica Millsp. Or 1831
E scill ba E Or
E wright i T-G Or
EUPHORBIA SPLENDENS Boj.
EUPHORBIA TOMENTULOSA S. Wat.

Genus EREMOCARPUS Bentham.
EREMOCARPUS SETIGERUS Benth.

Genus ACALYPHA Linnaeus.
ACALYPHA CALIFORNICA Benth.

Genus CROTON Linnaeus.
CROTON CALIFORNICUS Mull.
CROTON TENUIS S. Watson.
BERNARDIA MYRICAEFOLIA S. Wat.

Genus STILLINGIA Garden.
STILLINGIA ANNUA Mull.
STILLINGIA LINEARIFOLIA S. Wat.

Genus ARGYTHAMNIA P. Browne.
ARGYTHAMNIA SERICOPHYLLA A. G.
ARGYTHAMNIA SERRATA Mull.

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Genus TETRACOCCUS Engelmann.

TETRACOCCUS DIOICUS Parry.

"Shrubby, dioecious; staminate flowers involucrate on slender pedicels in the axils of the upper leaves of recent shoots; inflorescense with a prolonged central axis a little shorter than the leaves, and usually 2 or more unequally developed opposite branches, bracteate at base; involucre in a double series, persistent, with 7-9 short, rounded segments; stamens 7-9 long exsert, inserted at the base of the involucral scales, encircling an irregularly lobed, central disk; filaments densely ciliate-pubescent at base, anthers extrorse, broadly 2-celled. Pistillate flowers in the axils of lower leaves on recent shoots, single pedicellate, pedicels thickening upwards, and bibracteate near the middle involucre of 7-9 oblong, unequal segments in 2 series with 4 glandular scales on the inner surface, segments fragilent at maturity. Ovary 4 lobed, densely tawny hirsute, with 4 long, recurved stigmas. Capsule orbicular, broadly 4 lobed and 4 celled, the thin epicarp separating in valves from rigid cocci which part at maturity, the separate cells dehiscing at both sutures. Ovules 2 to each cell, pendant from the upper placental column which persists as a rigid central axis after the rupture of the cells. Seeds by abortion 1 to each cell, smooth, oblong, conspicuously carunculate. Embryo with broad cotyledons and short, straight radicle immersed in copious albumen. Leaves narrowly lanceolate, nearly sessile with a somewhat decurrent midrib, smooth; rather rigid and inclined to curve on the upper face, mostly opposite or in ternate whorles, often fasciculate in the lower axils, and with short reduced branches on the lower shoots."—Parry, West Am. Sci. i. 13. 1885.

RICINIS COMMUNIS Linn.

CALLITRICHACEAE.

Genus CALLITRICHE Linnaeus.

CALLITRICHE LONGIPEDUNCULATA
CALLITRICHE VERNA Linn.

PIPERACEAE.

Genus ANEMOPSIS Hooker.

YERBA MANSE.

ANEMOPSIS CALIFORNICA B. & H. This is one of the favorite medicinal herbs of the old Spanish Californians, but has won a permanent place in European greenhouses, and should be given the attention it deserves in the land of its birth. It is readily grown in moist soil, the apple-green foliage frequently blotched with crimson, showing off the rather large white flowers to great advantage.

Anemopsis Californica Benth. & Hook.—The "Yerba Manse" of the Mexicans has a "strongly pungent, astringent, aromatic root, valued for the healing of ulcers, both of the mucous membrane and of the outer surface" (Mrs. Bingham). Much used for medicinal purposes by the Indians and Mexicans (Watson, Bot. Cal. ii:78). Widely distributed over Southern and Lower California, in moist, salty ground.

CERATOPHYLLACEAE.

Genus CERATOPHYLLUM Linnaeus.

CERATOPHYLLUM DEMERSUM Linn.

BETULACEAE.

Genus ALNUS Tournefort.

ALNUS OBLONGIFOLIA Torr.

The alder is a slender tree occurring along our perennial streams, from Mission valley to the Cuyamaca mountains in Lower California, and north and eastward. Rarely exceeds 50 feet in height and 2 feet in diameter.

ALNUS RHOMBIFOLIA Nutt.

SALICACEAE.

Genus SALIX Tournefort.

SALIX CAUDATA Muhl.
SALIX LAEVIGATA Bebb.
SALIX LASIANDRA Benth.
SALIX LASIOLEPIS Benth.
SALIX LONGIFOLIA Muhl.
SALIX SESSILIFOLIA Nutt.

Genus POPULUS Tournefort.

POPULUS TRICHOCARPA T. & G.

JUGLANDACEAE.

Genus JUGLANS Linnaeus.

JUGLANS CALIFORNICA Watson. The California Black Walnut is a tree or large shrub, producing small nuts of an excellent flavor, preferred by some to the Madeira nut. A grand ornamental tree, attaining a height of 60 feet, pyramidal in outline, and could be advantageously grown in arid localities.

The California black walnut is usually a small tree, growing 50 to 75 feet high, 2 to 4 feet in diameter, bearing a roundish nut, the kernel sweet and delicate in flavor. Occurs from along the Sacramento river to San Diego county, California; occasionally cultivated, but more as a shade or street tree, than for its excellent nuts.

Genus CORYLUS Tournefort.

Corylus Avellana californica A DC

CUPULIFERAE.

Genus CASTANOPSIS Spach.

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CASTANOPSIS CHRYSOPHYLLA A. DC

Genus QUERCUS Linnaeus.

Q. GRIFOLIA Nee.

The California live oak is justly one of the trees described as picturesque, the stout, low trunk 8, to even 20 feet, in circumference, with a spread of branches of 120 feet. Mendocino county appears to be its northern limit, while near La Grulla, south of Ensenada, Lower California, is the most southern recorded station, where its branches sweep the ground. The shining, elongated, tapering, acute-pointed acorn, 1-1½ inches long, and ¼ to 1-3 inch in diameter, characterizes the species and are among the treasured trophies of the average tourist, who often says he "can taste them still"—but generally prefers not to do so—the second time.

Q. ENGELMANNI Ge. [Q oblongifolia]

The Englemann, or Post oak, is a small spreading tree, 40 feet high, with a trunk usually under 3 feet in diameter. Not rare near Pala, Fallbrook, the Potrero, and into Lower California, 20 miles or so from the sea.

QUERCUS CHRYSOLEPIS Liebm.
QUERCUS DUMOSA Nutt.
QUERCUS EMORYI Torr.
QUERCUS KELLOGGII Newb.
QUERCUS PALMERI Engelm.
QUERCUS PUNGENS Engelm.

LORANTHACEAE.

Genus ARCEUTHOBIUM Bieb.

ARCEUTHOBIUM DOUGLASII Engelm.
ARCEUTHOBIUM OCCIDENTALE E.

Genus PHORADENDRON Nuttall.

PHORADENDRON BOLLEANUM Eichl.
PHORADENDRON CALIFORNICUM Nt.
PHORADENDRON FLAVESCENS Nutt.
PHORADENDRON JUNIPERINUM Em.

GNETACEAE.

Genus EPHEDRA Tournefort.

EPHEDRA CALIFORNICA S. Watson.

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 gonorrhœa, 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 [illegible] been known to cause strangury. [illegible]r. V. Havard, vide Proc. U. [illegible]. Mus. VIII. 504.) The species [illegible]vard refers to are E. antisyphil[illegible] C. A. Meyer and E. trifurca [illegible] but the same remarks seem to a[illegible] equally well to our Californian sp[illegible]. It is often used as a substitute [illegible]ea, and is scarcely distinguishab[illegible] taste, except for an after-flave[illegible]t unpleasant, reminding one slight [illegible]f catnip tea. It is in great reno[illegible]as a blood purifier and many have [illegible]unteered to me their opinion that [illegible] was "better than sarsaparilla" an[illegible] 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. antisyphilitica—which already has a place among American drugs.

EPHEDRA NEVADENSIS S. Watson.
EPHEDRA OXYCARPA Engelm.
EPHEDRA TRIFURCA Torr.

CONIFERAE.

Genus JUNIPERUS Linnaeus.

JUNIPERUS CALIFORNICUS Carr.

Genus LIBOCEDRUS Endl.

L. decurrens Torr. white cedar.

Genus PINUS Tournefort.

P. MURICATA Don.

A small pine, growing near San Isidro, in Lower California, not known from San Diego county, is found, only near the coast, as far north as Mendocino—where it grows 50 to 80 or 120 feet high. At San Isidro trees only 3 feet high were perfecting cones, which are said to persist over 30 years on the tree. The leaves are in pairs. The cones are sessile, ovate, about 3 inches long, with stout prickles on the outside. The cones occurring in whorls around the stem, and remaining closed for many years, are one of the curiosities of California botany.

PINUS COULTERI Don. Big-cone pine.—the "cone elongated, elliptical, of matchless size and weight, 15 to 20 inches long, and often weighing 5 to 8 pounds."

The big cone pine is a tree 1-2½ feet in diameter and 50 or more feet high, occurring above 5,000 feet usually, from Mount Diablo to the Catalina mountain and on the mountains northeast of Ensenada in Lower California. The cones are long, oval pointed, 10-14 inches long and 4 or 5 inches in diame-

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ter, yellowish brown, persistent for many years on the tree, the scales with a very stout, long incurved point (sometimes 2 inches long.)

PINUS PONDEROSA Dougl. Western yellow pine. Trees of the largest size, 200 to 300 feet in height, and 5 to 15 feet thick.

The yellow pine is a noble tree, one of the largest known, 200-300 feet high and 12-15 feet in diameter at times, with leaves in threes, 5 to even 11 inches long. "Throughout the San Bernard no range, the San Jacinto and Cuyamaca mountains, forming the greater part of the coniferous forest," says Parish (Zoe., 4:351.)

PINUS JEFFREYI Murr.

The Jeffrey or black pine is a tree 75 feet high, trunk 3 feet in diameter, usually found in the mountain valleys near small streams, extending into Lower California. Credited to the Cuyamaca mountain.

PINUS LAMBERTIANA Dougl. The Great Sugar pine, bearing immense cones.

The sugar pine attains at times a height of 300 feet and a diameter of 8 to 20 feet, with light brown smoothish bark, splitting in small sections. The bright brown cylindrical cones are 1 to 1½ feet long, 3-4 inches wide, on peduncles 3 inches in length, containing smooth, black seeds ½ inch long. "The exundation from the partially burned tree loses its resinous qualities and acquires a sweetness similar to that of sugar or manna, for which it is sometimes used, whence the name of sugar pine." (Watson, Botany of California, 2:123). The sugar which I have collected from trees in the Cuyamaca mountains was very sweet, fine grained and white as snow.

PINUS MONOPHYLLA T. & G.

PINUS PARRYANA Engelm.

The pinone tree, peculiar to Southern and Lower California, but most abundant on the table lands near the international boundary, is a very graceful and symmetrical tree, 20-30 feet high, 10-18 inches in diameter, distinguished by the 3-5 (mostly 4) leaves in a sheath, 1¼-1½ inches long. The oval seeds, 5-8 lines long, with a thin light-brown mottled shell, are delicious in flavor, either roasted or fresh, and in a good season are collected in immense quantities by the Indians for food. These nuts in a roasted condition are not rare in San Diego markets, and often exported in quantities, being considered quite a luxury with some. Unlike the other nut pines, the tree is very ornamental when properly grown, and forms a worthy monument to the botanist of the Mexican boundary survey of 1850—Dr. Charles Christopher Parry—in whose honor the specie is named.

PINUS RADIATA Don: (P. insignis, Loudon.) Monterey pine; a popular tree for California planting.

PINUS SABINIANA Dougl. Gray-leaf pine; one of the nut pines, or "Digger Pine," the large seeds of which were formerly used for productive. A vigorous grower.

or more, the main stems often with a circumference of 50 feet."

PINUS TORREYANA Parry.

The Soledad pine was for many years believed an exclusive resident of the suburban parts of San Diego, occurring on the hills facing the sea near Del Mar. A second small grove has been discovered on Santa Rosa island. Where most exposed it forms a low, scraggly shrub, 2 or 3 feet high only at times, but spreading over a wide area; at its best estate it forms a small, graceful tree 20 to 30 feet high, a foot or more in diameter. The very stout leaves are 8 by 11 inches long, 5 in a sheath. The edible seeds, 8-11 lines long, with a very hard shell, produced in an ovate cone, 4-5 inches long and nearly as great diameter.

Genus SEQUOIA Endl.

SEQUOIA GIGANTEA Lindl & Gordon. The Giant Redwood, or "Big Tree" of California—the largest tree known in the world.

SEQUOIA SEMPERVIRENS Endl. Redwood, "one of the most colossal trees of the globe."

Genus PSEUDOTSUGA Carriere.

Pseudotsuga macrocarpa, so named by Prof Lemmon in the third Cal. For. report, 134, is a "rather irregular tree 150 feet high, 4 feet in trunk diameter. Bears light crops of cones, the reported fecundity perhaps exceptional." It was originally found between Banner and Julian, in San Diego county, where it forms one of the most beautiful of trees, perfect in symmetry and grace. It is nearly allied to the Douglas spruce of the north, and for many years treated as a variety—as it should probably still be treated.

Genus ABIES Link.

ABIES CONCOLOR Lindl.

ABIES BRACHYPHYLLA Maxim.

ABIES FIRMA Sieb & Zucc.

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ABIES HOMOLEPIS Sieb. & Zucc.
ABIES MARIESII Mast.
ABIES SACHALINENSIS Mast.
ABIES VEITCHII Lindl.

The last 6 are Japanese recommended for Cal.

Genus CUPRESSUS Tournefort.

The California species of cypress are among the most widely planted of evergreens, & are very ornamental. The Monterey cypress is much used for hedges; the Lawson cypress is a species of Chamaecyparis.

C GOVENIANA Gordan.

CUPRESSUS GUADALUPENSIS Watson The Guadalupe or blue cypress is a small tree with slender, light green, drooping branchlets; the bark, flaking off, leaves a claret-red surface to the limbs.

The blue cypress is a handsome, slender tree, 40 to possibly 60 feet high, with beautiful exfoliating reddish bark and glaucous foliage, first discovered on Guadalupe island, and later found in rocky canyons near Ensenada, on the mainland. It proves not rare in some of the canyons near the international boundary, and Perish records it in "ravines near the Old Mission, San Diego, not abundant" (Zoe., 4:352). Its graceful habit and compact growth makes it one of the most ornamental species in the genus.

C. Lawsoniana—see Chamaecyparis Lawsoniana

CUPRESSUS MACROCARPA Hartweg. Monterey cypress, a familiar hedge-tree in California, cones the largest of the genus, about an inch thick.

Genus THUYA Tournefort.

Thuya gigantea Nutt arbor vitæ not d

Genus CHAMAECYPARIS Spach.

C lawsoniana Parlat

Genus TSUGA Carriere.

T mertensiana Carr Manzanita to Alaska

Genus PICEA Link.

P sitchensis Carr Mendocino to Alaska

TAXACEAE.

Genus TORREYA Arnott.

T californica Torr California nutmeg not d

Genus TAXUS Tournefort.

T brevifolia Nutt. yew

ORCHIDACEAE.

Genus EPIPACTIS Haller.

EPIPACTIS GIGANTEA Dougl.

Genus CYPRIPEDIUM Linnaeus.

C montanum Doug.

Genus HABENARIA Willd.

HABENARIA COOPERI S. Watson.
H elegans Bolander
H unalaschensis Wat da 17
HABERNARIA LEUCOSTACHYS S. W.

IRIDACEAE.

Genus SISYRINCHIUM Linnaeus.

SISYRINCHIUM BELLUM S. Watson.
S californicum Ait da 17

Genus IRIS Tournefort.

I macrosiphon Torr Or 1506 d

AMARYLLIDACEAE.

Genus AGAVE Linnaeus.

AGAVE DESERTI Engelm.

The mescal of the desert, glaucous foliage.

AGAVE MARGARITAE Brandege. A recent introduction from the islands off Lower California, and one of the handsomest of the smaller growing agaves.
AGAVE HORRIDA Lem.
AGAVE LECHEGUILLA Torr.
AGAVE MICRACANTHA Slm-Dyck.

AGAVE PALMERI Engelmann. A very symmetrical species, found in the mountains of Southern Arizona.
AGAVE PARRYI Engelm.
AGAVE PRINGLEI Engelm.

AGAVE SHAWII Engelmann. Very compact, dark olive-green leaves, margined with stout spines. Peculiar to the coast region of Southern and Lower California.
AGAVE STRIATA Zucc.
AGAVE UNIVITTATA Haw.
AGAVE UTAHENSIS Engelm.
AGAVE VICTORIAE-REGINAE T. Mre.
AGAVE XYLONACANTHA Slm-Dyck.

LILIACEAE.

BEHRIA TENUIFLORA Greene. Grassy leaves about a foot long: flowers tubular, borne in an umbel, the stamens much exserted, brilliant scarlet in color, reminding one somewhat of Brevoortia Ida-Maia. A Mexican bulb nearly allied to Bessera elegans.

Genus ALLIUM Linnaeus.

ALLIUM ACUMINATUM Hook.
ALLIUM ATTENUIFOLIUM Kellogg.
ALLIUM CRISPUM Greene.
ALLIUM DICHLAMYDEUM Greene.
ALLIUM FIMBRIATUM S. Watson.

ALLIUM HAEMATOCHITON Watson. The mesas and hills around San Diego are decked in springtime with the clusters of bright purplish-tinted flowers of this wild onion, which deserves a prettier name at the hands of its friends. It does not prove quite hardy in New England, but will give enough pleasure for the cost of growing in the house among its more showy cousins.

ALLIUM LACUNOSUM S. Watson.
ALLIUM PARVUM Kellogg.
ALLIUM PENINSULARE Lemmon.
ALLIUM SERRATUM S. Watson.
ALLIUM UNIFOLIUM Kellogg.

Genus MUILLA S. Watson.

MUILLA CORONATA Greene.
MUILLA MARITIMA S. Watson.

Ordj [etv—da 17

Genus CALOCHORTUS Pursh.

CALOCHORTUS APICULATUS Bak.
CALOCHORTUS ALBUS Dougl.
CALOCHORTUS AUREUS S. Watson. "Low, 4-6' high, with a single linear

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earinate radical leaf, 3-4′ long; scape short, 1-2-flowered, the single pair of bracts linear, 2′ long; sepals greenish -y., w th a dark-p. spot near the base, oblong—or ovate-lanceo ate; petals broadly cuneate, 15″ long, bright-y., with a small, well-defined circular densely hairy gland near the base and a lunate purplish spot above it; young capsule narrowly oblong, not winged.On sand-cliffs, Southern Utah (Mrs. E. P. Thompson); June."—S. Watson, Amer. Natl., vii. 7 (May, 1873).

CALOCHORTUS BARNARDI Dougl.
CALOCHORTUS BENTHAMI Baker.
CALOCHORTUS BONPLANDIANUS Sht
CALOCHORTUS CAERULEUS S. Wat.
CALOCHORTUS CATALINAE S. Wat.
CALOCHORTUS CITRINUS Baker.
CALOCHORTUS CLAVATUS S. Watson
CALOCHORTUS DOUGLASIANUS Sht.
CALOCHORTUS ELEGANS Pursh.
CALOCHORTUS FLAVUS Schult.
CALOCHORTUS FLEXUOSUS S. Wats.

"Branched and flexuous above; bracts alternate ½-¾′ long, linear-lanceolate, carinate, rather rigid; sepals oblong-lanceolate, greenish with a deep-p. and orange or p. gland above, the glandular cuneate, 12-15″ long, purplish, with a deep-p. claw and an ill-defined circular orange or p. gland above, the glandular hairs extending laterally to the margin; capsule triangular, narrowly oblong. Southern Utah and Northern Arizona (Mrs. E. P. Thompson); April and May. The bulbs, as of other species, are eaten by the Indians."—S. Watson, Amer. Natl., vii. 7 (May, 1873).

CALOCHORTUS FUSCUS Schult.
CALOCHORTUS GREENEI S. Watson.
CALOCHORTUS GUNNISONI S. Watson
CALOCHORTUS KENNEDYI Porter.
CALOCHORTUS LEICHTLINII Hook. J.
CALOCHORTUS LILACINUS Kellogg.
CALOCHORTUS LONGEBARBATUS
CALOCHORTUS LUTEUS Dougl.
CALOCHORTUS LYONI S. Watson.

"Near C. nitidus; stems branching and somewhat flexuous, 1-2° high, bearing several leaves and 2-4 or more solitary fl.; sepals naked, acute; petals lilac or purplish, with a darker p. sparingly brown-villous spot at base surrounding the short-oblong hairy gland, 12-20″ long; anthers oblong-elliptical, obtuse, 1 ½″ long; capsule narrowly elliptical, obtuse, 3-winged, nearly 1′ long. Los Angeles County, California; collected on hills near Los Angeles by W. S. Lyon and Dr. Gray, and at Newhall by Dr. Gray, in 1885."—S. Watson, Proc. Am. Acad., xxi. 455 (June 9, 1886).

CALOCHORTUS MACROCARPUS Dougl.
CALOCHORTUS MAWEANUS Lem.
CALOCHORTUS MONOPHYLLUS Lem.
CALOCHORTUS NITIDUS Dougl.
CALOCHORTUS NUTTALLII Torr-Gray.
CALOCHORTUS OBISPOENSIS Lemm.
CALOCHORTUS PALMERI S. Watson.
CALOCHORTUS PLUMMERAE Greene.
CALOCHORTUS PULCHELLUS Doug'.
CALOCHORTUS PUSILLUS Dougl.
CALOCHORTUS SPLENDENS Dougl.
CALOCHORTUS TOLMIEI Hook-Arn.
CALOCHORTUS UMBELLATUS Wood
CALOCHORTUS UNIFLORUS Hook Arn
CALOCHORTUS VENUSTULUS Greene.
CALOCHORTUS VENUSTUS Dougl.
CALOCHORTUS VESTITUS Benth.
CALOCHORTUS WEEDII Wood.

Genus CAMASSIA Lindl.

CAMASSIA ESCULENTA Lindl.
CAMASSIA FRASERI Torr.
CAMASSIA LEICHTLINII S. Watson.

Genus ERYTHRONIUM Linnaeus.

ERYTHRONIUM ALBIDUM Nutt.
ERYTHRONIUM AMERICANUM Kr-Gl
ERYTHRONIUM GIGANTEUM Lindl.
ERYTHRONIUM GRANDIFLORUM
ERYTHRONIUM HARTWEGI S. Wat.
ERYTHRONIUM NUTTALLIANUM
ERYTHRONIUM PROPULLANS A. Gry
ERYTHRONIUM PURPURASCENS
ERYTHRONIUM REVOLUTUM Baker

Genus FRITILLARIA Linnaeus

FRITILLARIA ATROPURPUREA Nutt
FRITILLARIA BIFLORA Lindl.
FRITILLARIA LANCEOLATA Pursh
FRITILLARIA LILIACEA Lindl.
FRITILLARIA MULTIFLORA Kellogg.
FRITILLARIA PARVIFLORA Torr.
FRITILLARIA PLURIFLORA Torr.
FRITILLARIA PUDICA Spreng.
FRITILLARIA RECURVA Benth.

Genus BRODIAEA Smith.

BRODIAEA BRIDGESII S. Watson.
BRODIAEA CAPITATA Benth.
BRODIAEA COCCINEA A Gray.
BRODIAEA CONGESTA Sm.
BRODIAEA CROCEA S. Watson.
BRODIAEA DOUGLASII S. Watson.
BRODIAEA FILIFOLIA S. Watson.
BRODIAEA GRACILIS S. Watson.
BRODIAEA GRANDIFLORA Smith.
BRODIAEA HOWELLII S. Watson.
BRODIAEA IXIOIDES S. Wat on.
BRODIAEA LACTEA S. Watson.
BRODIAEA LAXA S. Watson.
BRODIAEA LEMMONAE S. Watson.
BRODIAEA MINOR S. Watson.
BRODIAEA MULTIFLORA Benth

HOOKERA, ORCUTTII Greene.

"Scape stout, 1° or more high; leaves linear, flat or conduplicate, not terete; pedicles 5-15 l 1-2′ long; perianth-segments oblong-lanceolate, twice the length of the short tube; free portion of the filaments about 2″ long, the linear anthers nearly as long; staminodia wanting (?)."—Greene, Bull. Cal. Acad. Sci., ii. 138 (Nov. 12, 1886).

BRODIAEA PEDUNCULARIS S. Wat.
BRODIAEA STELLARIS S. Watson.
BRODIAEA TERRESTRIS Kellogg.

Genus TRILLIUM Linnaeus.

TRILLIUM CALIFORNICUM Kellogg.
TRILLIUM OVATUM Pursh.
TRILLIUM PETIOLATUM Pursh.
TRILLIUM SESSILE Linn.

Genus LILIUM Linnaeus.

LILIUM BLOOMERIANUM Kellogg.
LILIUM BOLANDERI S. Watson.
LILIUM COLUMBIANUM Hort.
LILIUM HUMBOLDTII Roez and Leichtl.

"Yellow, large golden yellow blossoms, dotted with purple; a very showy and magnificent lily.

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LILIUM MARITIMUM Kellogg.
LILIUM PARDALINUM Kellogg. A beautiful lily that seems to flourish in all soils and climates; a luxuriant grower and a profuse bloomer; the large, glowing yellow flowers spotted with brown, the tips of a fiery crimson, very variable in color, however, occurring in many forms.
Var. BOURGAEI. A surpassingly beautiful lily; lustrous, fiery red, large and drooping
LILIUM PARRYI Watson. A pretty and exceedingly rare lily, found in the mountains of Southern California and Arizona, named in honor of Dr. C. C. Parry. Produces lovely clusters of large and very fragrant flowers, of a clear lemon yellow, spiced with a delicious perfume.
LILIUM PARVUM Kellogg.
LILIUM ROEZLI Regel.
LILIUM RUBESCENS S. Watson.
LILIUM WASHINGTONIANUM Kellogg. A marvelously beautiful white lily of a waxy luster, and emitting a delightfully spicy perfume.

Genus CHLOROGALUM Kunth.

CHLOROGALUM ANGUSTIFOLIUM K.
CHLOROGALUM LEICHTLINII Baker.
CHLOROGALUM PARVIFLORUM S. W
CHLOROGALUM POMERIDIANUM Kt.

Genus ZYGADENUS Michx.

ZYGADENUS ANGUSTIFOLIUS. S. W.
ZYGADENUS ELEGANS Pursh.
ZYGADENUS FREMONTII Torr.
ZYGADENUS NUTTALLII A. Gray.
ZYGADENUS PANICULATUS S. Wat.
ZYGADENUS VENENOSUS S. Watson

Genus NOLINA Michx.

NOLINA BIGELOVII S. Watson.
NOLINA BIGELOVII Watson. Leaves flat, rough margined, an inch or more wide; with age attains a height of eight or ten feet; produces heavy panicles of small whitish flowers.
NOLINA PALMERI S. Watson.
NOLINA PARRYI S. Watson.

Genus YUCCA Linnaeus.

YUCCA ALOIFOLIA Linn.
YUCCA BREVIFOLIA Engelm.
YUCCA FILAMENTOSA Linn. "Adam's Needle;" produces tall spikes of snowy white, bell-shaped flowers; very beautiful, and furnishes a fiber of great strength.
YUCCA FILIFERA Chabaud. One of the tallest of the genus; flower stalk over 20 feet high, bearing a panicle of drooping, showy, white flowers.
YUCCA MACROCARPA Engelm.
YUCCA MOJAVENSIS Sargent.
The datile, or wild date, of the Mexicans, better known to Americans as the Spanish bayonet, Mexican dagger plant, wild banana, etc., occurs from the Mohave desert to the vicinity of San Quintin, Lower California, extending eastward through the arid regions of Arizona and Sonora, and perhaps to Texas. It attains almost tree-like proportions, and forms extensive forest-like plantations. Such a forest, when in full bloom, is a sight to be remembered. The large, waxy, bell-shaped flowers, of a creamy, sometimes marked with prune purple, are of surpassing beauty. The fruit does not seem to mature well near the coast. It is somewhat of the size and shape of a banana, of a sweetish taste, slightly reminding one of a fig. Near San Diego the plant is commonly under 8 feet in height; in the interior attains to 15 or 18 feet.
YUCCA VALIDA Brandegee.
YUCCA WHIPPLEI Torr.

Genus HESPEROCALLIS A. Gray.

HESPEROCALLIS UNDULATA A. Gray. The Lily of the Desert, growing in sandy washes on the Mohave and Colorado Deserts, in California. The lustrous waxy white flowers, shaded with green, very fragrant.

Genus VERATRUM Tournefort.

VERATRUM CALIFORNICUM Dur.

Genus BLOOMERIA Kellogg.

BLOOMERIA AUREA Kellogg.
BLOOMERIA CLEVELANDI S. Wats.
"Differing from B. aurea in the several very narrow leaves (1" wide or less), in the stouter scape (3-7' high), in having the thick and fleshy appendage at the base of the filament smooth instead of papillose, and obtuse at the summit instead of bicuspidate, and in the much shorter style, which is shorter than the ovary. On the mesas near San Diego, California; first collected by D. Cleveland, in 1874, and recently received from him and from C. R. Orcutt."—S. Watson, Proc. Am. Acad., xx. 376 (Feb. 21, 1885).
BLOOMERIA MONTANA Greene.
"Corm 1' broad: leaf solitary: scape 2° high, stout and scabrous: bracts numerous, lanceolate: pedicels 30-50 1-2' long: perianth rotate, 1' in diameter: appendage at base of filament 1" long, its lateral cusps subulate-filiform, ½ as long as the filaments: anthers linear, 1½" long, attached almost at the very base, but versatile."—Greene, Bull. Cal. Acad. Sci., ii. 10-11 (Dec. 14, 1885).
LEUCOCRINUM MONTANUM Nutt.

SMILACEAE.

Smilax californica G.

PONTEDERIACEAE.

Schollera graminifolia Hild.

ARACEAE.

Lysichiton kamtschatcensis Schott

TYPHACEAE.

Sparganium eurycarpum E da 17?

Genus TYPHA Tournefort.

Typha angestifolia L da 17
TYPHA LATIFOLIA Linn.

LEMNACEAE.

Genus LEMNA Linnaeus.

LEMNA MINOR Linn.
LEMNA TRISULCA Linn.
LEMNA VALDIVIANA Phil.

NAIADACEAE.

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LILAEA SUBULATA H. B. K.
ZANNICHELLIA PALUSTRIS Linn.
RUPPIA MARITIMA Linn.
Zostera marina L da 17

Genus NAIAS Linnaeus.

NAIAS MAJOR Allione.
Naias flexilis R & S da 17

Genus TRIGLOCHIN Linnaeus.

TRIGLOCHIN MARITIMUM Linn.

Genus POTAMOGETON Tournefort.

P pectinatus L da 17
POTAMOGETON LUCENS Linn.
POTAMOGETON NATANS Linn.
POTAMOGETON PUSILLUS Linn.

ALISMACEAE.

ECHINODORUS ROSTRATUS Engelm.
Sagittaria calycina E da 18

CYPERACEAE.

Genus CYPERUS Linnaeus.

CYPERUS ARISTATUS Rottb.
C diandrus Torr. v castaneus da 18
esculentus L da 18
CYPERUS LAEVIGATUS Linn.
CYPERUS MICHAUXIANUS Schult.
CYPERUS OCCIDENTALIS Torr.
C VIRENS Michx.
2578 Near Calmalli, Mr. 10

Genus ELEOCHARIS R. Brown

E. ABENICOLA Torrey.
2577 Vulcan de las Tres Virgenes Mr. 13.
E. acicularis R. Br.
E. capitata R. Br.
E. palustris R. Br

Genus SCIRPUS. Linnaeus.

SCIRPUS LACUSTRIS Linn.
v occidentalis Wat da 18
S maritimus L da 18
ripanus Spreng. da 18
validus Vahl da 18
SCIRPUS SETACEUS Linn.
S. olneyi Gray.
S. sylvaticus L v. digynus Borck.
S. pungens Vahl

Genus HEMICARPHA Nees.

H. subsquarrosa Nees.
Cladium mariscus R Br v californicus Wat da 18

Genus CAREX Linnaeus.

C barbara Drew da 18
—filiformis L v latifolia Boeckl da 18
—marcida Bott da 18
—muricata L v americana Bailey da 18
—multicaulis Bailey da 18
—laciniata Bott da 18
—pseudocyperus L v commosa Bott da 18
—spissa Bailey da 18
—angustata Boot 82
C. siccata Dewey, v. minor
C. triquetra Boott

JUNCACEAS.

Genus JUNCUS Linnaeus.

JUNCUS BALTICUS Willd.
JUNCUS BUFONIUS Linn.
JUNCUS DUBIUS Engelm.
Jengelmanni Ord
JUNCUS LESUERII Boland.
JUNCUS LONGISTYLES Torr.
JUNCUS NUDOSUS Linn.
v megacephalus orr da 18
JUNCUS OXYMERIS Engelm.
JUNCUS PHAEOCEPHALUS Engelm.
—v glomeratus et v paniculatus E da 18
JUNCUS ROBUSTUS S. Watson.
JUNCUS XIPHIOIDES Mey.

PALMAE.

ARENGA SACCHARIFERA Labill. The Sugar Palm, of India; the juice is converted into toddy or sugar; the young kernels made with syrup into preserves. The pitch supplies sago, about 150 lbs. from a tree, according to Roxburgh.

ARTOCARPUS INTEGRIFOLIA Linn. The Jack Fruit, of the Malay Islands; attains a weight of 50 pounds.

CHAMAEROPS EXCELSA Thunb. The hardiest of all palms; had stood three degrees above zero F. without protection; beautiful fan-shaped leaves.

CHAMAEROPS HUMILIS Linn. The dwarf fan palm of southern Europe; very ornamental, and eligible for scenic effect; hardy.

Genus ERYTHEA S. Watson.

ERYTHEA ARMATA Watson. The beautiful Blue Palm, of Lower California; the fan-shaped leaves of a soft, glaucous color; the fruit is the size of a marble, and largely eaten by the Indians of the desert region where it grows wild.

The Tecos grandes is the fruit of the beautiful blue palm of Lower California, and forms an important article of food with the Indians, ripening in July and August. The fruit is the size of a common marble, with sweet mealy pulp surrounding the large stone (2½ inches in diameter). The tree grows 40 feet high, bearing its fan-shaped glaucous leaves in a very graceful manner. This palm was first found in the Cantillas canyon, Lower California, which opens out onto the Colorado derest, by Dr. Edward Palmer. Dr. J. N. Rose has since found it in Mexico, east of Mazatlan, I believe. The seeds require from six months to three years in which to germinate—the older seeds germinating more quickly than when fresh from the tree. I have had them germinate readily when over ten years old.

ERYTHEA EDULIS Watson. The Guadalupe Island Palm; "of equal decorative value

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to Latania borbonica, much hardier, and of far more rapid development."

JUBAEA SPECTABILIS Humboldt. The tall and stout Coquito Palm of Chili; hardy; yields small edible kernels; a kind of treacle is obtained from the sap; leaves sometimes 10 ft. long.

OREODOXA REGIA Humboldt. The Royal Palm, "the Glory of the Mountains;" the grandest of the pinnate leaved palms.

PHŒNIX CANARIENSIS Hort

Elegant, most hardy, ornamental variety of date palm, much used for lawns in Southern California. ₰100 seeds; 50c

PHŒNIX DACTYLIFERA Linnæus.

The well known date palm. ₰ 100 seeds, 50c.

PHŒNIX RECLINATA Jacquis.

Popular for out door planting.

PTYCHOSPERMA ELEGANS Blume. Leaves 2 to 10 feet in length. widely known under the name of Seaforthia elegans, R. Br.

THRINAX ARGENTEA Lodd. One of the most elegant of fan palms, the under part of the leaves shining like satin; native of Panama.

Genus WASHINGTONIA Wendland.

"42. He unites the genus Myrrhis, Mx. with Cherophyllum; the Ch. claytoni of Persoon is however made a Scandix by Muhlenberg! which proves that it belongs to neither genera, but Myrrhis happens to be erroneous also, by being similar to Amyris, a previous genus, whence several names have been proposed for it. Washingtonia, Osmorhiza, Gonatherus; but these are not yet published; the second is perhaps the best."—"C. S. R[afin.]." in American monthly magazine, II. 176 (1818). A Review of "Pursh's Flora of North America."

Britton and Brown deemed the above a sufficient publication to justify discarding the established name Osmorhiza later adopted by the writer of the above review—necessitating the coining of yet another name for our Californian genus of palms (Neowashingtonia).

Prof. C. S. Sargent considered the prior suggestion in a newspaper (Winsl. in California Farmer, Sept. 1854) of the name Washingtonia for Sequoia as insufficient cause for the abandonment of its use. The action of Britton and Brown seems even less justifiable and would cause the present writer to hesitate about accepting any changes proposed by them until after careful investigation of the need.

WASHINGTONIA SONORAE Wat

"A tree reaching 50° in height & 2 ft in diam.; leaves 3 or 4° in diam., somewhat glaucous, very filiferous upon rather slender petioles which are armed with stout curved spines; spadix slender, 5 or 6° long; fr about 3/8" long, the flattened-globose seed 2-2½" in the longest diam. * * *—Wat. prain sc 24 79 31 Ja 1889 mj

WASHINGTONIA FILIFERA Wendl. The popular Californian fan palm; a hardy and magnificent species of the desert region of Southern California.

The California fan palm, bearing great clusters of small black berries, the clusters weighing 10 to 20 pounds each, furnished the desert Indians with a most important article of food, equal to that of the pinon nuts to the mountain tribes, ranking next in value to the mesquite bean. The berries have a thin, very sweet, and pleasant flavored pulp, which any palate might appreciate.

WASHINGTONIA ROBUSTA Wendl.

A favorite strong-growing variety of filifera.

GRAMINEAE.

Genus ARISTIDA Linnaeus.

A. americana L f

—arizonica Vasey

—scabra Kunth

—divaricata HBK

A. DISPERSA Trin.

2561 Data as above, large fls., twisted awns.

2562 Same locality, March 11.

2563 Near Calmalli, Feb. 24.

2564 Same locality, Mar. 5.

2565 Near Vulcan de las Tres Virgenes, Mar.

A. bromoides HBK.

A. purpurea Nutt. var.

A. orcuttiana Vasey

A. CALIFORNICA Thurber.

2556 Valle de las Tres Virgenes, near Santa Rosalia; one of the common forage grasses. Mar. 13, 1899.

2557 Near Calmalli, not rare, March 3.

2558 Santo Domingo, February 20.

2559 Near Mission Santa Gertrudis Mar. 10

v fugitiva Vasey

v major Vasey

Genus SPOROBOLUS R. Brown.

S. HUMIFERUS HBK.

2579 Batamotal, near Guaymas, Sonora, Mr. 24.

S. ALTISSIMUS Vasey

"Culm 4-5° high, simple; leaves long, slender, becoming involute; panicle 6-8′ long, narrow the branches erect, scattered or partly verticillate, 3-4′ long, subdivided and flower-bearing from near the base; spikelets 1-flowered, about 1″ long; empty glumes unequal and nearly as in S. airoides—from which it differs in its greater height, and closer panicle, as well as in details of the fl. Collected at San Diego by Dr Edward Palmer."—Brandegee, Proc. Cal. Acad. II. ii. 212.

v. minor Vasey:—"Smaller, 2-3° high; leaves shorter; panicle 4-6′ long, purple;

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spikelets rather smaller, San Enrique [Baja California],"—Brandegee, l. c. 213.

S. asperifolius Thurber
S. airoides Torrey
S ramulosus Kunth.
S cryptandrus G
—depauperatus Torr
—Wrightii Munroe

Genus POLYPOGAN Desf.

P. monspeliensis Desf.
Hilaria rigida Thurber. Gietta grass.
Andropogon dissitiflorus Michx.
A. saccharoides Swartz
—cirrhatus Hack
—hirtiflorus Kunth
—macrourus Michx
—Wrightii Hackel
—sorghum Br da 20

Genus PHALARIS Linnaeus.

P. canariensis Linn.
P intermedia Bosc.
v angusta Chapm.
P arundinacea L
P lemmoni Vasey da 18
Epicampes rigens Bentham j da 20

Genus AVENA Linnaeus.

A barbata Brot
—fatua Linnæus
Deschampsia gracilis Vasey
D cæspitosa Beauv
D calycina J & C Presl da 19

Genus PASPALUM Linnaeus.

P, distichum Linnæus
P pubiflorum Rupt

Genus PANICUM Linnaeus.

P, urvilleanum Kunth,
P. capillare Linn
P. dichotomum Linnæus
P colonum L j da 18
P crus-galli L da 18
P sanguinale L da 18
Alopecurus geniculatus Linnæus
v aristulatus Torr
A californicus Vasey

Genus AGROSTIS Linnaeus.

multiculmis Vasey da 19
tenuis Vasey
pilosa Beauv
æquivalvis Trin
densiflora Vasey
diegoensis Vasey
asperifolia Trin?
exarata Trin. et var.
grandis Trin?
microphylla Steud. et var.
scabra Willd. var?
scouleri Trin?
verticillata Vill.
virescens HBK.

Genus POA Linnaeus.

POA ORCUTTIANA Vasey.

"Culms cæspitose, about 2° high, radical leaves numerous, narrow, flaccid, about 6′ long, scabrous; culm leaves 2–4 inches long, attenuate at the apex, and with the sheaths scabrous, upper sheath very long; ligule membranaceous, about 2″ long, acute, becoming lacerate; nodes smooth; panicle 4–6′ long, lax, the branches erect and somewhat appressed, the lower in threes, 1–3′ long, the lower third or more naked, numerously flowered above; empty glumes nearly equal, 1½″ long, the upper 3-nerved, lower one-nerved, scarious margined; flowering glumes oblong, obtusish, flattish on the back, scabrous, about 2″ long scarious tipped, slightly pubescent below, five-nerved; palet as long as its glume, acute, ciliate scabrous on the keels. First collected by C. R. Orcutt near San Diego in 1884, and subsequently by Mr. Lorenzo Jared in Santa Barbara county, Cal. The mature spikelets have the appearance of Glyceria. Its narrow, scabrous leaves are good, distinctive characters."—Vasey, W. Am Sci. iii, 165, Ag. 1887.

P. ANNUA L.
P. ARIDA Vasey.
P BIGELOVII Vasey & Scribner.
P. FENDLERIANA Vasey.
P. HOWELLII Vasey & Scribner.
P TENUIFOLIA Nutt.
v californica Vasey da 19
P UNILATERALIS Scribner.
P airoides Nutt da 19
—pauciflora Thurber da 19
—pratensis L da 19

Genus ORCUTTIA Vasey.

O. CALIFORNICA Vasey.

Genus LAMARCKIA Moench.

L. AUREA Moench

Genus PHRAGMITES Trin.

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P. COMMUNIS Trin.
P. VULGARIS B.

Genus TRICUSPIS Beauv.

T pulchella Torr. is Triodia p.
TRIODIA PULCHELLA HBK.

Genus DACTYLIS Linnaeus.

D glomerata L da 19

Genus KOELERIA Pers.

K cristata Pers da 19

Genus MELICA Linnaeus.

frutescens Scribner Or d
imperfecta Trin Or d, da 19
v flexuosa Bol da 19
v refracta Thurber da 19
poeoides Nutt
porteri Scribner

Genus DISTICHLIS Rafinesq.

spicata Ge ca ac b 2:415
maritima Rafin. da 19, is spicata uniola

Genus BROMUS Linnaeus.

hookerianus Thurber da 19
carinatus H-A
ciliatus L da 19
erectus Huds
rigidus Roth
unioloides HBK
virens Buckl
maximus Desf da 19
rubens L da 19
mollis L da 19
BROMUS ORCUTTIANUS Vasey.
Vy bot gz 10:223 1885, Shear ag b 28; 42
Var. GRANDIS Shear ag b 28; 43
"A stout, erect p 14–15 dm high very leafy below. Sheaths, leaves & culm pubescent throughout. Panicle about 2 dm long & nearly as broad at base at maturity when the branches are spread more or less horizontally. Spikelets pubescent throughout. * *" Or 472 d

Genus STIPA Linnaeus.

S. coronata Thurber
S. eminens Cav.
v andersoni Vy da 19
S. parishii Vasey
S. setigera Presl.
S. speciosa T. & R.
S comata T.R
S hassei Vy
S occidentalis Thurber
S scribneri Vy
S viridula Trin da 19

Genus LOLIUM Linnaeus.

temulentum L da 19
v arvense With da 19
perenne L da 19

Genus HORDEUM Linnaeus.

jubatum L
murinum L
nodosum L
pratense Huds
pusillum Nutt

Genus ELYMUS Linnaeus.

americanus Vy
condensatus J & C Presl da 20
sitanion flchultes j, da 20
orcuttianus Vy da 20 Or d

Genus TRITICUM Linnaeus.

T repens L da 19

Genus PHLEUM Linnaeus.

P pratense L da 18

Genus CALAMAGROSTIS Adans.

densus Vy
kœlerioides Vy
robusta & orcuttii ined Or d

Genus CINNA Linnaeus.

macroura Kunth

Genus BOUTELOUA Lagasca.

B. ARISTIDOIDES Thurb.
2567 Near Mission Santa Gertrudis, Mar. 10.
bromoides Lag
burkei Scribner
eriopoda Torrey
havardi Vy
oligostachya Torrey
polystachya Torrey Or e
racemosa Lag
ramosa Scribner
rothrockii Vy

Genus MUHLENBERGIA Trin.

M. pungens Thurber
M. DEBILIS Trin.
2568 Data as above.
2569 Same vicinity, Mr. 11.
2570 Near Calmalli, Mr. 1.
2571 Valle de las Tres Virgenes, Mr. 14.
—calamagrostidea Kunth
—californica Vy
—dumosa Scribner
—gracilis Trin
—parishii Vy

Genus FESTUCA Linnaeus.

myurus L sz. da 19
pseudomyurus S
tenella Willd da 19
arizonica Vy
microstachys Nutt et v ciliata G
multicaulis Vy, da 19
elatior L v pratensis da 19
F. OCTOFLORA Walt. var.
2572 Near Mission Santa Gertrudis, Mr. 10.

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CENCHRUS PALMERI Vasey.

2573 Near Calmalli, F. 24, not rare.

P‹PPOPHORUM WRIGHTII Watson.

2574 Near Calmalli, common on rocky slope, Mr. 8.

ERAGROSTIS MAJOR Host.

2575 Valle de las Tres Virgenes, Mr. 14.

E neo-mexicana Vy
E orcuttiana Vy
E oxylepis Torrey
E poæoides Beauv. da 19 et v megastachya G.
Eriocoma cuspidata Nutt., da 19, is Oryzopsis m
Oryzopsis membranacea Vy
Monanthochloe littoralis Ord, da 26
Eriochloa punctata Ham
Gastridium australe Beauv
Glyceria remota Fries
—pauciflora Presl
Hilaria cenchroides HBK
—jamesii Benth
Lepturus paniculatus Nutt., da 19
Leptochloa imbricata Thurber da 19
Imperrtor hookeri Rupr

Ægopogon geminiflorus HBK
Agropyrum divergens Nees
—glaucum R-S
—repens Beauv sz
—tenerum Vy
Arundo donax L da 19
Atropis nevadensis Vy
Bouteloua aristidoides E
Cenchrus tribuloides
Chloris elegans HBK
Cynodon dactylon Pers
Danthonia californica Bolander da 19
Diplachne imbricata Scribner
—viscida Scribner
Eatonia obtusata G

Pleuraphis rigida Thurb., da 19 is Hilaria r.
Sorghum halapense Pers
Spartina stricta Roth da 19
Setaria glauca Beauv da 18
Stenochloe californica Nutt
Uniola palmeri Vy J
Triticum barbatum Steud. Ord
—californicum Vy
—elongatum Durth
—spicatum Richter

EQUISETACEAE.

EQUISETUM ROBUSTUM Al. Br.
EQUISETUM TELMATEIA Erh.

OPHIOGLOSSACEAE.

Genus OPHIOGLOSSUM Linnaeus.

OPHIOGLOSSUM NUDICAULE Linn. f.

FILICES.

Genus POLYPODIUM Linnaeus.

POLYPODIUM CALIFORNICUM Kaulf.

Genus GYMNOGRAMME Desv.

GYMNOGRAMME TRIANGULARIS Klf.

Genus NOTHOLAENA R. Brown.

NOTHOLAENA CALIFORNICA Eaton.
NOTHOLAENA NEWBERRYI Eaton.
NOTHOLAENA PARRYI Eaton.

Genus CHEILANTHES Swartz.

CHEILANTHES CALIFORNICA Mett.
CHEILANTHES CLEVELANDI Eaton.
CHEILANTHES COOPERAE Eaton.
CHEILANTHES FIBRILLOSA Davnpt.
CHEILANTHES MYRIOPHYLLA Desv.
CHEILANTHES PARISHII Davenport.
CHEILANTHES VISCIDA Davenport.

Genus PELLAEA Link.

PELLAEA ANDROMEDAEFOLIA Fee.
PELLAEA ORNITHOPUS Hook.
PELLAEA WRIGHTIANA Hook.

Genus PTERIS Linnaeus.

PTERIS AQUILINA Linn.

Genus ADIANTUM Linnaeus.

ADIANTUM CAPILLIS-VENERIS Linn.
ADIANTUM EMARGINATUM Hook.
ADIANTUM PEDATUM Linn.

Genus WOODWARDIA Smith.

WOODWARDIA RADICANS Smith.

Chain fern; fronds 4–8° high, not rare along perennial streams.

Genus ASPLENIUM Linnaeus.

ASPLENIUM FILIX-FOEMINA Bernh.
ASPLENIUM TRICHOMANES Linn.

Var. incisum Moore. Feather fern.

Genus ASPIDIUM Swartz.

ASPIDIUM ARGUTUM Eaton.
ASPIDIUM MUNITUM Kaulf.

Genus PHEGOPTERIS Fee.

CYSTOPTERIS FRAGILIS Bernh.

Bladder fern; Europe, Asia, New Zealand, Hawaiian Islands, etc

Genus WOODSIA R. Brown.

W. Oregana Eaton.

Southern California.—Parish, no. 1775.

W. Mexicana

Mountains Baja California.—Orcutt

SELAGINELLEAE.

Genus SELAGINELLA Beauvois.

SELAGINELLA RUPESTRIS Spring.

Abundant in several forms.

Genus ISOETES Linnaeus.

I. mexicana Underwood. Bot. Gaz.
San Diego mesas; near Santo Tomas, Baja Cal.—Orcutt.

I. orcuttii A. A. Eaton, ined.
San Diego mesas.—Orcutt.

MARSILIACEAE.

Genus MARSILIA Linnaeus.

MARSILIA VESTITA H. & G.

Genus PILULARIA Linnaeus.

PILULARIA AMERICANA Al. Br.

SALVINIACEAE.

Genus AZOLLA Lam.

AZOLLA CAROLINIANA Willd.

Throughout North and South America, floating on quiet waters.

CHARACEAE.

CHARA FOETIDA Al. Br.

Very abundant in pools from coast to desert.

LICHENES.

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Lichens. These diminutive plants are found in a great variety of forms and in abundance in the vicinity of San Diego, and southward along the coast of Baja California The shrubs and bushes are often covered, especially in the vicinity of the sea where subjected to the influence of frequent fogs or moist ocean breezes.

Euphorbia misera, species of Atriplex, Lycium, and other genera are thus decorated,—the trunks and branches with the microscopic fruits of Lecanora and still more inconspicuous genera, while the tops are festooned and often almost concealed by the luxuriant growth of foliaceous species, Ramalina, Roccella, &c.

The mesas around San Diego are prolific in earth forms, the hard sun-baked ground being largely colored with the bright red, yellow, black, or white fruits and thalli of Biatora, Rinodina, &c.

The pebbles and boulders freely scattered over these mesas (and these remarks apply with equal force to the mesas of Baja California, at least as far as Lagoon Head) are also brightly colored with the thick red fruits of Placodium bolacinum, the black specks known as Verrucaria nigrescens, with the large black fruit of Lecanora atra with its broad white thallus, or with various broad patches of some foliaceous species —white, yellow, brown, or of some other tint or shade that harmonizes with its surroundings,—contrasting pleasantly with the reddish brown earth or the grey colored stones upon which they are comfortably seated.

The weather-stained shingles that Stockton used to roof the old mission of San Diego were highly colored with the commoner species of lichens when I first knew that historic edifice. Other roofs and fences of more recent origin are similarly decorated, and often prove of great attraction to the botanist as furnishing data relative to their rapidity of growth.

The humble home of the trap-door spider (Cteniza californica), securely closed by a neat fitting door, tightly held against possible intruders, is often found further concealed by a luxuriant growth of lichens. Whether the sagacious lady of the nonse is to be credited with their transplanting, as is claimed by some naturalists, or whether they themselves selected the site of their abode, and reached full maturity after the spider's house was built, are questions which it would be interesting to have settled.

Turning away from the close proximity of the sea, we find the rocks in the rugged canyons which break through the foothills covered with a multitude of equally bright and pretty lichens, which often actually lend color to the whole landscape. Thus the rocks at the head of the celebrated Cantillas canyon, in northern Baja California, are rich yellow, while the rocks in the San Telmo canyon, near San Quintin, Lower California, are white with lichens—whitened as if they had been haunted by sea fowl for centuries!

Roccella tinctoria DC.
R. leucophæa Tuckerman
R. phycopsis Ach.
R. fuciformis (L.) Ach.
Ramalina ceruchis De Not.
R. homalea Ach.
R. reticulata Krempell
R. linearis Linn. f.
R. complanata Ach.
R. menziesii Tuckerman
R. calicaris Fr.
v. farinacea Schaer.
R. crinita Tuckerman, Bull. Too. Cl.
Evernia vulpina Ach.
E. prunastri Ach.
Usnea barbata Fr.
v. hirta Fr.
v. rubiginea Michoe.
U. jubata Fr.
U. ochroleuca Fr.
Theloschistes chrysopthalmus Norm.
v. flavicans Wallr.
T. parietinus Norm.
v. polycarpus Tuckerman
Parmelia perforata Ach.
P. physodes Ach.
P. conspersa Ach.

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Physcia erynacea Tuckerman
P. olivacea Ach.
P tribacea Tuckerman
P. stellaris Linn
v. hispida Schreb.
Placodium coralloides Tuckerman
—murorum DC.
—bolacinum Tuckerman
—cinnabarinum Ach.
—cerinum Hedw.
—ferrugineum Huds.
—fulgens DC.
—luteominimum Tuckerman
—aurantiacum N. & H.
Heppia despreauxii Mont.
Rinodina radiata Tuckerman
R bolodes Tuckerman
Pertusaria flavicunda Tuckerman
Urceolaria scruposa Smf.
Stereocaulon albicans Nyl.
Cladonia fimbriata Fr.
C pyxidata Fr.
Lecidea cruciaria Tuckerman
Buellia sidalea Tuckerman
B myriocarpa DC
Lecanora bolanderi Tuckerman
L. haydeni Tuckerman
L. muralis Schaer.
L. pinguis Tuckerman
L. pallida Schaer.
L cenisia Ach
L subfusca L
L atra Hudson
L pacifica Tuckerman
L cinerea L
Stylographa parallela Nyl.
Chiodecton ephærotum Tuckerman
Arthonia epigina Tuckerman
Acolium bolanderi Tuckerman
A stijacobi Tuckerman
Endocarpon pusillus Hedw.

☞ Omitted from page 58:—

Larrea Mexicana Moricand.—The grease wood of the Rocky mountain region is very widely distributed, from Texas to California, and is known under a variety of names—perhaps best known as creosote bush, from the unpleasant tarry odor which it exhales. "It is principally used in rheumatic affections by the Mexicans, who bathe in an infusion of the branchlets and leaves" (fide Havard), and is said to make a most excellent liniment for use of man or beast, quickly healing cuts and sores. See Proc. U. S. Nat. Mus. VIII. 514.

☞ Omitted from page 59:—

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.

FUNGI.

No even approximately complete list can be presented
Peziza scutula'a L. On Cuyamaca mt., d
Peridermium ephedræ Ckl. On Epiedra californica, J
Uredo e l comæ E & E
Æcidium tiseæ E & E

ALGAE.

In the check-list of 1885 appeared a list of the marine algæ collected by D. Cleveland; names in that list are here indicated by the letter c; this has been added to by Mrs. Mary S. Snyder, shown by the letter s; but doubtless more of the old names are synonyms than here indicated, as the late literature is not accessible to the writer.

Agardhrella coulteri Harv. s?
Ahnfeltia concinna J Ag s
—gigartinoides Ag. c—is concinna.
—plicata Fr. c
Amphiroa aspergillum J E Gray s

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—cretacea —— c
—nodulasa Kutz s
—orbigniana Harv. c s
Andersoniella farlowii Schmitz s
Antithamnion floccosum pacificum Hv s
Arthrocladia———? c
Asperococcus sinuosus Bory. c—is Colpomenia sinuosa
Bangia fusco-purpurea Syng s
Bryopsis plumosa Lmx. c s
Callithamnion americanum Harv. c
—dasyoides Ag c s
—heteromorphum J. Ag. c
—lejolisea Farlow. c
—scopulorum c
Callimenia californica Farlow s
Callophyllis centrocarpa c
—furcata Farlow s
—gracillarioides Farlow. c s
—laciniata Kutz. c s
—obtusifolia Ag. c
—variegata Kut. c s
Ceramium californicum J Ag s
—codicola J Ag s
—rubrum Ag. c is v pacificum Col. s
Centroceras clavulatum Mont s
—eatonianum Farlow s
Ceratothamnion pikeanum s
Chætomorpha ærea Dillw. c s
—californica Collins s
—clavata c; v torta Farlow s
Chondria atropurpurea Harv. c
—nidifica Harv s
—tenuissima californica Collins s
Chondrus affinis Harv. c s
—canaliculatus Ag. c s
Chrysemenia obovata c =
—pseudodichotoma Farlow s
Cladophora ecklonii c
—hutchinsæ Farlow
—membranacea Ag. c
—stimpsoni s
Codium tomentosum Stack. c
—lindenbergi Ag s
—mucronatum californicum J Ag s
Coilodesma californica Ky s
Corallina officinalis Linn. c and
—squamata Ellis & Sol. c are chilensis Desem [s] v californica.
—crassa collins s
—gracilis Lamour s
Cordylecladia conferta Mont. c s
Colpomenia sinuosa Derb & Sol s
—tuberculata Saunders s
—expansa Saunders s
Cruoria purpurea Crn. c
Cryptonemia crenulata Ag. c
—dichotoma J. Ag. c
—obovata Ag. c s
Cystosiera osmundacea Ag s
Dasya helenæ Farlow c
—pacifica Harv s
—subsecunda Suhr. c s
Delessiria quercifolia Bory. c
Derbesia tenuissima Cronan s
Desmarestia ligulata Lmx. c s
—var. herbacea c
Dictyota kunthii Ag. c is binghamiæ J Ag. s
Dictyopteris bonarioides Farlow s
Ectocarpus crinitus Harv. c
—fasciculatus Ag. c
—granulosus Ag. c
—siliculosus Lyng. c
—virescens Thurst. c
—confervoides Le Jol s
v pygmæus Kg s
—mitchellæ s
Egregia menziesii Aresch. c
—lævigata Setchell s
Eisenia arborea Aresch. c s
Endocladia muricata J. Ag. c s
Entromorpha compressa Grev c
—intestinalis Lmx. c
—flexuosa s
Farlowia compressa J. Ag. c
Fucus fastigiatus Ag. c
—harveyanus Desem s
—vesiculosus Linn. c
Gelidium carneum Lmx. c is amansii Lam s
—australe s
—cartilagineum Grev. c s
—coulteri Harv. c s
—crinale Ag. c

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v spathulatum Hauck s
Gigartina canaliculata Harv. c s
—mammillosa Ag. c
—microphylla Harv. c
—var. horrida Farlow c is radula forma horrida Farlow
—pistillata Ag. c
—radula Ag. c s
forma horrida Farlow
forma microphylla s
—spinosa Harv. c s
—horrida Farlow s
—jardini J Ag s
—papillata formæ cristata et dissecta s
Gracillaria confervoides Grev. c
—multipartita Ag. c
Grateloupia cutleriæ Kutz. c
Gymnogongrus leptophyllus Ag. c
—linearis Ag. c
Halidrys osmundacea Harv. c is Cystosiera osmundacea.
Helminthocladia purpurascens J Ag s
Herposiphonia villum J Ag s
Hypnea divaricata Grev. c
—musciformis Lmx. c s
—adunca J Ag s
—crinalis Harv s
Iridæa minor Bory. c
—laminarioides Bory s
Jania rubens Lmx. c is corallina crassa.
Laminaria farlowii Setchell s
Laurencia cervicornis Harv. c
—pinnatifida Lmx. c s
—virgata J. Ag. c s
—paniculata s
—papillosa Grev
Leathesia tuberiformi . Gray c
Lithothamnion polyn um Aresch. c
Lithothrix aspergillu . Gray c is Amphiroa asperg
Lomentaria ovalis A ulteri Harv c
Lophosiphonia obsc
Macrocystis pyrifera c s
Melobesia amplexifr c
—lenormandi Aresc c
—membranacea Lm c
Microcladia californ w c
— coulteri Harv. c s
Nemalion andersonii Farlow s
Nemastoma californica Farlow s
Nereocystis gigantea Aresch s
Nereocystis lutkeana Post & Rupr. c
Nitrophyllum andersonii Ag. c s
—latissima Ag s
—ruprechtianum Ag. c s
—violaceum Ag. c s
Ophidocladus simpliciusculus s
Palmella crassa Ag. c
Pelvetia fastigiatus Deseve & Thua s
Phylletis fascia Knetz s
Petrospongium berkleyi Nally. c
Peys onnellia atropurpurea Crn. c
—dubyi Crn. c
—squamaria Dec. c
Phyllophora clevelandii Farlow c s
Phpllosphora menziesii Ag s
Pikea californica Harv. c s
—clevelandii Farlow c
Plocamium coccineum Lyng. c s
—var. californicum c
— —flexuosum c
— —sinuosum c
—violaceum Farlow c s
Polypes bushiæ Farlow s
Poganophora californica s
Polysiphonia baileyi Ag. c is Ptersiphonia baileyi.
—bipinnata Post & Rupr. c is Ptersiphonia bipinnata
—californica Harv. c is Pterosiphonia c.
—clevelandi Farlow c s
—collabeus s
—dictyurus J. Ag. c
—parasitica Grev. c
—var. dendroidea Ag. c s
—pinnata Ag. c s
—senticulosa Harv. c s
—urceolata Grev. c
—verticillata Harv. c s
—villum Ag. c is Herposiphonia villum.
Porphyra vulgaris Ag. c is perforata v
—naiadum Anderson s
—umbilicalis Annerson s
—perforata forma segregata s
Prionitis andersonii Eaton c is segregata
— [illegible] Farlow c

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—lanceolata Harv. c s
—decipiens s
—lyallii forma gladiata Setchell s
Pterodophora californica Rupr. s
Pterosiphon a baileyi J Ag s
—woodii Harv s
—clevelandii s
—parasitica dendroidea s
Pterygophora californica Rupr. c
Ptilota densa Ag. c s
—hypnoides Harv. c
Ralfsia verrucosa Aresch. c
Rhadomela larix Ag. c
—subfusca Ag. c
Rhabdonia coulteri Harv. c s
Rhodochiton floridulum Noy s
Rhodymenia corallina Grev, c s
—flabellifolia (Bory) Ag. c
—palmata Grev. c s
Riccardia montagnei Derb. & Sol., var. gigantea Farlow. c s
Sarcophyllis californica J Ag s
Sargassum agardhianum Farlow c s
—heterocystum Ag. c
—piluliferum Ag s
Schizymenia coccinea Harv. c is Sarcophyllis californica
Scinaria furcellata Bivona s
var. undulata Farlow c
Scytosiphon lomentarius Ag. c s
Spermothamnium roseum Aresch. c is snyderæ Farlow s
Sphacelaria cirrhosa Ag. c
—fusca Ag c
—tribuloides Mengh s
Spyridia filamentosa Harv. c s
Stennogramme interrupta Mont. c s
Sterrocolax decipiens Schmitz s
Tænioma clevelandii Farlow c
Taonia lennebackeræ Farlow s
Ulva lactuca Linn. c s
—californica Wille s
—enteromorpha Tepolis s
—fasciata Delile s
—latissima Ag. c
—linza Auct. c
Zonaria flava Ag. c
—tournefortii Lmx. c s

ABBREVIATIONS, SIGNS AND BIBLIOGRAPHY.

A = America
ac—academy
aes—agricultural experiment station
Ag—August
Am—American
Ap—April

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C—Daniel Cleveland
Ca—Alta, or Upper California

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e—Colorado desert, d

E-B—E et J M Bigelow

F—February

f—figure

Fr—
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fl—flower

fr—fruit

ft—feet

G—Asa Gray

Ge—Edward Lee Greene

h—Colorado desert, Riverside county

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hb—herbarium

He—A Arthur Heller: cat N A plants.

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J—journal

j—Baja or Lower California

Ja—January

Je—June

Jl—July

KBr—Katharine Brandegee

Kg—Albert Kellogg

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Mr—March

My—May

N—November

n—New Mexico, north, new

Na—National

O—October

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o—Oregon

Or— [W]

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Py—Charles Christopher Parry

q—Mohave desert, b

r—report

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—Zwei neue Cacteen. Gartenflora. 1882. 105-106. (2 f.).

S—September

s—vicinity of San Diego, Ca

Sm—

SALM-DYCK, JOS. de:
—Cacteæ in Horto Dyckensi Cultæ, anno 1849, secundum tribus et genera digestæ. 1850. (268 p.).
SCHILLER, EDUARD:
—Grundzuge der Cacteenkunde. 1886. (123 p.).
SCHLEIDEN, M. J.:
—Beitrage zur Anatomie der Cacteen. 1842. (10 col. pl.).
SCHUMANN, KARL:
Cactaceæ in Engler-Prqntl's Naturlichen Pflanzenfamilien. iii. (6 a) 156-205. 1894. (— f.).

sr—series

SURINGAR, W. F. R.:
—Melocacti novi ex insulis archipelagi Indici-Occidentalis Neerlandicis Curacao, Aruba et Bonaire. Acad. Reg. Neerl. Scient. Amstelod. x x. 183-195. D 1885.
—Neuere Erfahrungen Mehrere Cacteen. Nov. Act. Nat. Cur. xix. 117-124. pl. 15-16. 1839.
TOUMEY, JAMES W.:
—The Giant Cactus. Pop. Sci. Mo. li. 641-644. S 1897. (2 f.).

t—plate

Tr—

TRELEASE, WILLIAM:
—A cactus corner in the Missouri botanical garden. W. Am. Sci. vii. 187. Ag 1891. (1 pl.).

tr—transactions

VOCHTING HERMANN:
—Beitrage zur Morphologie und Anatomie der Rhipsalideen. Jahrb. f. m. Botanik. ix. 1873. (36 p. 4 pl.)

Vy—George Vasey

W—West Am Scientist

w—Washington, west, white

Wat—[bot Ca]

WATSON, SERENO:
—Biographical index to North American botany. Pt. 1. Polypetalæ. Mr 1878 (476 p.).

y—yellow

z—Arizona

ZUCCARINI, JOS. GERH.:
—Plantarum vel minus cognitarum, que in Horto botanico herbarioque regis monacensi servantur
Fasc. III. Cacteæ. 597-742. (5 pl.).

°—feet

℔—perennial

@—annual

£—ligneous or woody

′—inches

″—lines, 12 to an inch

¶—introduced or naturalized

– to

☞Omitted from page 61:—

SCHINUS MOLLE Linnaeus. The Peruvian, or Mexican, Pepper tree, one of the most graceful and popular of ornamental trees in California; with pendant, fern-like, foliage, and bearing clusters of beautiful rosy-red berries.

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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.

Omitted from page 46:

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

Omitted from page 54:

Krameria Parvifolia Bentham. Krameria Canescens Gray.—These small bushes contain tannin and may be found useful medicinal plants (fide Havard), and are not rare on the borders of the Colorado desert in Southern and Baja California, eastward to Texas, and into Mexico.

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.

ALOE VARIEGATA Linnaeus. An African plant of great beauty, producing spikes of brilliant coral red flowers. It is found in many old-fashioned gardens and receives its common name from the feathery mottling of the leaves.

MAGNOLIA GRANDIFLORA Linnaeus. A beautiful flowering evergreen tree.

CARAGUATA LINGULATA Lindl.

FURCRAEA BARILLETTI Jacobi.

ALOE BREVIFOLIA Mill.

ALOE AFRICANA Mill.

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